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<th>Session</th>
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<th>Presenting Author</th>
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<tr>
<td>MP1A-01</td>
<td>EVALUATION OF POTENTIAL PHARMACEUTICAL AGENTS FOR A DRUG ELUTING URETERIC STENT USING EX-VIVO INVESTIGATION INTO THE UROTHELIAL PERMEABILITY</td>
<td>Nicholas Williams, Chris Allender, Jenna Bowen, Marc Gumbleton, Cardiff, United Kingdom; Tim Harrah, Jamie Li, Boston, MA; Hrishi Joshi*; Cardiff, United Kingdom</td>
<td>Nicholas Williams, Chris Allender, Jenna Bowen, Marc Gumbleton, Cardiff, United Kingdom; Tim Harrah, Jamie Li, Boston, MA; Hrishi Joshi*; Cardiff, United Kingdom</td>
<td>Cardiff, United Kingdom; Boston, MA; Cardiff, United Kingdom</td>
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<td>MP1A-04</td>
<td>COMPARATIVE IN-VITRO STUDY OF THE EFFECTIVENESS OF NANosecond ELECTRICAL PULSE AND LASER LITHOTRIPTERS</td>
<td>Alexey Martov, Dimitry Ergakov*, Moscow, Russian Federation; Katsrin, Israel; Artem Borisik, Audrey Andronov, Moscow, Russian Federation; Vladimir Chernenko, Tomsk, Russian Federation</td>
<td>Alexey Martov, Dimitry Ergakov*, Moscow, Russian Federation; Katsrin, Israel; Artem Borisik, Audrey Andronov, Moscow, Russian Federation; Vladimir Chernenko, Tomsk, Russian Federation</td>
<td>Moscow, Russia; Katsrin, Israel; Moscow, Russia; Tomsk, Russia</td>
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<td>MP1A-06</td>
<td>URINE AQUAPORIN-1 AND PERILIPIN-2: CAN THESE MARKERS ASSIST IN THE EVALUATION OF SMALL RENAL MASSES?</td>
<td>Jonathan Mobley*, Jeremiah Morrissey, Sam Bhati, Joseph Song, Joel Vetter, Evan Kharasch, Robert Figenshau, St. Louis, MO</td>
<td>Jonathan Mobley*, Jeremiah Morrissey, Sam Bhati, Joseph Song, Joel Vetter, Evan Kharasch, Robert Figenshau</td>
<td>St. Louis, MO</td>
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<td>MP1A-07</td>
<td>INTRA AND EXTRA-RENAL AUTONOMIC NERVOUS SYSTEM REDEFINED</td>
<td>Achim Lusch*, Emon Heidari, Ryan Leary, Zhamshid Okhunov, Jamie Wikenheiser, Jaime Landman, Orange, CA</td>
<td>Achim Lusch*, Emon Heidari, Ryan Leary, Zhamshid Okhunov, Jamie Wikenheiser, Jaime Landman</td>
<td>Orange, CA</td>
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<td>MP1A-09</td>
<td>CAN REMOTE ISCHEMIC PRECONDITIONING CONFER PROTECTION AGAINST REPERFUSION INJURY FOLLOWING WARM ISCHEMIA IN A PORCINE SOLITARY-KIDNEY MODEL?</td>
<td>Jeffrey Galah*, Jodi Antonelli, Bedir Seladhatin, Yunbo Ma, Steve Faddegon, Payal Kapur, Jeffrey Cadeddu, Dallas, TX</td>
<td>Jeffrey Galah*, Jodi Antonelli, Bedir Seladhatin, Yunbo Ma, Steve Faddegon, Payal Kapur</td>
<td>Dallas, TX</td>
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<td>MP1A-11</td>
<td>MULTIPHOTON MICROSCOPIC CHARACTERIZATION OF RENAL CELL CARCINOMA</td>
<td>Sara Best*, E. Jason Abel, Matthew Houlihan, Kevin Eliceiri, Madison, WI</td>
<td>Sara Best*, E. Jason Abel, Matthew Houlihan, Kevin Eliceiri</td>
<td>Madison, WI</td>
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<td>MP1A-12</td>
<td>ADDITION OF SODIUM BICARBONATE TO IRRIGATION SOLUTION MAY ASSIST IN DISSOLUTION OF URIC ACID FRAGMENTS DURING URETEROSCOPY</td>
<td>Jessica E Paonessa*, Naem Bhojani, James C Williams, Jr., James E Lingeman, Indianapolis, IN</td>
<td>Jessica E Paonessa*, Naem Bhojani, James C Williams, Jr., James E Lingeman</td>
<td>Indianapolis, IN</td>
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MP1A-14 THE RECOVERY OF URETERAL PERISTALSIS AFTER TRANSIENT OBSTRUCTION IN A NOVEL MURINE MODEL
Claudia Janssen*, Wolfgang Jaeger, Igor Moskalev, Ben H. Chew, Dirk Lange, Vancouver, Canada

MP1A-15 RAMAN SPECTROSCOPIC COMPOSITION ANALYSIS OF URINARY CALCULI
Matthias Eder*, Elena Foditsch, Reinhold Zimmermann, Maurizio Musso, Guenther Redhammer, Paolo Sereni, Salzburg, Austria

MP1A-16 KIDNEY STONE PREVENTION: CAN OBESE PATIENTS FOLLOW A DIET?
Fabio Torricelli*, Shubha De, Ina Tien, Manoj Monga, Cleveland, OH

MP1A-17 HYDROXYPROLINE METABOLISM TO URINARY OXALATE AND GLYCOLATE EXCRETION IN NORMAL SUBJECTS
Dean Assimos*, Ross Holmes, John Knight, Birmingham, AL

MP1A-18 STONE DEPICTION WITH THE URO DYNAC-CT: STONES OF DIFFERENT COMPOSITIONS
Benjamin Meister*, Marie-Claire Rassweiler, Maurice-Stephan Michel, Manuel Ritter, Mannheim, Germany

MP1A-19 IN VITRO STONE DISINTEGRATION OF STANDARDIZED BON(N) STONES TO COMPARE THE DIODE LASER 1.318NM WITH THE HOLMIUM LASER 2.100NM AND ESTABLISHING AN EX VIVO ANIMAL MODEL FOR IN SITU DIODE LASER EVALUATION
Reinhold Zimmermann*, Markus Wallner, Salzburg, Austria, Rostnitha Siener, Bonn, Germany, Gunter Janetschek, Esra Foditsch, Salzburg, Austria

MP1A-20 THE TENSION TEST AND IN VITRO DEGRADATION OF POLYLACTIC ACID - GLYCOLIC ACID/POLYCAPROLACTONE

Tuesday, October 22, 2013
Moderated Poster Session MP1B 1:00 pm–3:00 pm

BASIC RESEARCH: UROLITHIASIS
Room Bayside A-C @ Sheraton New Orleans
Chair: Dean Assimos
Faculty: Mahesh Desai and Mantu Gupta

*Presenting author

MP1B-01 A URETEROSCOPIC LITHOTRIT: IN VITRO ASSESSMENT OF A NOVEL FLEXIBLE PROBE ULTRASONIC INTRACORPOREAL DEVICE
Jessica E Paonessa*, Naeem Bhojani, James A McAteer, James C Williams, Jr., James E Lingeman, Indianapolis, IN

MP1B-02 ACTIVITY LEVELS AND STONE DISEASE: A POPULATION BASED ANALYSIS USING THE NATIONAL HEALTH AND NUTRITION EXAMINATION DATABASE
Shubha De*, Jiangbo Li, Fabio Torricelli, Manoj Monga, Cleveland, OH

MP1B-03 THE VALUE OF REPEATING A TEST: METABOLIC PROFILES
Ranun Dasgupta*, Saskia Verhagen, Jeremy Cox, London, United Kingdom

MP1B-04 CHANGING TRENDS IN AMERICAN DIET AND THE RISING PREVALENCE OF KIDNEY STONES
Fabio Torricelli*, Shubha De, Xiaobo Liu, Manoj Monga, Cleveland, OH

MP1B-05 HOW MUCH FORCE TO DISLODGE A STONE FROM RANDALL’S PLAQUE?
INTRAOPERATIVE DISTRACTION FORCES
MP1B-06  UPPER CALYCEAL PERCUTANEOUS NEPHROLITHOTOMY (PCNL) UNDER SPINAL ANESTHESIA: A PROSPECTIVE STUDY
Shubha De, Robert Brown*, Carl Sarkissian, Manoj Monga, Cleveland, OH

MP1B-07  DEVELOPMENT OF A NOVEL ACCESS SHEATH THAT ALLOWS SIMULTANEOUS SHEATH PLACEMENT AND SAFETY WIRE ACCESS
Haresh Thummar*, R Ganatra, Rajkot, India

MP1B-08  DISSOLUTION KINETICS OF URIC ACID STONES IN RELATION TO URIC ACID SOLUTION CONCENTRATION. AN IN VITRO STUDY
Itay Sagy*, Bezalel Sivan, Petach Tiika, Israel, Ruth Frid, Ytzik Mastai, Ramat-Gan, Israel, Pinchas M. Livne, David Lifshitz, Petach Tiika, Israel

MP1B-09  EFFECT OF HYDROPHILIC EXTRACT OF ALHAGI MAURORUM ON ETHYLENE GLYCOL-INDUCED RENAL STONE IN MALE WISTAR RATS
Sadrollah Mehrabi*, Yasuj, Iran, Farhad Mehrabi, Shiraz, Iran

MP1B-10  COMPARISON OF THE IMPACT OF NANOSECOND ELECTROPULSE AND ELECTROHYDRAULIC LITHOTRIPTERS ON URINARY TRACT TISSUE
Alexander Gudkov, Dimitry Ergakov*, Tomsk, Russian Federation, Valery Diamant, Katsrin, Israel, Maxim Lazovsky, Tomsk, Russian Federation, Gennady Chepovetsky, Katsrin, Israel, Marat Lerner, Tomsk, Russian Federation

MP1B-11  STUDY OF THE DIFFERENCES BETWEEN NANOSECOND ELECTROPULSE AND ELECTROHYDRAULIC METHODS OF LITHOTRIPSY
Alexey Martov, Moscow, Russian Federation, Alexander Gudkov, Dimitry Ergakov*, Tomsk, Russian Federation, Valery Diamant, Gennady Chepovetsky, Katsrin, Israel, Marat Lerner, Tomsk, Russian Federation

MP1B-12  COMBINATION OF RIGID URETEROSCOPY WITH FLEXIBLE URETEROSCOPY DOES NOT HAVE ANY NEGATIVE IMPACT ON THE OUTCOMES
Erdal Alkan, Mirac Turan, Oguz Ozkanli, Egemen Arsoy, Mehmet Murad Basar, Yusuf Oguz Acar, Derya Balbay*, Istanbul, Turkey

MP1B-13  SIZE-MEASUREMENT OF RENAL STONES WITH THE URO DYNA-CT
Benjamin Meister*, Marie-Claire Rassuweiler, Christel Weiß, Maurice-Stephan Michel, Axel Haecher, Manuel Ritter, Mannheim, Germany

MP1B-14  IS LYMPHOCTOPENIA A NEW MARKER FOR PYONEPHROTIC OBSTRUCTED KIDNEYS (POK) SECONDARY TO URINARY STONE DISEASE?
Ahmed Ali*, Liam Farrell, Bhaskar Somani, Southampton, United Kingdom

MP1B-15  AN IN VITRO COMPARISON OF THE USE OF ABDOMINAL AND BONE WINDOWS ON COMPUTED TOMOGRAPHY MEASUREMENTS OF HOUNSFIELD UNITS AND SIZE OF STONES
Paul Erototzic*, Miles Walkden, Daron Smith, London, United Kingdom

MP1B-16  EFFECTIVENESS OF FLEXIBLE URETEROSCOPY FOR MULTIPLE UNILATERAL INTRARENAL STONES SMALLER THAN 2 CM
Erdal Alkan, Oguz Ozkanli, Egemen Arsoy, Mirac Turan, Mehmet Murad Basar, Yusuf Oguz Acar, Derya Balbay*, Istanbul, Turkey

MP1B-17  EXTERNAL VALIDATION OF AN INDIVIDUALIZED WEIGHT-BASED GOAL URINE VOLUME (WGUV) MODEL INTENDED TO IMPROVE EXPECTED CALIUM URINE CONCENTRATIONS
Jack Lambert*, Norfolk, VA, Nicole Miller, Nashville, TN, Justin Watson, Michael Fabriczio, Mark Sawyer, Norfolk, VA

MP1B-18  THE ANIMAL MODEL IN STONE DISEASE: A TRIBUTE
Michael Moran*, Tucson, AZ

MP1B-19  EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY (ESWL) FOR RENAL AND URETERAL STONES IN SOETOMO HOSPITAL FROM 2011 TO 2012
Muhammad Rida, M Ayodhia Soebadi*, Doddy M Soebadi, Surabaya, Indonesia

MP1B-20  FACILITY SITUATION OF STONE TREATMENT 2013 IN GERMANY: RESULTS FROM A NATIONWIDE HOSPITAL SURVEY
Wolfgang Brummeisl*, Christian Chausssy, Regensburg, Germany, Jens Rassweiler, Heilbronn, Germany, Thomas Knoll, Sindelfingen, Germany, Andreas Gross, Hamburg, Germany, Kai Koehrmann, Mannheim, Germany, Wolf Wieland, Hans-Martin Fritsche, Regensburg, Germany

MP1B-21  STONE RADIODENSITY ON NON-CONTRAST COMPUTED TOMOGRAPHY IS A PARAMETER FOR PREDICTING OUTCOME OF EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY FOR RENAL STONE
Heshmatollah Sofi Majidpour*, Hooshmand Sofi Majidpour, Sanandaj, Iran

MP1B-22  PROSPECTIVE COMPARISON BETWEEN TAMSULOSIN AND RENALIT COMBI COLIC AS A TREATMENT OF RENO-URETERAL CALCULI EXPULSION AFTER EXTRA-CORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL)
Alessio Zordani, Marco Rosa*, Alessandro Mofferdin, Maria Chiara Sighinolfi, Eugenio Martorana, Salvatore Micali, Giampaulo Bianchi, Modena, Italy

MP1B-23  RADIATION EXPOSURE IS 2.6 FOLD HIGHER AT ENDOCOPIC LITHOTRIPSY VERSUS SWL
Yoram I. Siegel, Shmuel Roizman*, Sigalit Haruz-Waschitz, Zerifin, Israel, Avi Ben-Shlomo, yAvne, Israel, David Yudelevich,
MP1B-24 AGE PREDICTS SUCCESS OF ELECTROMAGNETIC SHOCK WAVE LITHOTRIPSY FOR URETERAL STONES
Sameer Deshmukh*, Brian Eisner, Boston, MA

MP1B-25 EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR RENAL CALCULI: A REVIEW OF 4041 CONSECUTIVE CASES DONE OVER 20 YEARS
Jitendra Jagtap*, Raguram Ganesamoni, Jigish Vyas, Shashikant Mishra, Arvind Campule, Ravindra Sabnis, Mahesh Desai, Nadiad, India

Tuesday, October 22, 2013
Moderated Poster Session MP2A
3:00 pm–5:00 pm
BASIC RESEARCH: LOWER TRACT PHYSIOLOGY
Room Nottoway @ Sheraton New Orleans
Chair: Glenn Preminger
Faculty: Jean de la Rosette and Isaac Y. Kim

*Presenting author

MP2A-01 ALDH1 EXPRESSION AS TUMOR STEM CELLS MARKER AND ITS RELATIONSHIP TO CLINICOPATHOLOGIC PARAMETERS AND PROGNOSIS IN INVASIVE BLADDER CANCER
Hai Ming Wang, Hai Tao Zhang, Ning Xu*, Changchun, China, People’s Republic of

MP2A-02 THE CLINICAL SIGNIFICANCE OF SERUM AMYLOID PROTEIN A IN PROSTATE CANCER PATIENTS
Zhong Shuai Cao, Hong Li Shan*, Changchun, China, People’s Republic of

MP2A-03 ALDH1 EXPRESSION AS TUMOR STEM CELLS MARKER AND CLINICAL SIGNIFICANCE IN NONINVASIVE BLADDER CANCER
Hai Ming Wang, Ming Ming Shao, Ning Xu*, Changchun, China, People’s Republic of

MP2A-04 EFFECTIVENESS OF TAMSULOSIN IN PREVENTION OF POST-OPERATIVE URINARY RETENTION: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED STUDY
Ali Hamidi Madani*, Hamidreza Baghani Aval, Cholamreza Mokhtari, Hamidreza Nasseh, Samaneh Esmi, Rasht, Iran, Maryam Shabka, Tehran, Iran, Reza Shahrokh, Dounavand, Seyed Mohammad Seyed Sahad, Rasht, Iran

MP2A-05 NON OBSTRUCTIVE URINARY TRACT DILATATION: LONG TERM FOLLOW UP OF A SINGLE CASE
Aditi Kumar*, Aniruddha Chakravarti, Anthony D’Sa, Birmingham, United Kingdom

MP2A-06 URINE CONCENTRATIONS OF AQUAPORIN-1 AND PERILIPIN-2 NORMALIZE IN PATIENTS WITH RENAL CELL CARCINOMA FOLLOWING EXCISION OF TUMORS
Jonathan Mobley*, Jeremiah Morrissey, Sam Bhayani, Joseph Song, Joel Vetter, Evan Kharasch, Robert Figenshau, St. Louis, MO

MP2A-07 THE BIOCOMPATIBILITY OF POLY(LACTIC ACID) - GLYCOLIC ACID)/POLYCAPROLACTONE BIODEGRADABLE NANOSTRUCTURE URETERAL STENT FABRICATED BY ELECTROSPINNING
Xiao Qing Wang, Hong Li Shan, Yu Chuan Hou, Jing Hai Hu, Yuan Yuan Hao, Chun Xi Wang*, Changchun, China, People’s Republic of

MP2A-08 ASSOCIATION OF HYPERTENSION WITH SYMPTOMS OF BENIGN PROSTATIC HYPERPLASIA
Xin Jiang, Shi Ying Li*, Jilin, China, People’s Republic of

MP2A-09 IMPACT OF RHO-KINASE INHIBITOR HYDROXYFUSIDIL IN PROTAMINE SULPHATE INDUCED CYSTITIS IN RATS
Yigit Akin*, Aliseydi Bozkurt, Erzincan, Turkey, Huseyin Serkan Errol, Mesut Halici, Fikret Celebi, Kubra Asena Kapakin Terim, Erzurum, Turkey, Hakan Gulmez, Ankara, Turkey, Mutlu Ates, Afyonkarahisar, Turkey, Taha Abdulkadir Coburn, Baris Nuhoglu, Erzincan, Turkey

MP2A-10 THE RECLASSIFICATION OF PREOPERATIVE HIGH RISK PROSTATE CANCER PATIENTS AFTER ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY
Vladimir Mouraviev*, Matt Kardjian, Po Lam, Angelo Rosalio, Alan Saltzower, Harvey Sauer, Syracuse, NY, Mattye Tsvian, Durham, NC, Christopher Pieczonka, Jeffrey Sekula, Ilija Alekseic, Michael Albala, Syracuse, NY

MP2A-11 ANASTOMOTIC STRICTURES IN A LARGE COHORT OF 2800 PATIENTS AFTER LAPAROSCOPIC AND ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY
Marcel Hruza*, Ali Goezen, Heilbronn, Germany, Justo Lorenzo Bermeo, Heidelberg, Germany, Michael Schulze, Jan Klein, Jens Russweiler, Heilbronn, Germany

MP2A-12 ROBOT ASSISTED RADICAL PROSTATECTOMY (RALP): "TRIFECTA" RESULTS IN MORE THAN FIVE YEARS OF ACTIVITY
Gianpaolo Bianchi, Modena, Italy, Ahmed Ghaith*, Tanta, Egypt, Cosimo De Carne, Francesco Fidanza, Stefano Pulitati, Eugenio Martorana, Salvatore Micali, Modena, Italy

MP2A-13 PERIOPERATIVE OUTCOMES OF OPEN RADICAL PROSTATECTOMY VERSUS ROBOT ASSISTED LAPAROSCOPIC PROSTATECTOMY IN FILIPINO MEN: EXPERIENCE IN A SINGLE INSTITUTION
Joel Estanislao*, Jose Benito Abraham, Josefino Castillo, Michael Chua, Quezon, Philippines
MP2A-14 UROLOGIC LAPAROSCOPE SURGERIES IN ELDERLY: ANALYSIS OF PRE-OPERATIVE RISK FACTORS AND POSTOPERATIVE COMPLICATIONS
Sompol Permpongkosol*, Bangkok, Thailand

MP2A-15 POSITIVE SURGICAL MARGINS LOCATION IN ROBOTIC PROSTATECTOMY: ARE TRENDS CHANGING IN THE PT3 POPULATION?

MP2A-16 REMOVAL OF PELVIC SCHWANNOMA USING A HAND-ASSISTED TRANSPERITONEOSCOPIC APPROACH: DESCRIPTION OF AN EFFECTIVE NOVEL TECHNIQUE
Thomas Y. Hsueh*, Allen W. Chiu, Taipei, Taiwan

MP2A-17 PREDICTING MIDDLE-TERM SURVIVAL IN INTERMEDIATE RISK PROSTATE CANCER IN PATIENTS SUBMITTED TO ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP) AND LAPAROSCOPIC RADICAL PROSTATECTOMY (LRP) WITH AND WITHOUT
Guilherme de Almeida Prado Costa*, Ana Maria Autran-Gomez, Francois Audenet, Rafael Sanchez-Salas, Dominique Prapapontich, Eric Barret, Francois Razet, Marc Galliano, Annick Mombert, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP2A-18 STAGE MIGRATION OF PROSTATE CANCER FOLLOWING A NATIONAL DISASTER – ANALYSIS OF THE SURVEILLANCE EPIDEMIOLOGY END RESULTS DATABASE
Sree Harsha Mandava*, Greg Mitchell, Larry Webber, Oliver Sartor, Raju Thomas, Benjamin Lee, New Orleans, LA

MP2A-19 LONG TERM EVALUATION OF ONCOLOGIC AND FUNCTIONAL OUTCOMES AFTER LAPAROSCOPIC OPEN-ASSISTED RADICAL CYSTECTOMY: A MATCHED PAIR ANALYSIS

MP2A-20 PERIOPERATIVE, PATHOLOGIC AND LONG TERM ONCOLOGIC RESULTS OF LAPAROSCOPIC RADICAL CYSTECTOMY IN EIGHT EXCELLENCE CENTERS ACROSS EUROPE: A MULTICENTER PROSPECTIVE EUROPEAN COHORT
Simone Albisinni*, Renaud Bollens, Bruxelles, Belgium, Jens Hassweiler, Dogu Teher, Heilbronn, Germany, Jens-Uwe Stolzenburg, Leipzig, Germany, Piotr Chlota, Krakow, Poland, Franco Gabardo, Milan, Belgium, Claude Abbou, Alexandre De la taille, Creteil, France, Peter Rimington, Eastbourne, United Kingdom, Roland Van Velthoven, Bruxelles, Belgium

MP2A-21 ROBOTIC-ASSISTED LAPAROSCOPIC REPAIR OF COMPLEX VESICOVAGINAL FISTULAS AT A SINGLE ACADEMIC INSTITUTION
Thomas Tieu*, Sohail Siddique, Alex Gorbonos, Springfield, IL

MP2A-22 PURE-LAPAROSCOPIC ORTHOTOPIC ILEAL NEobladder AND ILEal CONDUIT DURING RADICAL CYSTECTOMY
Changjun Yin*, Pengfei Shao, Chao Qin, Nanjing, China, People’s Republic of

MP2A-23 LAPAROSCOPIC EXTENDED PELVIC LYMPH NODE DISSECTION DURING RADICAL CYSTECTOMY
Pengfei Shao*, Changjun Yin, Chao Qin, Nanjing, China, People’s Republic of

MP2A-24 COMPARISON OF OPEN, LAPAROSCOPIC AND ROBOTIC-ASSISTED RADICAL CYSTECTOMY: A SINGLE-TEAM EXPERIENCE
Yang Cheng-Kuang*, Ou Yen-Chuan, Taichung, Taiwan

MP2A-25 SINGLE SURGEON EXPERIENCE OF ROBOTIC VERSUS OPEN RADICAL CYSTECTOMY: COMPARISON OF QUALITY OF LYMPH NODE DISSECTION AND PERIOPERATIVE COMPLICATIONS
Hoon Ah Jang*, Sung Gu Kang, Seok Ho Kang, Jun Cho, Jae Hyun Bae, Seoul, Korea, Republic of
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<td>COMPARISON OF RENAL PARENCHYMAL CLOSING PRESSURE DURING OPEN, LAPAROSCOPIC AND ROBOTIC-ASSISTED RENAL RECONSTRUCTION</td>
<td>Ramtin Khanipour*, Michael del Junco, Achim Lusch, Renai Yoon, Philip Bucur, Zhamshid Okhunov, Jaime Landman, Orange, CA</td>
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<td>MP2B-06</td>
<td>MINIMALLY-INVASIVE ESTABLISHMENT OF UROLOGIC CANCER XENOGRAFTS: A HIGH-PRECISION APPROACH BY ULTRASOUND-GUIDANCE</td>
<td>Wolfgang Jaeger*, Igor Moskalev, Claudia Janssen, Tetsutaro Hayashi, Dirk Lange, Peter Black, Vancouver, Canada</td>
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<td>MP2B-07</td>
<td>EARLY UNCLAMPING IN LAPAROSCOPIC PARTIAL NEPHRECTOMY IMPROVES EARLY ESTIMATED GLOMERULAR FILTRATION REDUCTION RATE</td>
<td>Susumu Akihama*, Kazuaki Numakura, Hiroshi Tsuruta, Mitsuru Saito, Takamitsu Inoue, Akita, Japan</td>
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<td>MP2B-08</td>
<td>COMPARISON OF TISSUE DAMAGE AFTER USE OF BIPOLAR SEALING DEVICES IN AN ANIMAL MODEL</td>
<td>Toshiro Suzuki*, Nagoya-shi, Japan, Teruyuki Ogawa, Matsumoto-shi, Japan, Ryohei Hattori, Toyonari Tsuchiya, Akita, Japan</td>
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<td>MP2B-09</td>
<td>COMPARISON OF THE ITRAINER AND STANDARD LAPAROSCOPIC TRAINER FOR BASIC LAPAROSCOPIC TASKS</td>
<td>Renai Yoon*, Adam Kaplan, Philip Bucur, Martin Hofmann, Michael del Junco, Reza Alipanah, Orange, CA, Elspeth M. McDougall, Vancouver, Canada, Jaime Landman, Orange, CA</td>
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<td>LAPAROSCOPIC ELECTRODE PLACEMENT ON THE PUDEMLURAL NERVE IN PIGS</td>
<td>Esra Foditsch*, Salzburg, Austria, Bogdan Hoinoiu, Cosmin Gimeneau, Timisoara, Romania, Gunter Janetschek, Reinhold Zimmermann, Salzburg, Austria</td>
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<td>MP2B-11</td>
<td>LONG-TERM FOLLOW UP OF ROBOTIC PYELOPLASTY IN THE PEDIATRIC POPULATION</td>
<td>Mathew Oommen, Janet Colli, Aaron Boonjindasup*, Christopher Keel, Philip Dorsey, Raju Thomas, New Orleans, LA</td>
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<td>MP2B-12</td>
<td>ARE LAPAROSCOPIC ADRANEALCTOMIES FEASIBLE FOR LARGER ADRENAL MASSES?</td>
<td>Aditi Kumar*, Janica Chavda, Tanner El-Husseiny, Nwunwoltechandna, Birmingham, United Kingdom, Sashi Kommu, London, United Kingdom, Aniruddha Chakravarti, birmingham, United Kingdom</td>
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<td>HYBRID ROBOTIC TRANSRECTAL NATURAL ORIFICE TRANSLUMINAL ENDOSCOPIC SURGERY (NOTES) PARTIAL NEPHRECTOMY IN THE PORCINE MODEL</td>
<td>Hossein Mirhakiglar*, Michael Liss, Ryan Kopp, Jason Woo, La Jolla, CA, James Masterson, San Diego, CA, Ramzi Jabaji, Herrin Palazzi, Hak Lee, La Jolla, CA, Sean Stroup, San Diego, CA, Christopher Kane, Ilkha Darweesh, La Jolla, CA</td>
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<td>MP2B-14</td>
<td>INITIAL EXPERIENCE WITH A NOVEL FASCIAL CLOSURE DEVICE: OPTION 3 TM</td>
<td>Ashish Parekh*, Kirk Tamaddon, Apurba Pathak, Los Angeles, CA</td>
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<td>MP2B-15</td>
<td>INTRACORPOREAL RENAL SHRINKING WITH HYPERTONIC SALINE SOLUTION FOR SINGLE-SITE-NEPHRECTOMY: ASSESSMENT OF FEASIBILITY AND IMPACT ON THE INCISION FOR ORGAN REMOVAL</td>
<td>Homar Elias*, Hugo Quevedo, Cassio Andreoni, Sao Paulo, Brazil</td>
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<td>MP2B-16</td>
<td>TRANSCOLONIC EXTRACTION OF THE KIDNEY FOLLOWING LAPAROSCOPIC NEPHRECTOMY: A SURVIVAL STUDY IN PIGS TO MINIMIZE FECAL CONTAMINATION</td>
<td>Richard Knight*, San Antonio, TX, Kyle Weld, Fort Sam Houston, TX</td>
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<td>MP2B-17</td>
<td>DIFFERENCES IN PERFORMANCE ACROSS DIFFERENT SURGICAL SUB-SPECIALTIES, UTILIZING LAPAROSCOPIC AND ROBOTIC SIMULATORS</td>
<td>Ahmed Ghazi*, Jorge Carrillo, Anees Fazili, Emelian Scosyrev, Jean Joseph, Rochester, NY</td>
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<td>MP2B-18</td>
<td>LAPAROSCOPIC PARTIAL NEPHRECTOMY WITHOUT ISCHEMIA USING A NEW 1,318 NM DIODE LASER IN A PORCINE SURVIVAL MODEL: FEASIBILITY AND HISTOLOGICAL RESULTS AFTER 4 WEEKS</td>
<td>Reinhold Zimmermann*, Lukas Lusuardi, Martina Hager, Salzburg, Austria, Bogdan Hoinoiu, Timisoara, Romania, Esra Foditsch, Gunter Janetschek, Salzburg, Austria</td>
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<td>MP2B-19</td>
<td>A CLINICAL COMPARISON OF A NOVEL COMMERCIAL SINGLE PORT AND A HOMEMADE SINGLE PORT IN SINGLE PORT ENDOSCOPIC TOTAL EXTRAPERITONEAL REPAIR OF GROIN HERNIAS</td>
<td>Reinoth Zimmermann*, New Taipei City, Taiwan</td>
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<td>MP2B-20</td>
<td>DOES PLAYING VIDEO GAMES IMPROVE YOUR LAPAROSCOPIC SKILLS? RESULTS FROM A SYSTEMATIC REVIEW OF LITERATURE</td>
<td>Hiro Ishii*, Southampton, United Kingdom, Chandra Shekhar Biyani, Yorkshire, United Kingdom, Jon Dyer, Bhaskar Somani, Southampton, United Kingdom</td>
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MP2B-21 COMPARATIVE OUTCOMES OF OPEN VERSUS LAPAROSCOPIC VERSUS ROBOTIC PYELOPLASTY FOR URETEROPELVIC JUNCTION OBSTRUCTION
Ugur Boylu*, Cem Basatrac, Gurven Turan, Fikret Fatih Onol, Eyup Gumus, Istanbul, Turkey

MP2B-22 IS LAPAROSCOPIC RENAL SURGERY SAFE IN A DISTRICT GENERAL HOSPITAL?
Palaniappa Shanmugaraju*, Tsong Kwong, Croydon, United Kingdom

MP2B-23 MINIMALLY INVASIVE EXTIRPATIVE SURGERY FOR UPPER TRACT UROTHELIAL CARCINOMA: 10 YEAR SINGLE-INSTITUTION EXPERIENCE OF LAPAROSCOPIC AND ROBOT-ASSISTED NEPHROURETERECTOMY
Khushabu Kasabwala*, Andrew Tracey, Lisa Wolkin, Jennifer Yates, Ravi Munver, Hackensack, NJ

MP2B-24 IMPROVING POSTOPERATIVE PAIN FOLLOWING ROBOTIC-ASSISTED AND LAPAROSCOPIC UROLOGIC SURGERIES: A COMPARISON OF LIPOSOME BUPIVACAINE TO ROPIVACAINE DELIVERED BY THE ON-Q PAIN RELIEF SYSTEM
Paul W. Walker*, Michael A. White, Edwin E. Morales, San Antonio, TX, Uzomakata O. Navoge, Fort Sam Houston, TX, William J. Harmon, San Antonio, TX

MP2B-25 OFF-CLAMP ROBOTIC PARTIAL NEPHRECTOMY OUTCOMES
AbdulRaouf Lamoshi, Mohamad Salkini*, Morgantown, WV

Wednesday, October 23, 2013
Moderated Poster Session MP01 2:30 pm–4:15 pm
ROBOTICS/LAPAROSCOPY: UPPER TRACT I
Room Rhythms 1 @ Sheraton New Orleans
Chair: Gunter Janetschek
Faculty: Matthew Gettman and Ashok Hemal

*Presenting author

MP01-01 IS THE ANATOMIC LOCATION OF RENAL MASS THE CONTRIBUTING FACTOR FOR POST PARTIAL NEPHRECTOMY RENAL FUNCTIONAL CHANGE?
Kang Sup Kim*, Yong Sun Choi, Yong Hyun Park, Seoul, Korea, Republic of, Yong-June Kim, cheongju, Korea, Republic of, Seok Ho Kang, Seoul, Korea, Republic of, Seok-Soo Byun, Seongnam, Korea, Republic of, Sung-Hoo Hong, Seoul, Korea, Republic of

MP01-02 INTERMEDIATE TERM ONCOLOGIC OUTCOMES OF RENAL CRYOABLATION: AN INTERNATIONAL MULTI-INSTITUTIONAL ANALYSIS
Achim Lusch*, Philip Bucur, Zhamshid Okhunov, Orange, CA, Ilhaar Derwesh, Michael A Liss, San Diego, CA, Louis R Kavoussi, New Hyde Park, NY, M Pillar Laguna, Jean J De La Rosette, Amsterdam, Netherlands, Matey Tsivian, Thomas J Polascik, Durham, NC, Christoph Klingler, Tobias Klutte, Vienna, Austria, Jaime Landman, Orange, CA

MP01-03 EARLY EXPERIENCE WITH ROBOTIC ANATROPHIC NEPHROLITHOTOMY FOR MANAGEMENT OF STAGHORN CALCULI
Sherita King*, Zachary Klaassen, Rabii Madi, William Shingleton, Augusta, GA

MP01-04 RENAL FUNCTION OUTCOMES FOLLOWING SELECTIVE ANGIOEMBOLIZATION FOR IATROGENIC VASCULAR LESIONS AFTER PARTIAL NEPHRECTOMY
Jeffrey Gahan, Mansi Gaitonde, Monic Morgan*, Jeffrey Cadeddu, Clayton Trimmer, Dallas, TX

MP01-05 A MODIFIED SUTURE TECHNIQUE USING A BARBED SUTURE IN RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY – A SINGLE SURGEON EXPERIENCE OF 150 CASES
Christian Wülfing*, Niclas Flechtenmacher, Serkan Filiz, Johannes Göckschu, David Marghawal, Hamburg, Germany

MP01-06 USE OF INDOCYANINE GREEN DYE WITH NEAR-INFRARED LIGHT FOR VASCULAR IDENTIFICATION AND CLAMPING DURING MINIMALLY INVASIVE PARTIAL NEPHRECTOMY: CASE-CONTROL STUDY
Luca Lunelli*, Eric Barret, Rafael Sanchez-Salas, Francois Rouzet, Youness Ahallal, Petr Macek, Dominique Pragotnich, Marc Gallano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP01-07 HYBRID TRANSVAGINAL NEPHRECTOMY: THREE CENTERS' EXPANDING EXPERIENCE
Ioannis Georgiopoulos*, Jason Kyriazis, Panagiotis Kallidonis, Stavros Kontogiannis, Patras, Greece, Jens-Uwe Stolzenburg, Leipzig, Germany, Christian Schwentner, Tuebingen, Germany, Evangelos Liatsikos, Patras, Greece

MP01-08 856 ROBOTIC, LAPAROSCOPIC AND OPEN PARTIAL NEPHRECTOMIES FOR T1A RENAL MASSES: COMPARISON OF SURGICAL OUTCOMES AT A SINGLE INSTITUTION
Humberto Laydner*, Ahmad Kassab, Ali Khalifeh, Riccardo Autorino, Robert Stein, Amr Fergany, Jilad Kaouk, Cleveland, OH
MP01-09 ROBOT-ASSISTED PARTIAL NEPHRECTOMY IN 2500+ CONSECUTIVE CASES: A FIVE YEAR MULTI-INSTITUTIONAL EXPERIENCE FROM THE ROBOT-ASSISTED PARTIAL NEPHRECTOMY INTEGRATED DATABASE (RAPID) STUDY GROUP

Pengbo Jiang*, RAPID (Robot-Assisted Partial Nephrectomy Integrated Database Study Group), Hackensack, NJ

MP01-10 LAPAROSCOPIC CRYOABLATION FOR CLINICAL STAGE T1 RENAL MASSES: LONG-TERM ONCOLOGICAL AND FUNCTIONAL OUTCOMES AT THE MEDICAL COLLEGE OF WISCONSIN

Scott Johnson*, Khanh Pham, Milwaukee, WI, Frank Begun, Columbus, OH, Peter Langenstroer, Milwaukee, WI

MP01-11 DOES RENAL ARTERY AND VEIN CLAMPING IMPAIR SHORT OR LONG TERM RENAL FUNCTION AS COMPARED TO ARTERY ONLY CLAMPING? A NON-RANDOMIZED COMPARATIVE STUDY

Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

MP01-12 RENAL CELL CARCINOMA RECURRENCE AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY


MP01-13 "MINI LAPAROSCOPIC" VERSUS "ROBOTIC ASSISTED LAPAROSCOPIC SINGLE SITE" PYELOPLASTY: PERIOPERATIVE AND COSMETIC RESULTS

Cristian Fiori, Riccardo Bertolo, Matteo Manfredi, Fabrizio Mele, Giovanni Cattaneo, Diletta Garrou, Daniele Amparore, Roberta Aimar, Enrico Checucci, Francesco Porpiglia*, Orbassano Torino, Italy

MP01-14 COMPARISON OF TRADITIONAL AND MICRO-LAPAROSCOPIC PYELOPLASTY: A SINGLE INSTITUTION EXPERIENCE

Sapan Ambani*, J. Stuart Wolf Jr., Ann Arbor, MI

MP01-15 TRANSPERITONEAL PYELOPLASTY: MICRO-LAPAROSCOPIC VERSUS CONVENTIONAL LAPAROSCOPY

Aaron Benson*, Trisha Juliano, Nashville, TN, Davis Viprakasit, Chapel Hill, NC, Ryan Pickens, S. Duke Herrell, Nashville, TN

MP01-16 SALVAGE ROBOTIC PARTIAL NEPHRECTOMY: A Viable Approach for Management of Local Tumor Recurrence Following Failed Nephron Sparing Surgery

Zachary Klaassen*, Junjian Huang, Sherida A. King, Qiang Li, W. Bruce Shingleton, Kelvin A. Moses, Martha K. Terris, Rabii Madi, Augusta, GA

MP01-17 MINIMALLY INVASIVE RENAL SURGERY IS ASSOCIATED WITH DECREASED HOSPITAL CHARGE

Mark Ball*, Hiten Patel, Jeffrey Mullins, Brian Matlaga, Mohamad Allaf, Baltimore, MD

MP01-18 EARLY UNCLAMPING SURGICAL TECHNIQUE FOR ROBOT-ASSISTED PARTIAL NEPHRECTOMY: A MULTICENTER PROSPECTIVE EXPERIENCE

Andrew Wagner, Boston, MA, AliReza Moinzadeh, Burlington, MA, Peter Chang, Andrew Percy, Boston, MA, Diana Mehdiritz, Terrance Creighton, Buffalo, NY, Christopher Levis, Burlington, MA, Thomas Schwaab*, Buffalo, NY

MP01-19 LAPAROSCOPIC AND ROBOTIC PARTIAL NEPHRECTOMY: COST ANALYSIS OF PERIOPERATIVE AND POST-OPERATIVE OUTCOMES AT A SINGLE INSTITUTION

Aaron Boonjingdassu*, Sree Mandava, Benjamin Woodson, Raju Thomas, Benjamin Lee, New Orleans, LA

MP01-20 IS CYSTATIN C USEFUL AS A BIOMARKER FOR ASSESSING AND STRATIFYING RENAL INJURY AFTER WARM ISCHEMIA FOLLOWING ROBOTIC PARTIAL NEPHRECTOMY

Ben Woodson*, Liang Wang, Sree Mandava, Benjamin Lee, New Orleans, LA

MP01-21 LAPAROSCOPIC PARTIAL NEPHRECTOMY VERSUS ROBOT-ASSISTED PARTIAL NEPHRECTOMY FOR RENAL CELL CARCINOMA: A MULTICENTER ANALYSIS OF FUNCTIONAL OUTCOMES

Kang Sup Kim*, Yong Sun Choi, Yong Hyun Park, Seoul, Korea, Republic of, Yong-June Kim, Cheongju, Korea, Republic of, Seok Ho Kang, Seoul, Korea, Republic of, Seok-Soo Byun, Seongnam, Korea, Republic of, Sung-Hoo Hong, Seoul, Korea, Republic of, Seung Hyun Jeon, ,

MP01-22 MULTICENTER COMPARISON OF PERIOPERATIVE TRENDS FOR ROBOTIC AND LAPAROSCOPIC PARTIAL NEPHRECTOMY

Michael Liss*, Kerrin Palazzi, La Jolla, CA, James Masterson, San Diego, CA, Reza Mehrzad, Memphis, TN, Sean Stroup, San Diego, CA, Ramzi Jabaji, Ryan Kopp, Hossein Mirhegalar, Hak Lee, Christopher Kane, La Jolla, CA, James L’Eesperance, San Diego, CA, Ithaar Derweesh, La Jolla, CA

MP01-23 NATIONAL TRENDS IN FOLLOW-UP ANATOMIC AND FUNCTIONAL IMAGING AFTER PYELOPLASTY: IS SUCCESS OVERESTIMATED?

Ryan Hsi*, Sarah Holt, John Gore, Jonathan Harper, Seattle, WA

MP01-24 UPPER QUADRANT PORT PLACEMENT FOR ROBOTIC-ASSISTED RENAL SURGERY: IMPLEMENTATION OF THE FLOATING ARM AND THE XL PROTOTYPE

Samer Totonchi*, Robert Elgin, Michael Monahan, Farmington Hills, MI, William Johnston III, Novi, MI

MP01-25 COMPARING RENAL FUNCTION AFTER OPEN AND ROBOTIC PARTIAL NEPHRECTOMY

Clinton Bahler*, Jason Sea, Rudy Bouvens, Jagan Kansal, Christian Tabib, Chandru Sundaram, Indianapolis, IN
MP02-01 PRELIMINARY STRATIFICATION OF EXPERT VS NOVICE LAPAROSCOPISTS USING THE BASIC LAPAROSCOPIC UROLOGIC SURGERY (BLUS) CURRICULUM
Sree Harsha Mandava*, Benjamin Woodson, Philip Dorsey, Raju Thomas, Benjamin Lee, New Orleans, LA

MP02-02 CITATION ANALYSIS: DOES INSTITUTIONAL H-INDEX CORRELATE WITH A PROGRAM'S RANK IN UROLOGY?
Michael Johnson*, Jonathan Mobley, Sam Bhayani, Joel Vetter, Brian Berney, Saint Louis, MO

MP02-03 CONTENT AND FACE VALIDATION OF A CURRICULUM FOR ULTRASONIC PROPULSION OF RENAL CALCULI IN A HUMAN PHANTOM
Ryan Hsi*, Barbrina Dunmire, Bryan Cunitz, Xuemei He, Mathew Sorensen, Jonathan Harper, Michael Bailey, Thomas Lendvay, Seattle, WA

MP02-04 PERCEPTION OF UROLOGISTS PERFORMING LIVE CASE DEMONSTRATION (LCD) - TO BE OR NOT TO BE?
Simpa Salami*, Sammy Elsamra, Justin Friedlander, Arvin George, Brian Dutty, Zeph Okeke, Arthur Smith, New Hyde Park, NY

MP02-05 UTILIZATION OF LEARNING RESOURCES AMONG UROLOGY RESIDENCY APPLICANTS
Kelly A. Healy*, Sanjay S. Kasturi, Demetrius H. Bagley, Philadelphia, PA

MP02-06 EXPERIENCE IN 3D LAPAROSCOPIC NEPHRECTOMY IN PORCINE MODEL
Alberto Jorge Camacho Castro*, México, Distrito Federal, Mexico, Victor Osorno, Mauricio Cantellano, Carlos Martinez, Gustavo Morales, Carlos Pacheco, Mexico, Distrito Federal, Mexico

MP02-07 EVALUATION OF THE LEARNING CURVE FOR THE AMS GREENLIGHT™ SIM AND DEVELOPMENT OF A VIRTUAL REALITY TRAINING CURRICULUM FOR GREEN LIGHT LASER PROSTATECTOMY
Abdullatif Aydina*, Gordon Muir, Mohammed Shamim Khan, Prokar Dasgupta, Kamran Ahmed, London, United Kingdom

MP02-08 CAN AT-HOME TRAINING RIVAL IN-LAB TRAINING IN THE ACQUISITION OF LAPAROSCOPIC SKILLS?
Ali Balsousn*, Michael Michael, Saied Froghi, Kamran Ahmed, Prokar Dasgupta, London, United Kingdom

MP02-09 A DA VINCI S TO SI CURRICULUM ON A 3D VR ROBOTIC SURGICAL SIMULATOR MAY BE EFFICIENTLY EMPLOYED TO FACILITATE SURGEON TRANSITION
Ryan Speir*, Lacey, WA, Timothy Brand, Tacoma, WA

MP02-10 EFFECT OF EXPERT MENTORING ON THE ACQUISITION OF ROBOTIC SURGICAL SKILLS - A RANDOMISED CONTROLLED TRIAL
Daniel Hay*, Kamran Ahmed, Prokar Dasgupta, Ben Challacombe, London, United Kingdom

MP02-11 ASSESSMENT OF ROBOTIC SIMULATION PERFORMANCE BY UROLOGY TRAINEES IN RESIDENCY PROGRAMS

MP02-12 PRELIMINARY EXPERIENCE WITH THE USE OF THE DA VINCI SI ROBOTIC SURGERY SYSTEM IN PANAMA. RESULTS OF THE IMPLEMENTATION OF SURGERY CLINICAL PATHWAY FOR TRAINING
Marcos Young*, Leticia Ruiz, Alejandro Manduley, Elias Bodden, Panama, Panama, Octavio Castillo, Santiago, Chile, Brian Matlaga, Baltimore, MD

MP02-13 AN EFFECTIVE REPETITIVE TRAINING SCHEDULE TO ACQUIRE SKILL ACQUISITION IN NOVEL ROBOTIC VIRTUAL REALITY SIMULATOR
Seok Cho*, Sung Gu Kang, Kyung Sook Yang, Byung-Ju Ryu, Hoon Ah Jang, Seok Ho Kang, Jeong Gu Lee, Je Jong Kim, Jun Cheon, Koo Han Yoo, Seoul, Korea, Republic of

MP02-14 DOES RESIDENT AND FELLOWSHIP TRAINING AFFECT OPERATIVE AND SHORT-TERM ONCOLOGIC AND FUNCTIONAL OUTCOMES IN PATIENTS UNDERGOING ROBOT-ASSISTED RADICAL PROSTATECTOMY (RARP)?
Ziho Lee*, Shailen Sehgal, Reid Graves, Yu-Kai Su, Elton Llukani, Kelly Monahan, Alice Megill, Phillip Mucksavage, David Lee, Philadelphia, PA

MP02-15 CONSTRUCT, CONTENT AND FACE VALIDITY OF THE DA VINCI SURGICAL SIMULATOR
Adam C Calaway*, Jason C Sea, Chandru P Sundaram, Indianapolis, IN
MP02-16 OUTCOMES OF INDIANA UNIVERSITY UROLOGY WEEKEND ROBOTICS TRAINING PROGRAM
Jason C Sea*, Adam Calaway, Clinton D Bahler, Christopher Southwood, Chandru P Sundaram, Indianapolis, IN

MP02-17 COMPARISON OF COMPUTER GENERATED PERFORMANCE METRICS IN THE DAVINCI SKILLS SIMULATOR- WHICH DEMONSTRATE THE MOST CONSTRUCT VALIDITY?
Ryan Dorin*, Kyle Finnegan, Halil Kiziloz, Steven Shichman, Hartford, CT

MP02-18 ASSESSMENT OF ROBOTIC SIMULATION USE IN RESIDENCY PROGRAMS OF THE SOUTHEASTERN SECTION OF THE AMERICAN UROLOGIC ASSOCIATION
Abby Taylor*, David Thiel, Jacksonville, FL, Vipul Patel, Celebration, FL, Todd Larson, Seattle, WA, Amy Lannen, Jacksonville, FL, Raymond Leveilee, Coral Gables, FL

MP02-19 PERCEIVING A LIVE CASE DEMONSTRATION: PERCEPTION OF BENEFIT
Sammy Elsamra*, Hector Motato, Justin Friedlander, Daniel Moreira, Arvin George, Brian Duty, Arthur Smith, Zeph Okeke, New Hyde Park, NY

MP02-20 ELECTRONIC DATA COLLECTION FOR PATIENT-REPORTED OUTCOMES IN MEN WITH PROSTATE CANCER: ASSESSING EASE OF USE AND PATIENT SATISFACTION
Brian Benway*, Leslie McIntosh, Linda Black, Joanne Morley, Sheri Long, Patricia Carter, Elizabeth Jones, Alethea Paradis, Arnold Bullock, Gerald Andriole, Saint Louis, MO

Wednesday, October 23, 2013
Moderated Poster Session MP03 2:30 pm–4:15 pm

BPH/LUTS I
Room Rhythms 3 @ Sheraton New Orleans
Chair: Brian Eisner
Faculty: Stephan Hruby and Leslie A. Dean

*Presenting author

MP03-01 UROBEAM™ DIODE LASER VAPORIZATION OF THE PROSTATE: MID-TERM OUTCOMES
Joao Padua Manzano*, Frederico Teixeira Barbosa, Jose Ricardo Cruz Silvino Jr, Luciano Salles Lage, Adalberto Andriolo Jr, Roberto Soler, Joaquim Francisco De Almeida Claro, Sao Paulo, Brazil

MP03-02 IS COMBINED PROSTATE RESECTION WITH CYSTOLITHOTRIPSY BENEFICIAL FOR BPH PATIENTS WITH BLADDER CALCULI? - A NATIONALWIDE POPULATION-BASED STUDY
Eric Yi-Hsiu Huang*, Tzu-Ting Kuo, Hsiao-Jen Cheng, Chih-Chieh Lin, Alex TL Lin, Khuang-Kuo Chen, Taipei, Taiwan

MP03-03 BASELINE CHARACTERISTICS PREDICT RISK OF PROGRESSION AND RESPONSE TO COMBINATION MEDICAL THERAPY FOR BENIGN PROSTATIC HYPERPLASIA
Michael Kozmuski*, John Wei, Ann Arbor, MI, Jason Nelson, David Kent, Boston, MA

MP03-04 TWO-YEAR PROSPECTIVE, RANDOMIZED COMPARISON BETWEEN THE BIPOLAR PLASMA ENUCLEATION OF THE PROSTATE AND OPEN PROSTATECTOMY IN BPH CASES OVER 80 ML
Bogdan Geavlete*, Florin Stanescu, Cristian Moldoveanu, Mariam Jecu, Leon Adou, Petrisor Geavlete, Bucharest, Romania
MP03-05 LEARNING CURVE OF MORCELLATION DURING HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP)
Jin Kyu Oh, Incheon, Korea, Republic of
Habn-Ey Lee*, Jae Hyun Jung, Chang Wook Jeong, Jae-Seung Paik, Seung-June Oh, Seoul, Korea, Republic of

MP03-06 HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP) OUTCOMES IN PATIENTS WITH PRIOR BENIGN PROSTATIC HYPER-TROPHY (BPH) SURGERY
Ryan Pickens*, Nashville, TN, Amy Krambeck, Rochester, MN, Mitchell Humphreys, Scottsdale, AZ, Nicole Miller, Nashville, TN

MP03-07 LONG TERM IMPACT OF ROBOTIC ASSISTED RADICAL PROSTATECTOMY ON CONTINENCE AND LOWER URINARY TRACT SYMPTOMS (LUTS)
Adam Gordon, Harleen Dhaliwal, Douglas Skarecky, Kathryn Osann, Blanca Morales, Thomas Ahlering*, Orange, CA

MP03-08 SERIAL MRI AND 3D RENDERING FOLLOWING TREATMENT OF BPH USING HIGH ENERGY WATER VAPOR THERAPY AND THE REZUM™ SYSTEM ; INITIAL RESULTS FROM THE FIRST-IN-MAN AND REZUM™ 1 CLINICAL TRIALS
Christopher Dixon*, NY, NY, Edwin Rijo-Cedano, La Romana, Dominican Republic, Dalibor Pucik, Vitislav Vit, Gabriele Varga, Brno, Czech Republic, Lance Mynderse, Dennis Hanson, Rochester, MN, Thayne Larson, Scottsdale, AZ

MP03-09 TRENDS IN RESIDENT INVOLVEMENT IN BPH PROCEDURES
Mark Ball*, Max Kates, Brian Matlaga, Baltimore, MD

MP03-10 HOLMIUM LASER ENUCLEATION/ABLATION OF THE PROSTATE IN PATIENTS PREVIOUSLY TREATED WITH RADIATION THERAPY FOR PROSTATE CANCER
Jessica E Paonessa*, Naeem Bhojani, Mark Ball*, Max Kates, Scottsdale, AZ, Douglas Skarecky, Mount Sinai, NY, NY

MP03-11 A COMPARATIVE STUDY BETWEEN HOLMIUM LASER ENUCLEATION OF THE PROSTATE AND TRANSURETHRAL RESECTION OF THE PROSTATE: 12 MONTH FOLLOW UP
Mohamed Elafi*, Gamal Morsi, Atif Hammouda, M Hammouda, Assiut, Egypt, Enmar Habib, Cairo, Egypt

MP03-12 REGIONAL DIFFERENCE IN IPSS, PV, AND PSA IN KOREAN MALE PATIENTS WITH LUTS
Sung Chul Kim*, Jae Hui Choi, Seong Uk jeh, Jeong Seok Hwa, Jae Seog Hyun, Jinju, Korea, Republic of

MP03-13 THE ROLE OF TRANSURETHRAL RESECTION OF PROSTATE IN TREATING PATIENTS WITH BENIGN PROSTATE HYPERPLASIA AND ELEVATED PROSTATE-SPECIFIC ANTIGEN
Jeong Man Cho*, Sun Chool Shin, Hee Ju Cho, Jung Yoon Kang, Tag Keun Yoo, Seoul, Korea, Republic of

MP03-14 LASER PROSTATECTOMY OF LARGE PROSTATES USING A NEW 1.9µm THULIUM LASER: RESULTS AFTER 1 YEAR FOLLOW-UP
David Zimmermann*, Patrick Hornock, Thomas Knoll, Gunnar Wendt-Nordahl, Sindelfingen, Germany

MP03-15 THREE-YEAR PROSPECTIVE, RANDOMIZED COMPARISON OF THE BIPOLAR PLASMA VAPORIZATION OF THE PROSTATE, MONOPOLAR AND BIPOLAR RESSECTION IN MEDIUM SIZE BPH PATIENTS
Bohdan Gerovole*, Razvan Multescu, Dragos Georgescu, Florin Stanescu, Marian Jecu, Cristian Moldoveanu, Petrisor Gerovole, Bucharest, Romania

MP03-16 DETRUSOR WALL THICKNESS AS A POSSIBLE PREDICTOR OF PERSISTENT URINARY URGENCY AFTER TRANSURETHRAL RESECTION OF PROSTATE
Dong Soo Park*, Seung Ryoeil Lee, Seongnam-si, Korea, Republic of

MP03-17 GREEN LASER PROSTATIC LASER VAPORIZATION IN PATIENTS OLDER THAN 80 YEARS. IS IT SAFE?
Pablo Contreras*, Buenos Aires, Argentina, Francisco Lopez, Ramiro Castilla, Carlos Ameri, Gonzalez Vitagliano, Ossalido Mazza, Ciudad Autonoma de Buenos Aires, Argentina

MP03-18 DIODE LASER VAPORIZATION OF THE PROSTATE FOR BENIGN PROSTATIC HYPERPLASIA – COMPARING VAPORIZATION ALONE WITH VAPORIZATION PLUS SUBSEQUENT BIPOLAR TRANS-URETHRAL RESECTION AT 12 MONTHS FOLLOW-UP
Ferdinando De Marco*, Grottaferrata, Italy, Markus Rheinwald, Wessling, Germany, Thomas Bayer, Kempten, Germany

MP03-19 A PROSPECTIVE MULTICENTER RANDOMIZED STUDY COMPARING GREENLIGHT XPS™ LASER AND TRANSURETHRAL RESECTION OF THE PROSTATE FOR THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA
Alexander Bachmann*, Basel, Switzerland, Andrea Tubaro, Rome, Italy, Neil Barber, Camberley Surrey, United Kingdom, Frank d'Ancona, Nijmegen, Netherlands, Gordon Mair, London, United Kingdom, Ulrich Witsch, Frankfurt, Germany, Marc-Oliver Grimm, Jena, Germany, Joan Benejam, Manacor, Spain, Jens-Uwe Stolzenburg, Leipzig, Germany, Anthony Riddick, Edinburgh, United Kingdom, Sascha Fabernik, Heidelberg, Germany, Johannes Hermanus Roelink, Almelo/Hengelo, Netherlands, Filip Ameye, Gent, Belgium, Christian Saussine, Strasbourg, France, Frank Bruyere, Tours, France, Wolfgang Loidl, Linz, Austria, Timothy Larner, Brighton, United Kingdom, Nirjan Gogoi, Dewsbury, United Kingdom, Richard Hindley, Hampshire, United Kingdom, Rolf Muschter, Rotenburg, Germany, Andrew Thorpe, Newcastle upon Tyne, United Kingdom, Nitin Shrotri, Kent, United Kingdom, Stuart Graham, London, United Kingdom, Moritz Franz Hamann, Kiel, Germany, Kurt Miller, Berlin, Germany, Martin Schostak, Magdeburg, Germany, Carlos Capitan, Ciudad Autonoma de Buenos Aires, Argentina
Tuesday, October 22, 2013 Moderated Poster Session MP03
10:30 am–12:15 pm
Room Grand Ballroom D @ Sheraton New Orleans
Chair: Chandrashekar M Mani
Faculty: Frank R. Watson and Steven C. Ritter

MP03-01 STANDARDIZED POSTER PRESENTATION TRAINING AND AIDS TO IMPROVE POSTER PRESENTATION SKILLS
Stephen P. Sreetam*, convent and Preceptor, Indiana University School of Medicine, Indianapolis, IN
MP03-02 MALE PROLAPSE: CLINICAL PREDICTORS OF RECURRENCE AFTER MUSCLE-BASED REPAIR
Tan May Yew*, V Ramesh, Subhajit Bose, Swee Ann Tan, Bethan des Marney, David A P Bayley, Bryan G O’Leary, Jamie Fainaru, Melbourne, Australia
MP03-03 PROSTATE-SPECIFIC ANTIGEN LEVELS FOLLOWING TRANSURETHRAL RESECTION OF THE PROSTATE FOR LOWER URINARY TRACT SYMPTOMS
Robert F. Starling*, Mark A. Tripathi, Stephen J. Macdonald, Thomas M. Kavoussi, Christopher D. Bernecky, Lawrence W. Goel, Christopher D. Rushton, Michael J. Saab, Paul C. Novick, Chicago, IL
MP03-04 Meso-BRS PROSTATE BRACHYTHERAPY FOR RECURRING LOCALIZED PROSTATE CANCER: PRELIMINARY RESULTS
Hassan A. Amin*, Steven J. Kimmey, H. Thomas Van Cangh, James M. Davis, Peter J. Gold, Mark D. Roach, Eric H. Gomella, W. Scott colleagues, Philadelphia, PA
MP03-05 EVALUATION OF THE ‘NO-TOUCH’ TECHNIQUE FOR PERCUTANEOUS NEPHROLITHOTOMY
M. A. Bongaerts*, A. van de Watering, N. C. G. van Dijk, J. L. van der Vaart, Utrecht, the Netherlands
MP03-06 EVALUATION OF THE ‘NO-TOUCH’ TECHNIQUE FOR PERCUTANEOUS NEPHROLITHOTOMY
M. A. Bongaerts*, A. van de Watering, N. C. G. van Dijk, J. L. van der Vaart, Utrecht, the Netherlands

Wednesday, October 23, 2013
Moderated Poster Session MP04
2:30 pm–4:15 pm
PERCUTANEOUS NEPHROLITHOTOMY I
Room Grand Ballroom D @ Sheraton New Orleans
Chair: Peter Alken
Faculty: James Lingeman and Timothy Averch

*Presenting author

MP04-01 WITHOUT STONE CULTURE, INFECTIOUS KIDNEY ORGANISMS ARE MISIDENTIFIED IN ALMOST 1/4 OF PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY
Jessica E Paonessa*, Naeem Bhojani, James C Williams, Jr., Indianapolis, IN, Jessica A Mandeville, Reading, MA, James E Lingeman, Indianapolis, IN

MP04-02 MINI-PERC USING A 16 F PEEL-AWAY SHEATH
James Borin*, Jared Cohen, Janae Preece, Baltimore, MD

MP04-03 PERCUTANEOUS NEPHROLITHOTOMY ACCESS TRACT DILATION USING THE "VISUAL DILATOR SYSTEM" : AN INITIAL CLINICAL REPORT
Arvind K. Shafi*, Kewe Xu, Tian Huang, Tianxin Lin, Hao Liu, Hai Huang, Chun Jiang, Guangzhou, China, People’s Republic of

MP04-04 CURRENT PRACTICES IN PERCUTANEOUS NEPHROLITHOTOMY AMONG ENDOUROLOGISTS
Sri Sivalingam*, Shannon Cannon, Stephen Nakada, Madison, WI

MP04-05 LOW TRANSFUSION RATE ASSOCIATED WITH PERCUTANEOUS NEPHROLITHOTOMY
Andrew Callen*, Thomas Chi, Joe Miller, Marshall Stoller, San Francisco, CA

MP04-06 FACTORS EFFECTING DEVELOPMENT OF SYSTEMIC INFLAMMATORY RESPONSE SYNDROME AFTER PERCUTANEOUS NEPHROLITHOTOMY
Enrah Yuruk, Murat Binbey*, Istanbul, Turkey, Mahir Seyrek, Canakkale, Turkey, Tolga Akman, Yalcin Berberoglu, Ahmet Muslumanoglu, Istanbul, Turkey

MP04-07 INTERVENTIONAL RADIOLOGIST-DIRECTED PERCUTANEOUS RENAL ACCESS PERFORMED AT AN OUTSIDE INSTITUTION IS RARELY ACCEPTABLE FOR PERCUTANEOUS NEPHROLITHOTOMY
Andrew Callen*, Thomas Chi, Joe Miller, Marshall Stoller, San Francisco, CA

MP04-08 ANALYSIS OF THE UTILITY OF STONE GRAM STAIN IN INFECTED UROLITHIASIS TREATED WITH PERCUTANEOUS NEPHROLITHOTOMY
Patrick Cockerill*, Marcelino Rivera, Amy Krumbeck, Rochester, MN
MP04-10 ENDOSCOPIC-GUIDED PERCUTANEOUS NEPHROLITHOTOMY: A TECHNIQUE TO REDUCE RADIATION DOSE
Andrea G. Lantz*, Padraic O’Malley, Michael Ordon, Jason Y. Lee, Toronto, Canada

MP04-11 COMPLICATIONS AND ANALGESIC USE FOLLOWING UPPER POLE ACCESS FOR PERCUTANEOUS NEPHROLITHOTOMY
Caleb C Ng, Caroline L Wallner, Gene O Huang, Steven R Engebretsen, Roger Li, Michelle A Lightfoot*, Don C Arnold II, Gaudencio Olgin, Muhammad M Alsyoyaf, Javier L Arenas, D Duane Baldwin, Loma Linda, CA

MP04-12 PIONEERING OUTPATIENT PCNL: THE QUEEN’S/MCGILL EXPERIENCE
Darren Beiko*, Andrea Kokorovic, Gregory Roberts, Kingston, Canada, Mohamed Elkoushy, Sero Andonian, Montreal, Canada

MP04-13 ANTIMICROBIAL USAGE IN PERCUTANEOUS NEPHROLITHOTOMY: INFECTIOUS AND ANTIBIOTIC RELATED COMPLICATIONS
Boyd Viers*, Amy Krambeck, Rochester, MN

MP04-14 DESCRIPTION AND EVALUATION OF A NOVEL LASER-GUIDED PERCUTANEOUS ACCESS TECHNIQUE IN A BENCHTOP MODEL
Jacob A Martin, Michael J Lee, Janna M Vassantachart, Gaudencio Olgin, Steven R Engebretsen, Gene O Huang, Michelle A Lightfoot*, Don C Arnold II, Jason C Smith, D Duane Baldwin, Loma Linda, CA

MP04-15 MULTICENTER VALIDATION OF S.T.O.N.E. NEPHROLITHOMETRY

MP04-16 GUY’S STONE SCORE: PREDICTING OUTCOMES AND COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY
Fabio C. Vicentini, Giovanni S. Marchini*, Eduardo Mazzucchi, Joaquim F. A. Claro, Miguel Srougi, Sao Paulo, Brazil

MP04-17 PREVALENCE OF MULTIDRUG RESISTANT BACTERURIA IN PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY
Omer Raheem*, San Diego, CA, William Shi, San Diego , CA, Craig Schallhorn, Lindsay Kiyowa, David Wenzler, Charles Lakin, Roger Sur, San Diego, CA

MP04-18 IMPACT OF PERIOPERATIVE ANTICOAGULATION ON INCIDENCE OF BLEEDING COMPLICATIONS IN PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY
Elizabeth Johnson, Lebanon, NH, Seth Bechis*, Sameer Deshmukh, Boston, MA, Paolo Barboglio-Romo, Lebanon, NH, Brian Eisner, Boston, MA, Vernon Pais, Lebanon, NH

MP04-19 SEOUL NATIONAL UNIVERSITY RENAL STONE COMPLEXITY SCORE FOR PREDICTING STONE-FREE RATE AFTER PERCUTANEOUS NEPHROLITHOTOMY
Min Soo Choo*, Chang Wook Jeong, Seoul, Korea, Republic of, Jin-Woo Jung, Byung Ki Lee, Yong Hyun Park, Sangchul Lee, Seong Jin Jeong, Seok-Soo Byun, Sang Eun Lee, Seongnam, Korea, Republic of

MP04-20 STONE FREE AT THE END OF PCNL: SURGEON’S ESTIMATION VS. POSTOPERATIVE IMAGING
Itay Sagy*, Mckalba-Batarin Kaltungo, Marc Lubin, Einaro Cohen, Ronen Holland, Pinchas M. Livne, David Lifshitz, Petra Tikt, Israel

MP04-21 MULTIMODAL STRATEGY FOR THE PREVENTION OF INFECTIOUS COMPLICATIONS OF PERCUTANEOUS SURGERY: OUR EXPERIENCE
Cesare Marco Scffione*, Cecilia Maria Cracco, Torino, Italy

MP04-22 RETROSPECTIVE REVIEW OF THORACIC COMPLICATIONS FOLLOWING PERCUTANEOUS NEPHROLITHOTOMY PROCEDURES
Deirdre Connolly*, Joseph Caputo, Justina Tam, Crista Cerrone, Jonathan Melquist, Kevin Gioia, David Schulsinger, Stony Brook, NY

MP04-23 EXPERIENCE WITH ‘ULTRA-MINI’ PCNL
Madhu Agrawal*, Agra, India

MP04-24 EFFECTS OF SEMI-FLANK POSITION PERCUTANEOUS NEPHROLITHOTOMY: COMPARISON WITH PRONE POSITION PROCEDURE
Jae Young Choi*, Bum Soo Kim, Jun Nyung Lee, Se Yoon Kwon, Hyung Tae Kim, Tae-Hwan Kim, Eun Sang Yoo, Tae Gyun Kwon, Sung Kwang Chung, Bup Wan Kim, Yoon Kyu Park, Jae Soo Kim, Daegu, Korea, Republic of

MP04-25 A LOW-CALIBER PERCUTANEOUS NEPHROLITHOTOMY SYSTEM (MICROPERC) FOR THE TREATMENT OF KIDNEY STONES
Ugur Boylu*, Cem Basatac, Abdurrahman Inkaya, Fikret Fatih Onol, Eyup Gunus, Istanbul, Turkey

MP04-26 COMPLICATIONS OF PCNL ACCORDING TO MODIFIED CLAVIEN-DINDO SYSTEM
Guido Giusti*, Silvia Proietti, Roberto Peschechera, Davide Gindra, Gianluigi Taverna, Pierpaolo Grazzotti, Rozzano (MI), Italy
**IMAGING & NEW TECHNIQUES I**

**Moderated Poster Session MP05**

**Room Grand Chenier @ Sheraton New Orleans**

**Chair:** Mordechai Duvdevani

**Faculty:** Lee Richstone and Oscar Fugita

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*Presenting author
MP05-13 DEFINING THE ROLE OF INTRAOPERATIVE TRANSSESOPHAGEAL ECHOCARDIOGRAPHY DURING INFERIOR VENA CAVAL TUMOR THROMBECTOMY IN RENAL CELL CARCINOMA
Mark Ball*, Vivek Arora, Mary Beth Brady, Ashish Shah, James Black, Mohamad Allaf, Baltimore, MD

MP05-14 ONCOLOGIC RESULTS OF PERCUTANEOUS RENAL CRYOABLATION AT A MEDIAN FOLLOW-UP OF 24 MONTHS
Anees Fazili*, Tiffany Lee, Sriram Venigalla, Louis Eichel, Rochester, NY

MP05-15 REPEAT PERCUTANEOUS CT-GUIDED CRYOABLATION FOR LOCALLY RECURRENT RENAL CELL CARCINOMA

MP05-16 DEVELOPMENT OF A TARGETTED PHOTO-IMMUNOTHERAPY PLATFORM IN THE MANAGEMENT OF BLADDER CANCER
Srinivas Vourganti*, Michael Weintraub, Quentin Li, Piyush Agarwal, Bethesda, MD

MP05-17 INTEROBSERVER RELIABILITY AND REPRODUCIBILITY OF S.T.O.N.E. NEPHROLITHOMETRY FOR RENAL CALCULI
Zhamshid Okhunov*, Alberto Perez-Lanzac, Mohammad Helmy, Ashleigh Menhadji, Philip Bucur, Surendra Kolla, Jane Cho, Kathy Osann, Achim Lusch, Jaime Landman, Orange, CA

MP05-18 ENDOVASCULAR COIL OCCLUSION (ECO) - THE REAL ALTERNATIVE METHOD FOR VENOUS LEAK CORRECTION
Dmitriy Kurbatov*, Alexandr Lepetukhin, Ivan Sitkin, Sergey Dubsky, Moscow, Russian Federation

MP05-19 MR FUSION PROSTATE BIOPSYES ARE FEASIBLE AND USEFUL IN A BUSY UROLOGIC PRACTICE
David Hatcher*, Joshua Cohn, Chicago, IL, Robert Silvers, Michael McGuire, Evanston, IL

MP05-20 COMPARISON OF RELIABILITY OF THE RENAL NEPHROMETRY SCORE BETWEEN RADIOLOGISTS AND UROLOGISTS
Samay Jain*, Khhaled Shahrour, Toledo, OH

MP05-21 COMBINED PATIENT AND STONE MORPHOMETRY ENHANCE PREDICTION OF STONE COMPOSITION
Kara L Watts*, Tian C Zhou, Joseph Divito, David M Hoening, Bronx, NY

MP05-22 PREOPERATIVE PLANNING WITH NON-CONTRAST COMPUTED TOMOGRAPHY IN THE PRONE AND SUPINE POSITION FOR PERCUTANEOUS NEPHROLITHOTOMY: A PRACTICAL OVERVIEW
Giovanni S. Marchini*, Fernanda Berto, Fabio C. Vicentini, Eduardo Mazzucchi, Miguel Srogi, Sao Paulo, Brazil

MP05-23 THE FIRST UNITED STATES SERIES USING THE TRANSURETHRAL SUPRAPUBIC ENDOCYSTOSTOMY DEVICE FOR SUPRAPUBIC CATHETER INSERTION
Robert Larke*, Vassilis Siomos, Brian Flynn, Aurora, CO

MP05-24 RENAL CALCULI AND PLAIN IMAGING-RADIOLUCENT OR RADIO OPAQUE?
Paul Healy*, Dublin, Ireland, Sarasasothy Suresh Babu, Leicester, United Kingdom, Priya Kumar, Preston, United Kingdom, Masood Khan, Leicester, United Kingdom

MP05-25 PERCUTANEOUS NEPHROSTOMY MADE EASY: ELECTROMAGNETIC NEEDLE GUIDANCE WITH TRAUGHT ULTRASOUND SNAPSHOTS IN A SIMULATION MODEL
Michael Fuoco*, Tamas Ungi, Rob Siemens, Gabor Fichtinger, Darren Beiko, Kingston, Canada

MP05-26 INCIDENCE AND DIAGNOSIS OF RENAL ARTERY PSEUDOANEURYSM FOLLOWING LAPAROSCOPIC AND ROBOT-ASSISTED PARTIAL NEPHRECTOMY: A SYSTEMATIC REVIEW OF THE LITERATURE
Samay Jain, Toledo, OH, Andrew Tracey*, Nina Harkhani, Jennifer Yates, Ravi Munver, Hackensack, NJ

Wednesday, October 23, 2013 Video Session V01 2:30 pm–4:30 pm

ROBOTICS: UPPERTRACT I
Room Armstrong @ Sheraton New Orleans

Faculty: Michael Conlin and Michael Stiffleman

*Presenting author

V01-01 APPLICATION OF NEAR-INFRARED FLUORESCENCE IMAGING IN ROBOT-ASSISTED SURGERY
Melanie Gan*, Aalst, Belgium, Alessandro Volpe, Novara, Italy, Vincenzo Ficarra, Padua, Italy, Geert De Neuter, Aalst, Belgium, Michael Stiffleman, New York, NY, Alexandre Mottrie, Aalst, Belgium

V01-02 RESECTION OF A GROSS POSITIVE SURGICAL MARGIN DURING ROBOTIC PARTIAL NEPHRECTOMY: LESSONS LEARNT
Jitendra Jagtap*, Raguram Ganesanomi, Jigish Vyas, Shashikant Mishra, Arvind Ganpule, Nadiad, India, Mihir Desai, Los Angeles, CA, Ravindra Sabnis, Mahesh Desai, Nadiad, India
V01-03 "ZERO ISCHEMIA" ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR TUMORS WITH HIGH NEPHROMETRY SCORE
Giuseppe Simone*, Rocco Papalia, Mariaconsiglia Ferriero, Salvatore Guaglianone, Michele Gallucci, Rome, Italy

V01-04 ROBOT ASSISTED LAPAROSCOPIC TRANSMESOCOLIC PYELOPLASTY
Bilal Firat Alp, Seref Basal*, Ankara, Turkey, Zafer Demirer, Eskisehir, Turkey, Ali Guragac, Ankara, Turkey, Sami Uguz, Agri, Turkey, Ercan Malkoc, Corlu, Turkey, Ibrahim Yildirim, Ankara, Turkey

V01-05 MANAGEMENT OF DOUBLE COLLECTING SYSTEM WITH BOTH UPJ OBSTRUCTION AND URETERAL STONE
Ilter Tufek*, Omer Burak Argun, Selcuk Keskin, Ahmet Sahin, Ali Riza Kural, Istanbul, Turkey

V01-06 ROBOT-ASSISTED LAPAROSCOPIC HEMINEPHRECTOMY FOR A NON-FUNCTIONING UPPER MOIETY: LESSONS LEARNT FROM 3 CASES
Paul Sturch*, Matt Bullitude, Declan Cahill, Prokar Dasgupta, Ben Challacombe, London, United Kingdom

V01-07 ROBOT-ASSISTED PARTIAL CYSTECTOMY IN TREATMENT OF A BLADDER PARAGANGLIOMA OF THE URINARY BLADDER
Michael Weintraub*, Minhaj Siddiqui, Srinivas Voarganti, Brian Shuch, Jeffrey Nix, W. Marston Linehan, Piyush K. Agarwal, Bethesda, MD

V01-08 ROBOT-ASSISTED LAPAROSCOPIC URETEROURETEROSTOMY FOR RETROCAVAL URETER
Scott Tobis, Anees Fazili*, Guan Wu, Jean Joseph, Rochester, NY

V01-09 ROBOTIC PARTIAL NEPHRECTOMY IN A PELVIC KIDNEY MASS: SURMOUNTING ANATOMIC CHALLENGES
Vikram Narayan*, Joseph Ellen, Christopher Nelson, Li-Ming Su, Gainesville, FL

V01-10 ROBOTIC RIGHT ADRENALECTOMY FOR LARGE PHEOCHROMOCYTOMA
Gautam Jayram*, Petra Szina-Cotter, Mohamad Allaf, Misop Han, Baltimore, MD

V02-01 TUBELESS, PRONE-FLEXED PERCUTANEOUS NEPHROLITHOTOMY: TECHNIQUE FOR TETHERED DOUBLE-J URETERAL STENT INSERTION
Kirsten Foell*, R. John D’A. Honey, Toronto, Canada

V02-02 ONE STAGE PCNL FOR STAGHORN CALCULI BY 3 ACCESSES
Zhang Shudong*, Beijing, China, People’s Republic of

V02-03 TIPS AND TRICKS FOR PERCUTANEOUS NEPHROLITHOTRIPSY
Ioannis Georgiopoulos*, Jason Kyriazis, Panagiota Kallidonis, Stavros Kontogiannis, Evangelos Liatsikos, Patras, Greece

V02-04 LASER ENDOPEYELOTOMY
Prem Kumar*, Mohan Keshavamurthy, Shakir Tabrez, Uday Bhaskar, Mohan Balaih Ashwathaiah, Bangalore, India

V02-05 RETROGRADE ACCESS VERSUS CLASSIC PERCUTANEOUS CYSTOLITHOLAPAXY IN BLADDER STONE MANAGEMENT
Shahrokh Sakhaei, Kermanshah, Iran, Babak Kazemzadehazad*, Tehran, Iran

V02-06 TECHNIQUE OF PERCUTANEOUS TREATMENT IN THE SUPINE POSITION OF A RENAL DIVERTICULUM
Ioannis Kartalas Goumas*, Emanuele Itri, Francesco Dell’Aglio, Fabrizio Pozzoni, Lorenzo Innocenti, Gianpaolo Zanetti, Vimercate, Italy

V02-07 MICROPERCUTANEOUS NEPHROLITHOTOMY GUIDED BY RETROGRADE FLEXIBLE URETEROSCOPY: PRELIMINARY EXPERIENCE
Cesare Marco Scoffone*, Fabiola Liberale, Cecilia Maria Cracco, Torino, Italy
V02-08 MICROPERCUTANEOUS NEPHROLITHOTOMY (MICROPERC): THE FIRST ITALIAN EXPERIENCE
Giampaolo Bianchi*, Alessio Zordani, Marco Rosa, Riccardo Galli, Modena, Italy, Ahmed Ghaith, Tanta, Egypt, Corrado Di Pietro, 41124, Italy, Salvatore Micali, Modena, Italy

V02-09 PERCUTANEOUS PLACEMENT OF A SAFETY GUIDEWIRE AT NO COST
Mohammed Lezrek*, Khalil Bazine, Ahmed Fethi, Hicham Tazi, Mohammed Alami, Meknes, Morocco

V02-10 A SECOND SIMULTANEOUS PERCUTANEOUS RENAL TRACT WITH THE RIGID URETEROSCOPE
Mohammed Lezrek*, Khalil Bazine, Adil Slimani Alaoui, Hicham Tazi, Mohammed Alami, Meknes, Morocco

V02-11 THORACIC LITHIASIS: AN UNUSUAL COMPLICATION OF PERCUTANEOUS RENAL SURGERY
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

V02-12 A NEW TECHNIQUE OF PERCUTANEOUS ENDOSCOPIC NEPHROPEXY
Mohammed Lezrek*, Khalil Bazine, Hicham Tazi, Adil Slimani Alaoui, Mohammed Alami, Meknes, Morocco

Wednesday, October 23, 2013 Video Session V03 2:30 pm–4:30 pm
LAPAROSCOPIC EDUCATION, SIMULATORS, FEMALE UROLOGY
Room Nottoway @ Sheraton New Orleans
Chair: Sri Sivalingam
Faculty: Howard N. Winfield and Robert Figenshau

*Presenting author

V03-01 PLACEMENT OF METALLIC URETERAL STENTS - ANTEGRADE, RETROGRADE AND URINARY DIVERSION APPROACHES
Ioannis Georgiopoulos*, Iason Kyriazis, Panagiotsis Kallidonis, Patras, Greece, Jens-Uwe Stolzenburg, Leipzig, Germany, Evangelos Latsikes, Patras, Greece

V03-02 A PRACTICAL TRAINING SYSTEM OF LAPAROSCOPIC SURGERY
Hideo Yuki*, Miki Fuse, Tomoya Mizuno, Akinori Masuda, Hironori Betsuno, Hideyuki Abe, Masahiro Yashi, Yoshitsatsu Fukabori, Tomonori Yamanishi, Takao Kamat, Mibu-machi, Japan

V03-03 A GLOVE MODEL FOR ACQUIRING SKILLS OF ENDOUROLOGIC STONE MANIPULATION
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

V03-04 PERCUTANEOUS CALYX PUNCTURE SIMULATION IN A GLOVE MODEL
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

V03-05 MANAGEMENT OF STRESS URINARY INCONTINENCE AND VAGINAL PROLAPSE USING A SELF-TAILORED POLYPOLYPELINE MESH
Mohammed Lezrek*, Omar Laghzaoui Boukraidi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

V03-06 FOUR PORT ROBOTIC SACROCOLPOPEXY: DEMONSTRATION OF A NOVEL TECHNIQUE AND FEASIBILITY
Christopher Teagardnaya*, Nitya Abraham, Georges Haber, Raymond Rackley, Cleveland, OH

V03-07 ROBOTIC ASSISTED VESICOVAGINAL FISTULA REPAIR WITH EXCISION OF MESH AND SIMULTANEOUS INTRAVESICAL URETERAL REIMPLANT
Jeffrey Marotte*, Conway, AR, Wilson Aloboiu, Little Rock, AR

V03-08 THE MANAGEMENT OF COMPLEX RENAL MASSES BY EX-VIVO PARTIAL NEPHRECTOMY AND AUTO-TRANSPLANTATION: CASE SERIES AND VIDEO PRESENTATION
Jasmir Nayak*, Joshua Koula, Thomas McGregor, Winnipeg, Canada

V03-09 LAPAROSCOPIC REPAIR OF POST RADICAL CYSTECTOMY PARASTOMAL HERNIA
Manickam Ramalingam*, Kallapen Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

V03-10 COMPILATION OF TWO CASES OF INVERTED PAPILLOMA THAT MIMICS TRANSITIONAL CELL NEOPLASIA IN YOUNG MEN PATIENTS; OUR TUR-BT EXPERIENCE
Serdar Yalcin*, Bilal Firat Alp, Sercan Yilmaz, Ibrahim Yildirim, Ankara, Turkey

V03-11 ROBOTIC ASSISTED MICROSURGICAL REPAIR OF TESTICULAR ARTERIAL INJURY
Jamin Brabham*, Ahmet Gudeloglu*, Sijo Parekattil, Winter Haven, FL
Wednesday, October 23, 2013
Moderated Poster Session MP06
4:30 pm–6:15 pm

ROBOTICS/LAPAROSCOPY: PROSTATE, LOWER TRACT I
Room Rhythms 1 @ Sheraton New Orleans
Chair: Inderbir Gill
Faculty: David Albala and Changjun Yin

*Presenting author

**MP06-01** OPEN OR ROBOT-ASSISTED RADICAL PROSTATECTOMY AS THE PRIMARY TREATMENT OF HIGH-RISK PROSTATE CANCER: ONCOLOGIC OUTCOMES AND INCIDENCE OF SUBSEQUENT THERAPIES
Mary Achim*, Brian Chapin, Surena Matin, John Davis, Houston, TX

**MP06-02** DOES LIGASURE VESSEL SEALING SYSTEM PROVIDES SAFE AND EFFECTIVE SOLUTION ON SECURING DORSAL VEIN IN LAPAROSCOPIC RADICAL PROSTATECTOMY?
Onur Kaygisiz, Yakup Kordan, Bursa, Turkey, Cabir Alan, Canakkale, Turkey, Burhan Coskun, Omur Gunseren, Bursa, Turkey, Ali Erhan Eren, Canakkale, Turkey, Berna Aytaç, Hakan Vurrupkan*, Bursa, Turkey

**MP06-03** OUTPATIENT ROBOTIC RADICAL PROSTATECTOMY: THE USC EXPERIENCE
Andre Berger*, Andre Luis de Castro Abreu, Arnaud Marien, Dennis J. Lee, Sheauenei Tsai, Scott Leslie, Raed Azhar, Sumet Suan, Mihir M. Desai, Manish Aron, Inderbir S. Gill, Los Angeles, CA

**MP06-04** THE IMPACT OF OBESITY ON THE COMPLICATION AND SUCCESS RATES IN LAPAROSCOPIC RADICAL PROSTATECTOMY
Onur Kaygisiz, Yakup Kordan, Hakan Vurruskan*, Omur Gunseren, Burhan Coskun, Hakan Kilicarslan, Berna Aytaç, Ismet Yavascaoglu*, Bursa, Turkey

**MP06-05** PELVIC LYMPHADENECTOMY IN INTERMEDIATE TO HIGH-RISK PROSTATE CANCER PATIENTS: A COMPARISON OF ROBOTIC AND OPEN APPROACHES
Andrew Michigan*, Don T. Bui, Fray F. Marshall, John G. Pattaras, Atlanta, GA

**MP06-06** GLEASON SCORE 6 PROSTATE CANCER AND PRESENCE OF EXTRAPROSTATIC EXTENSION
Aria A. Razmaria*, Chicago, IL, Edris Negron, Gladell P. Paner, Chicago, IL, Michael McGuire, Evanston, IL, Gregory P. Zagaia, Arieh L. Shalhav, Scott E. Eggener, Chicago, IL

**MP06-07** VIDEO ASSISTED DOCKING OF THE DA VINCI SURGICAL SYSTEM PATIENT CART
Saum Ghodoussipour, Kristen Coffey, Tamim Khaddash, John Gaughan, Zachary Smith*, Philadelphia, PA, Michael Louie, Chino, CA, Phillip Mucksavage, Philadelphia, PA, Aaron Bernie, ,

**MP06-08** ROBOTIC ASSISTED RADICAL PROSTATECTOMY IN BIOPSY PROVEN HIGH-GRADE PROSTATE CANCER: EXPERIENCE FROM TWO TERTIARY CENTERS WITH GLEASON DOWNGRADING AT FINAL PATHOLOGY ASSESSMENT
Naif Alhathal, Assaad El-Hakim*, Montreal, Canada, Vladimir Mouravieva, David M Albala, Matt Kardjian, Syracuse, NY, Pierre-Alain Hueber, Kevin C Zorn, MONTREAL, Canada

**MP06-09** POTENCY OUTCOMES OF ANATOMICAL GRADING OF NERVE SPARING (NS) DURING ROBOT ASSISTED RADICAL PROSTATECTOMY (RARP)
Oscar Schlatlof, Zerifin, Israel, Haidar Abdul-Muhsin, Srinivas Samavedi*, Celebration, FL, Rafael Coelho, Sao Paulo, Brazil, Bernardo Rocco, Milan, Italy, Kenneth Palmer, Vijay Patel, Celebration, FL

**MP06-10** OBJECTIVE PERIOPERATIVE PARAMETERS PREDICT LENGTH OF STAY FOR ROBOTIC-ASSISTED RADICAL PROSTATECTOMIES
Ariel Schulman*, Robert Lacivita, Peter Homel, Piyush Gupta, David Silver, Brooklyn, NY

**MP06-11** SINGLE INSTITUTION OUTCOMES OF AFRICAN AMERICANS FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY
Samuel Ohlander*, Victor Gappmaier, Leslie Deane, Chicago, IL

**MP06-12** COMBINED OPERATION OF ROBOT-ASSISTED RADICAL PROSTATECTOMY AND LAPAROSCOPIC NEPHROURETERECTOMY
Yoko Kyono*, Kazunori Hattori, Koosuke Hishiki, Kazuhiro Matsushita, Masaki Shimbo, Fumiyasu Endo, Kenichi Tobisu, Osamu Muraitshi, Tokyo, Japan

**MP06-13** THE SURGICAL LEARNING CURVE FOR PROSTATE CANCER CONTROL AFTER ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: EXPERIENCE OF A SINGLE SURGEON OF 500 CASES IN TAIWAN
Yen-chuan Ou*, CK Yang, Taichung, Taiwan

**MP06-14** LONG TERM STABILITY OF PEAK FLOW RATES ACROSS AGES OR IN MEN WITH BASELINE PFR<10 FOLLOWING ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP)
Harleen Dhalitival, Adam Gordon, Douglas Skarecky, Kathrynn Osann, Blanca Morales, Thomas Ahlering*, Orange, CA
MP06-15 GRADED ANATOMIC NERVE SPARING DURING ROBOT-ASSISTED RADICAL PROSTATECTOMY (RARP)
Ziho Lee*, Shailen Sehgal, Reid Graves, Yu-Kai Su, Elton Liukani, Kelly Manahan, Alice Mcgill, David Lee, Philadelphia, PA

MP06-16 COMPARISON OF ONCOLOGICAL OUTCOMES BETWEEN RETROPUBIC RADICAL PROSTATECTOMY AND ROBOT-ASSISTED RADICAL PROSTATECTOMY: AN ANALYSIS STRATIFIED BY SURGICAL EXPERIENCE
Jinsung Park*, Dae-Soon Yoo, Daejeon, Korea, Republic of, Seong Cheol Kim, Busan, Korea, Republic of, Sejun Park, Hanjong Ahn, Seoul, Korea, Republic of

MP06-17 SURGICAL TEAM ASSESSMENT OF THE OF THE 3D VIDEO SYSTEM AS USED IN LAPAROSCOPIC RADICAL PROSTATECTOMIES
Bogdan Petrut*, Hogea Maximilian, Vlad Schițcu, Andrei Kozan, Tiberiu Calistru, Alb Alexandru, Vasile Buda, Cluj Napoca, Romania

MP06-18 10 YEARS OF ROBOTIC UROLOGIC SURGERY AT AN ACADEMIC MEDICAL CENTER: A RETROSPECTIVE ANALYSIS OF CASE TRENDS AND PATTERNS
Gregory Mitchell*, Christopher Keel, Philip Dorsey, New Orleans, LA, Erik Castle, Scottsdale, AZ, Rodney Davis, Little Rock, AR, Raju Thomas, Benjamin Lee, New Orleans, LA

MP06-19 USE OF TRANEXAMIC ACID IN ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY – OUTCOMES AND COMPLICATIONS
Sarapreet Ubee*, Mislamani Selvan, Phillip El-Dalil, Jane Boddy, Bhagyashree Netke, Rangaswamy Chandrashekar, Peter Cooke, Wolverhampton, United Kingdom

MP06-20 LEARNING CURVE AND PERIOPERATIVE OUTCOMES OF ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY IN 200 INITIAL JAPANESE CASES BY A SINGLE SURGEON
Takeshi Hashimoto*, Kunihiko Yoshioka, Jun Nakashima, Kazunori Namiki, Yutaka Horiguchi, Choichiro Ozu, Masaaki Tachibana, Tokyo, Japan

MP06-21 PELVIC LYMPH NODE YIELD IN ROBOTIC PROSTATECTOMY: EXTRAPERITONEAL VS. TRANSPERITONEAL APPROACH
Ashley Brandon*, Boston, MA, Abdul Balsaer, Ingolf Tuerk, Brighton, MA

MP06-22 NOVEL TECHNIQUE PREVENTS LYMPHOCELES FOLLOWING TRANSPERITONEAL ROBOTIC ASSISTED PELVIC LYMPH NODE DISSECTION: PERITONEAL FLAP INTERPOSITION
Christopher Lebeis*, Andrea Sorcini, David Canes, Alireza Moinzadeh, Burlington, MA

MP06-23 IDENTIFICATION OF FAVORABLE RISK FACTORS IN PATIENTS WITH POSITIVE SURGICAL MARGIN AFTER ROBOT-ASSISTED RADICAL PROSTATECTOMY
Yun-Sok Ha*, North Brunswick, NJ, Dong Il Kang, Busan, Korea, Republic of, Jeong Hyun Kim, Chunchon, Korea, Republic of, Jae Young Joung, Goyang, Korea, Republic of, Ji Hyeong Yu, Seoul, Korea, Republic of, Wun-Jae Kim, Cheongju, Korea, Republic of, Isaac Kim, New Brunswick, NJ

MP06-24 RISK FACTORS OF POSITIVE SURGICAL MARGINS ON THE APEX OF PROSTATE ON ROBOT-ASSISTED LAPAROSCOPIC PROSTATECTOMY
Risa Muneishi*, Ryuta Tanimoto, Yasuyuki Kobayashi, Motoo Araki, Shin Ebara, Toyohiko Watanabe, Yasutomo Nasu, Hiroki Kumon, Okayama, Japan

MP06-25 DOES SURGEON SUBJECTIVE NERVE SPARING SCORE PREDICT RECOVERY OF ERECTILE FUNCTION FOLLOWING ROBOT-ASSISTED RADICAL PROSTATECTOMY?

MP06-26 IMPACT OF LENGTH OF POSITIVE SURGICAL MARGINS (PSM) ON BIOCHEMICAL RECURRENCE (BCR) AFTER ROBOT-ASSISTED RADICAL PROSTATECTOMY (RARP), IN A SINGLE CENTER SERIES WITH FOLLOW-UP OF AT LEAST FIVE YEARS
Prasanna Sooriakumaran*, Achilles Ploumidis, Leif Haendler, Tommy Nyberg, Mats Olsson, Stefan Carlsson, Gunnar Steineck, Peter Wiklund, Worcester Park, United Kingdom
ESWL/UROLITHIASIS

Room Rhythms 2 @ Sheraton New Orleans

Chair: Christian Chaussey
Faculty: Brian Matlaga and Achim Loske

**Presenting author**

**MP07-01 ESWL TREATMENT IN GERMANY IN 2013: RESULTS FROM A NATION-WIDE HOSPITAL SURVEY**

Wolfgang Brummeisl*, Christian Chaussey, Regensburg, Germany, Jens Rassweiler, Heilbronn, Germany, Thomas Knoll, Sindelfingen, Germany, Andreas Gross, Hamburg, Germany, Kai Koehrmann, Mannheim, Germany, Wolf Wieland, Hans-Martin Fritsche, Regensburg, Germany

**MP07-02 TRIPLE D SCORE IS A READILY INTERPRETED SINGLE SCORE THAT PREDICTS SHOCKWAVE LITHOTRIPSY STONE FREE RATES FOR RENAL CALCULI**

Timothy Tran*, Kathryn McGillen, Eugene Cone, Shadi Al Ekish, Damian Dupuy, Gyan Pareek, Providence, RI

**MP07-03 A NON-INFERIORITY TRIAL COMPARING THE COMBINATION OF ETORICOXIB AND DICLOFENAC AGAINST PETHIDINE AS ANALGESIA DURING EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY**

Cheuk Fan Shum*, Amit Mukherjee, Chin Hu Ong, Tew Poh Lim, Chang Peng Colin Teo, Singapore, Singapore

**MP07-04 TO ASSESS THE EFFECTS OF DIFFERENT TREATMENT PROTOCOLS ON THE DEGREE OF RENAL INJURY IN PATIENTS WITH RENAL STONES RECEIVING SHOCKWAVE LITHOTRIPSY**

Ye Lu*, Wai Man Yuen, Danny Gohel, Chi Fai Ng, Hong Kong, Hong Kong

**MP07-05 IN VIVO STONE COMMINUTION PRODUCED BY A MODIFIED ACOUSTIC LENS FOR ELECTROMAGNETIC LITHOTRIPTERS**

Andreas Neisius*, Nathan Smith, Nicholas Kuntz, Tim Schykowski, Gaston Astroza, Richard Shin, Ramy Youssef, Muhammad Iqbal, Michael Ferrandino, Michael Lipkin, W. Neel Simmons, Glenn Preminger, Pei Zhong, Durham, NC

**MP07-06 ENERGY AND PULSE REPETITION FREQUENCY DEPENDENT TISSUE INJURY PRODUCED BY A MODIFIED ACOUSTIC LENS FOR ELECTROMAGNETIC LITHOTRIPTERS**

Andreas Neisius*, Nathan Smith, Nicholas Kuntz, Tim Schykowski, Gaston Astroza, Richard Shin, Ramy Youssef, Muhammad Iqbal, Michael Ferrandino, Michael Lipkin, W. Neel Simmons, Glenn Preminger, Pei Zhong, Durham, NC

**MP07-07 A NOVEL METHOD OF EXTRACORPOREAL LITHOTRIPSY WITHOUT SHOCK WAVES: IN VITRO FRAGMENTATION OF ARTIFICIAL AND HUMAN CALCULI**

Adam Maxwell*, Bryan Cunitz, Wayne Kreider, Oleg Sapozhnikov, Ryan Hsi, Mathew Sorensen, Jonathan Harper, Michael Bailey, Seattle, WA

**MP07-08 HYPOTHERMIA (ICE PACK) VERSUS CYCLOOXYGENASE 2 SELECTIVE INHIBITOR AS PAIN CONTROL FOR POST-EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY PATIENTS**

Ernesto Manuel Jr. Romero M.D.*, Omar Cortes, M.D., FPUA, FPSO, Quezon City, Philippines

**MP07-09 EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY WITH DORNIER LITHOTRIPTER S: LONG TERM SIDE EFFECTS ASSESSMENT AFTER 10 YEARS OF FOLLOW UP**

Marco Rosa*, Alessio Zordani, Maria Chiara Sighinolfi, Alessandro Mofferdin, Riccardo Galli, Salvatore Micali, Giampaolo Bianchi, Modena, Italy

**MP07-10 EFFECT OF ROWATINEX ON URINARY CALCULUS CLEARANCE AFTER EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY**

Won Sik Jeong*, Won Sik Han, Hong Sang Moon, Tchun Yong Lee, Sung Yul Park, Kyung Hyun Moon, Seoul, Korea, Republic of

**MP07-11 THE EFFECT OF PREOPERATIVE COUNSELING ON PATIENT PREFERENCE IN MANAGEMENT OF ASYMPTOMATIC RENAL CALCUL**

Gregory Lieser*, Giovanni Marchini, Carl Sarkissian, Julie Cheng, Manoj Manga, Cleveland, OH

**MP07-12 VALIDATION OF A CLINICAL NOMOGRAM TO PREDICT SUCCESSFUL SINGLE TREATMENT SHOCKWAVE LITHOTRIPSY OF RENAL AND URETERAL CALCULI**

Andrea G. Lantz*, Daniela Ghiculete, Kirsten Foell, Tarek Alzahrani, R. John Honey, Kenneth T. Pace, Toronto, Canada

**MP07-13 OPTICAL COUPLING CONTROL IN EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY: FIRST CLINICAL EXPERIENCE**

Geert Tally*, Kapellen, Belgium

**MP07-14 IS SCREENING PATIENTS FOR URINARY TRACT INFECTIONS BEFORE EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY USING URINE DIPSTICK NECESSARY?**

Ben Tschobotko, Milad Hanna*, Ranan DasGupta, London, United Kingdom
MP07-15 Early Outcomes and Predictors of Treatment Success After Single Session Extra-Corporeal Shock Wave Lithotripsy (ESWL) for Urolithiasis
Mano Roy, Danjuma U Kalba*, Nir Polak, Ronen Holland, Pinhas M Livne, David Lifshitz, Tel Aviv, Israel

MP07-16 Inducible Nitric Oxide Synthase Inhibitors for Protection from Renal Damage Due to Extracorporeal Shockwave Therapy

MP07-17 Does Ozone Therapy Have Protective Effect on Renal Damage Caused by Extracorporeal Shockwave Therapy?
Ercan Malkoc*, Tekirdag, Turkey, Bilal Firat Alp, Ankara, Turkey, Sami Uguz, Agri, Turkey, Ali Guragac, Ankara, Turkey, Ferhat Ates, Istanbul, Turkey, Bilent Uysal, Yasemin Gucan Kurt, Ayhan Ozcan, Ibrahim Yildirim, Ankara, Turkey, Kenan Karademir, Istanbul, Turkey

MP07-18 Valproic Acid Treatment in Renal Damage Due to Extracorporeal Shockwave Therapy?
Zafer Demirer*, Eskisehir, Turkey, Ercan Malkoc, Tekirdag, Turkey, Bilal Firat Alp, Ankara, Turkey, Sami Uguz, Agri, Turkey, Ali Guragac, Ankara, Turkey, Hassan Kosoglu, Kocaeli, Turkey, Emin Oztan, Yasemin Gucan Kurt, Ayhan Ozcan, Seref Basal, Ibrahim Yildirim, Ankara, Turkey

MP07-19 Change of Oxidative Stress Before and After ESWL for Patients with Renal Stone
Saint Shiou-Sheng Chen*, Allen W. Chiu, Taipei, Taiwan

MP07-20 Comparison Early with Delayed Lithotripsy in Colic Patients with Solitary Ureter Calculi
Han Jung*, Sang-Jin Yoon, Khae-Haen Kim, Tae-Beom Kim, Jin-Kyu Oh, Kyung Jin Chung, Kwang Taek Kim, Incheon, Korea, Republic of

MP07-21 Neutrophil Gelatinase-Associated Lipocalin (NGAL) Values Change Before and After Shock Wave Lithotripsy
Alessandro D’addessi*, Matteo Vittori, Silvia Baroni, Chiara De Waure, Matteo Raponi, Aniello Primiano, Francesco Sessa, Giuseppe Palermo, Pierfrancesco Bassi, Rome, Italy

MP07-22 Selective Lung Intubation May Improve Stone Targeting During Secondary SWL
Vitaly Sherman, Shmuel Roizman*, Amnon Zisman, Amir Cooper, Zoya Haitov, Yoram I. Siegel, Zerifin, Israel

MP07-23 Extracorporeal Shock Wave Lithotripsy (ESWL) for the Treatment of Renal Colic Induced by Ureteral Stones
Huang Donglong*, Shenzhen, China, People’s Republic of

MP07-24 First Year’s Experience with a Dornier Gemini Multifunctional Lithotripter
Geert Tally*, Kapellen, Belgium

MP07-25 With the Era of Advanced Endoscopic Technology, is ESWL Still Needed?
Hamad El-Darawany*, Alkhobar, Saudi Arabia

MP07-26 Regional Variation in the Surgical Management of Kidney Stone Disease in the Province of Ontario
Michael Ordon*, R. John D’A. Honey, Kenneth T. Pace, Toronto, Canada

Wednesday, October 23, 2013
Moderated Poster Session MP08 4:30 pm–6:15 pm

ROBOTICS/LAPAROSCOPY: PROSTATE/BLADDER I
Room Rhythms 3 @ Sheraton New Orleans
Chair: Allen Chiu
Faculty: James Borin and Andres Hernandez Porras

*Presenting author

MP08-01 Robotic Radical Cystectomy with Totally Intracorporeal Urinary Diversion: Preliminary Results
Marinaconsiglia Ferriero*, Giuseppe Simone, Rocco Papalia, Salvatore Guaglianone, Rome, Italy, Mihir Desai, Inderbir Gill, Los Angeles, CA, Michele Gallucci, Rome, Italy

MP08-02 The First National Experience of Intravesical Injection of the Tracei™ Tissue Marker Under a Local Anesthesia for Imaging Visualization of Muscle-Invasive Bladder Cancer for the Targeted IMRT
Joel Bass*, Po Lam, Christopher Pieczonka, Syracuse, NY, Patrick Campbell, Waltham, MA, David Albala, Howard Williams, Vladimir Moureau, Neil Mariados, Syracuse, NY
MP08-03 ROBOTIC RADICAL CYSTECTOMY AND COMPLETELY INTRACORPOREAL URINARY DIVERSION: THE USC EXPERIENCE

MP08-04 COMPARISON OF OUTCOMES BETWEEN INTRACORPOREAL AND EXTRACORPOREAL ILEAL CONDUITS IN 164 CONSECUTIVE ROBOT-ASSISTED RADICAL CYSTECTOMIES
Anees Fazili*, Helen Levey, Justin Houman, Changyong Feng, Hani Rashid, Guan Wu, Rochester, NY

MP08-05 THE EFFECT OF SURGEON VOLUME ON THE MORBIDITY OF RADICAL CYSTECTOMY IN THE UNITED STATES: A CONTEMPORARY POPULATION-BASED ANALYSIS
Jeffrey Leow*, Wei Jiang, Stephen Reese, Stuart Lipsitz, Benjamin Chung, Boston, MA, Benjamin Chung, Stanford, CA, Steven Chung, Boston, MA

MP08-06 EFFECTS OF OPIOID-BASED ANALGESICS AND THE UTILIZATION OF THE ROBOTIC SYSTEM ON THE DURATION OF POSTOPERATIVE ILEUS FOLLOWING RADICAL CYSTECTOMY WITH ILEAL CONDUIT
Kyo Chul Koo*, Seh Kiat Lim, Tae Young Shin, Young Eun Yoon, Sang Woon Kim, Koon Ho Rha, Seoul, Korea, Republic of

MP08-07 PATIENT SURVIVAL COMPARISON BETWEEN CONVENTIONAL VS. OTHER VARIANT SUBTYPES OF BLADDER UROTHELIAL CARCINOMA
Ahmed Abd El Latif*, Beni Suef, Egypt, Ranko Miocinovic, Detroit, MI, Adrian Hernandez, Ryan Berglund, Cleveland, OH

MP08-08 PRE-PERITONEAL LAPAROSCOPIC PARTIAL CYSTECTOMY OF THE BLADDER PHEOCHROMOCYTOMA (WITH VIDEO)
Xiaojun Tian*, Lulin Ma, Yi Huang, Beijing, China, People’s Republic of

MP08-09 LAPAROSCOPIC RADICAL CYSTECTOMY FOR BLADDER CANCER: FOLLOW-UP OF 53 CASES IN SINGLE CENTER
Jianlin Huang*, Yong Liao, Mingxing Qiu, Chengdu, China, People’s Republic of

MP08-10 MATCHED-COMPARISON OF ROBOTIC ASSISTED AND OPEN RADICAL CYSTECTOMY: EXPERIENCE FROM A SINGLE INSTITUTION
Sailaja Pisipati*, Datesh Daneshwar, Elizabeth Waine, Christian Bach, David Gillatt, Anthony Koupparis, Edward Rowe, Bristol, United Kingdom

MP08-11 ROBOTIC VERSUS LAPAROSCOPIC INTRACORPOREAL URINARY DIVERSION AFTER RADICAL CYSTECTOMY
Idir Ouzaid*, Riccardo Autorino, Emad Rizkala, Dinesh Samarskerka, Vishnuvardhan Ganesh, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

MP08-12 CONTEMPORARY OUTCOMES OF ROBOT-ASSISTED RADICAL CYSTECTOMY WITH EXTENDED PELVIC LYMPH NODE DISSECTION
Ryan Dorin*, Halili Kiziloz, Kyle Finnegan, Joseph Wagner, Anoop Meraney, Hartford, CT

MP08-13 LAPAROSCOPIC RADICAL CYSTECTOMY WITH ILEAL CONDUIT: THE FIRST EXPERIENCE FROM SOUTH AFRICA
Sunil Sinha*, Cape Town, South Africa

MP08-14 COMPARATIVE OUTCOMES OF STUDER ILEAL NEobladder and BRICKER ILEAL CONDUIT URINARY DIVERSION AFTER LAPAROSCOPIC RADICAL CYSTECTOMY: EIGHT-YEAR FOLLOW-UP OF 77 CASES
Jianfei Ye*, Jianfei Ye, Lulin Ma, Beijing, China, People’s Republic of

MP08-15 A COMPARISON OF ROBOTIC AND OPEN RADICAL CYSTECTOMY FOR UROTHELIAL CARCINOMA IN OCTOGENARIANS
Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Gouedelock, Juan Class, Chattanooga, TN

MP08-16 MINIMALLY-INVASIVE URETERAL REIMPLANTATION: A SINGLE INSTITUTION FIVE-YEAR EXPERIENCE
Samuel Kaffenberger*, Aaron Benson, Ryan Pickens, S. Duke Herrell, Nashville, TN

MP08-17 LAPAROSCOPIC RADICAL CYSTECTOMY WITH INTRACORPOREAL CONSTRUCTION OF ORTHOTOPIC SIGMOID NEobladder: TECHNIQUES AND RESULTS
Hao Liu, Tuxin Lin, Kekei Xu, Chun Jiang, Jinli Han, Hai Huang, Wen Dong, Xiuang Fan, Hao Yu, Jian Huang*, Guangzhou, China, People’s Republic of

MP08-18 LAPAROSCOPIC ILEOCYSTOPLASTY IN NEUROGENIC BLADDERS - IDEAL ILEAL LENGTH REDEFINED
Manickam Ramalingam*, Anandan Murugesan, Kallappan Senthil, Mitzan Ganaopathy Pai, Coimbatore, India

MP08-19 CLINICAL SIGNIFICANCE OF RADICAL CYSTECTOMY WITH EXTENDED LYMPHADENECTOMY AND INFLUENCING FACTORS ASSOCIATED WITH RECURRENCE OF BLADDER CANCER
Gongxian Wang*, NanChang, China, People’s Republic of

MP08-20 80 IS THE NEW 60: ROBOTIC CYSTECTOMY IN OCTOGENARIANS AFFORDS PATIENTS STANDARD OF CARE WITH LIMITED COMPLICATIONS
Elizabeth Phillips, Vik Uberti, Boston, MA, Audley Osborne, Lewiston, ME, Ingolf Tuerk, Brighton, MA, Chris Hoover*,

MP08-21 REPAIR OF IATROGENIC URINARY TRACT INJURY USING THE SAME MINIMALLY-INVASIVE TECHNIQUE AS THE ORIGINAL PROCEDURE
Dana Kivlin*, Michael Hanzly, Jamison Jaffe, Justin Harmon, Philadelphia, PA
MP08-22 INITIAL EXPERIENCE OF ROBOTIC-ASSISTED RADICAL CYSTECTOMY WITH INTRA-CORPOREAL URINARY DIVERSION: A COMPARISON WITH EXTRA-CORPOREAL METHOD
Sailaja Pisipati*, Datesh Daneshvar, Christian Bach, Elizabeth Waine, David Gillatt, Edward Rowe, Anthony Koupparis, Bristol, United Kingdom

MP08-23 NOVEL LAPAROSCOPE DEFOGGING AND CLEANING DEVICE FOR ROBOT-ASSISTED LAPAROSCOPIC PROSTATECTOMY (RALP)
Carson Wong*, Middleburg Heights, OH, Xiao Gu, Yangzhou, China, People’s Republic of, Motoo Araki, Okayama, Japan, Sara Heider, Middleburg Heights, OH

MP08-24 INCIDENCE AND SEVERITY OF SURGICAL COMPLICATIONS IN MINIMALLY INVASIVE RADICAL PROSTATECTOMY
Ana Maria Autran-Gomez*, Rafael Sanchez-Salas, Dominique Prapotnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galano, Annick Monbet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP08-25 BLADDER ASPECT RATIO AND VESICO-URETHRAL ANASTOMOSIS POSITION ON POSTOPERATIVE CYSTOGRAPHY AS THE PREDICTIVE FACTORS OF URINARY CONTINENCE RECOVERY AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY
Nobuyuki Nakajima*, Yuuki Shimizu, Taro Higure, Mamoru Fukuda, Masayoshi Kawakami, Masahiro Nitta, Kazuyuki Hanai, Akio Hoshi, Takeshi Nomoto, Toshiro Terachi, Isehara, Japan

MP08-26 REAL-VISUAL TISSUE STIFFNESS FEEDBACK IN MINIMALLY INVASIVE SURGERY
Gautam Mehra*, Min Li, Geoffrey Lane, Kaspar Althoefer, Prokar Dasgupta, London, United Kingdom

Wednesday, October 23, 2013
Moderated Poster Session MP09 4:30 pm–6:15 pm

TUR SURGERY
Room Grand Ballroom D @ Sheraton New Orleans
Faculty: John Honey and Darren Bleko

*Presenting author

MP09-01 HISTOTRIPSY EFFECTS ON THE BLADDER TRIGONE: FUNCTIONAL AND HISTOLOGIC CONSEQUENCES IN THE CANINE MODEL
Christopher Allam, J. Erby Wilkinson, Xu Cheng, Kimberly Ives, Timothy Hall, William Roberts*, Ann Arbor, MI

MP09-02 EN BLOC TURB WITH PLASMAKINETIC BUTTON TURIS: IS A BETTER TREATMENT OPTION?
Barbara Cristina Gentile*, Roberto Giulianelli, Luca Albanesi, Francesco Attisani, Gabriella Mirabile, Francesco Pisanti, Manlio Schettini, David Granata, Rome, Italy

MP09-03 FOUR-YEAR NON-MUSCLE INVASIVE BLADDER CANCER RECURRENCE RATES – A PROSPECTIVE, RANDOMIZED COMPARISON BETWEEN HEXAMINOLEVULINATE BLUE LIGHT AND STANDARD WHITE LIGHT CYSTOSCOPY
Bogdan Gavete*, Razvan Munteanu, Dragos Georgescu, Marian Jecu, Florin Stanescu, Cristian Moldoveanu, Petrisor Gavete, Bucharest, Romania

MP09-04 CLASSIFICATION AND ENDOSCOPIC REPAIR OF INFRAVESICAL OBSTRUCTION AFTER HIFU
Stefan Thueroff*, Munich, Germany, Christian Chaussy, Regensburg, Germany

MP09-05 HIGH INTENSITY FOCUSED ULTRASOUND IN INCIDENTAL PROSTATE CANCER - A NON-INVASIVE CURATIVE THERAPY-
Stefan Thueroff*, Derya Tilki, Munich, Germany, Christian Chaussy, Regensburg, Germany

MP09-06 A RANDOMIZED COMPARATIVE EFFECTIVENESS TRIAL ON TRANSURETHRAL ENucleation WITH OLYMPUS BUTTON ELECTRODE (B-TUEP)VERSUS “TRADITIONAL LOOP” GYRUS PK FOR THE TREATMENT OF CLINICAL OBSTRUCTING BENIGN PROSTATE HYPERPLASIA. RUA’S EXPERIENCE
Barbara Cristina Gentile*, Roberto Giulianelli, Luca Albanesi, Francesco Attisani, Gabriella Mirabile, Francesco Pisanti, Manlio Schettini, Rome, Italy

MP09-07 TRANSURETHRAL ENucleation and RESECTION FOR PROSTATIC HYPERPLASIA BEYOND 80 CC
Kenji Kawamura*, Ishikawa, Japan

MP09-08 2-MICRON LASER TRANSURETHRAL RESECTION OF REPEATED RECURRENCE OF MULTIPLE NON-MUSCLE INVASIVE BLADDER TUMORS: SINGLE-CENTER EXPERIENCE
Yanbo Wang, Jingjing Guan, Min Liu, Hai Feng Zhang, Chunxi Wang*, Changchun, China, People’s Republic of
MP09-09  HOLMIUM LASER ENucleATION OF THE PROSTATE VERSUS PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE FOR PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA AND CHRONIC URINARY RETENTION  
Christopher Jaeger*, Christopher Mitchell, Lance Mynuderse, Amy Krambeck, Rochester, MN

MP09-10  FACTORS AFFECTING DE NOVO URINARY RETENTION AFTER HOLMIUM LASER ENucleATION OF THE PROSTATE  
Sung Han KIM, Kyanggi, Korea, Republic of, Minsoo Choo, Jae-Seung Paick, Hahn-Ey LEE*, Seung-June OH, Seoul, Korea, Republic of

MP09-11  MEDIUM TERM OUTCOME OF BIPOLAR PLASMA VAPORIZATION IN PROSTATE CANCER PATIENTS – A PALLIATIVE MODALITY OF PRESERVING SPONTANEOUS VOIDING  
Bogdan Gavoieta, Cristian Moldoveanu, Gheorghe Nita, Florin Stanescu, Marian Jecu, Petrisor Gavoieta*, Bucharest, Romania

MP09-12  A PROSPECTIVE COMPARISON BETWEEN NBI AND STANDARD WHITE LIGHT CYSTOSCOPY IN CASES OF NON-MUSCLE INVASIVE BLADDER CANCER  
Bogdan Gavoieta, Marian Jecu, Florin Stanescu, Cristian Moldoveanu, Leon Adou, Petrisor Gavoieta*, Bucharest, Romania

MP09-13  SALVAGE HOLMIUM LASER ENucleATION OF PROSTATE TO TREAT RECURRENT BENIGN PROSTATIC HYPERPLASIA  
Jin Kyu Oh*, Incheon, Korea, Republic of, Hahn-Ey Lee, Seoul, Korea, Republic of, Jungbum Bae, Goyang, Korea, Republic of, Chang Wook Jeong, Jae-Seung Paick, Seung-June Oh, Seoul, Korea, Republic of

MP09-14  THREE-YEAR IMPACT OF COMBINED NARROW BAND IMAGING CYSTOSCOPY AND BIPOLAR PLASMA VAPORIZATION IN LARGE NON-MUSCLE INVASIVE BLADDER TUMORS’ CASES – A PROSPECTIVE, RANDOMIZED COMPARISON TO THE STANDARD APPROACH  
Bogdan Gavoieta*, Razvan Multescu, Dragoș Georgescu, Florin Stanescu, Marian Jecu, Cristian Moldoveanu, Petrisor Gavoieta, Bucharest, Romania

MP09-15  EVALUATION AND PREDICTION OF POSTOPERATIVE COMPLICATIONS AFTER PRIMARY TURB FOR NON-Y-TSCLE INVASIVE-BLADDER CANCER (NMIBC)  
Rafael Sanchez-Salazar*, Ana Maria Autran-Gomez, Dominique Papetnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP09-16  VISUAL INTERNAL URETHROTOMY FOR URETHRAL STRICURE RECURRENT AFTER PERINEAL BULBPSTATIC ANASTOMOSIS: WHO WILL BE SUITABLE?  
Dong Soo Park*, Seung Ryoe Lee, Seongnam-si, Korea, Republic of

MP09-17  TWO YEARS ENDOscOPIC RESECTION OF BLADDER WITH PHOTODYNAmIC BLUE LIGHT: PRELIMINARY RESULTS  
Tommaso Brancato*, Roma, Italy, Francesca Suriano, Roberto D’Ascenzo, Pietro Nupieri, Gianni Paalis, Giuseppe Orsolini, Albano Laziale Roma, Italy, Rosaria Alvaro, Roma, Italy

MP09-18  SHOULD WE STOP ASPIRIN BEFORE TURP?  
Alireza Farshi Haghro*, Tabriz, Iran

MP09-19  THE ROLE OF URODYNAMICS PRIOR TO HOLMIUM LASER ENucleATION OF THE PROSTATE IN MEN WITH BPH: A SERIES OF OVER 300 PATIENTS  
Chinedu Mmeje*, Rafael Nunez-Nateras, Meng-Ru Cheng, Yu-Hui Chang, Mitchell Humphreys, Phoenix, AZ

MP09-20  TRANSURETHRAL LOW ENERGY HOLMIUM LASER ENucleATION OF THE PROSTATE (HOLEP) – A COMPARISON OF SINGLE SURGEON PERFORMANCE IN THE BEGINNING AND IN THE PRESENT  
Philip Emanuel Rieker*, Jan T. Klein, Michael Schulze, Marcel Hruza, Koray Genisoglu, Jens J. Rassweiler, Heilbronn, Germany

MP09-21  OVERCOMING THE LEARNING CURVE: A PERFORMANCE IMPROVEMENT ANALYSIS OF 210 CONSECUTIVE ANTEROPOSTERIOR DISSECTION HOLEP  
Fumiyasu Endo*, Masaki Shimbo, Kazuhiito Matsushita, Koosuke Hishiki, Yoko Kyono, Akiko Fujisaki, Takayuki Sugimura, Kazunori Hattori, Kenichi Tobisu, Osaka Murasaki, Tokyo, Japan

MP09-22  OUT-PATIENT TRANSURETHRAL LASER ABLATION (TULA) OF UROTHELIAL TUMOURS USING THE 1470 NM DIODE LASER  
Sachin Agrawal*, Uwais Mufti, Rosemarie Richards, David Hrouda, Altaf Shamsuddin, London, United Kingdom

MP09-23  HARD NODULE RESISTANT TO MORCELLATION DURING HOLMIUM LASER ENucleATION OF PROSTATE  
Jungbum Bae*, Goyang, Korea, Republic of, Hahn-Ey Lee, Kyung Chul Moon, Seung-June Oh, Seoul, Korea, Republic of

MP09-24  OUR EXPERIENCE OF PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE (PVP): A SINGLE INSTITUTIONAL STUDY OF 168 PATIENTS  
Salil Umranikar*, Solihull, United Kingdom, Salahuddin Ghilaw, Shrewsbury, United Kingdom

MP09-25  ENDOUROLOGY AND FOREIGN BODIES IN THE BLADDER: HISTORICAL REVIEW  
Michael Moran*, Tucson, AZ
MP10-01 IMPACT OF RENAL NEPHROMETRY SCORE ON RENAL BIOPSY UTILITY: ANALYSIS OF THE TRACE REGISTRY DATA
Jason Bylund, Lexington, KY, Jaime Landman, Irvine, CA, Stephen Savage, Charleston, SC, Peter Clark, Stanley Herrell, Nashville, TN, Chad LaGrange, Omega, NE, David Schulsinger, Stony Brook, NY, Stephen Strup*, Lexington, KY

*Presenting author

MP10-02 PROSTATE HISTOSCANNING AS A TOOL FOR DECISION MAKING IN PROSTATE CANCER THERAPEUTICS
Petr Macek*, Eric Barret, Rafael Sanchez-Salas, Marc Galano, Luca Lancelli, Youness Ahallal, Laurent Masse, Camilo Giedelman, Josep M Gaya, Dominique Prapetich, Francois Rozet, Xavier Cathelineau, Paris, France

MP10-03 LABEL-FREE DETECTION OF POSITIVE SURGICAL MARGINS DURING RADICAL PROSTATECTOMY USING COHERENT ANTI-STOKES RAMAN SCATTERING MICROSCOPY
Alvin Goh*, Xiaoyan Xu, Houston, TX, Liang Gao, Rockingham, VT, Huiran Zhou, Michael Thrall, Xi Wang, Xu Chen, Zhengfan Liu, Houston, TX, Ganesh Palapattu, Ann Arbor, MI, Stephen Wong, Houston, TX

MP10-04 OFFICE-BASED IMAGED-GUIDED PERCUTANEOUS CRYOABLATION OF CLINICAL T1A RENAL MASSES: EXPERIENCE OF A SINGLE PRIVATE-PRACTICE UROLOGIST IN THE COMMUNITY SETTING
James Siegert*, Cameron Jirschele, Thai Nguyen, Joliet, IL

MP10-05 FINE TILT TUNING OF A LAPAROSCOPIC CAMERA BY LOCAL MAGNETIC ACTUATION: TWO-PORT LAPAROSCOPIC NEPHRECTOMY EXPERIENCE ON HUMAN CADAVERS
Ryan Pickens*, Knoxville, TN, Massimiliano Simi, Duke Herrell, Pietro Valadasti, Nashville, TN

MP10-06 POST-TREATMENT IMAGING CHARACTERISTICS OF RENAL MASSES AFTER CRYOABLATION: RESULTS FROM A MULTI-INSTITUTIONAL DATABASE

MP10-07 A NEW METHOD TO ESTIMATE URINARY STONE SIZE: SEGMENTATION ALGORITHM-BASED CT
Xiaobo Ding*, Liang Chen, Jiping Wang, Changchun, China, People’s Republic of, Gang Jin, Herbin, China, People’s Republic of

MP10-08 PROSPECTIVE COMPARISON OF FLEXIBLE HYDROOPTIC CO2 LASER AND STANDARD MONOPOLAR CAUTERY FOR ROBOTIC MICROSURGICAL DENERVATION OF THE SPERMATIC CORD PROCEDURE
Landon Trost, Ahmet Gudeoglu*, Jamin Brahmibhatt, Sijo Parakkattil, Winter Haven, FL

MP10-09 LASER ACTIVATED NANOPARTICLE ABLATION OF PROSTATE CANCER: A PILOT STUDY IN HUMANS
Joshua Stern*, Larchmont, NY, Elena Elena Saizkina, Mexico City, Mexico, Jon Schwartz, Houston, TX

MP10-10 DIAGNOSTIC EFFICACY OF CONTRAST-ENHANCED ULTRASOUND FOR SOLID RENAL TUMOR
Ill Young Seo*, Taeg Hoon Oh, Jae Whan Lee, Iksan, Korea, Republic of

MP10-11 CONTEMPORARY UROLOGIC MINI-LAPAROSCOPY: INDICATIONS, TECHNIQUES AND SURGICAL OUTCOMES IN A MULTI-INSTITUTIONAL EUROPEAN COHORT
Riccardo Autorino*, Cleveland, OH, Francesco Porpiglia, Orbassano, Italy, Vincenzo Pagliarulo, Bari, Italy, Alessandro Volpe, Novara, Italy, Mario Falsaperla, Catania, Italy, Antonio Celù, Bassano del Grappa, Italy, Alberto Breda, Barcelona, Italy, Francesco Greco, Halle/Salle, Germany, Antonio Ciccione, Braga, Portugal, Marco De Sio, Napoli, Italy, Alberto Saita, Catania, Italy, Angelo Venieri Becchi, Bari, Italy, Monica Zaccheria, Novara, Italy, Riccardo Bertolo, Orbassano, Italy, Paolo Fornara, Halle/Salle, Germany, Christian Fiori, Orbassano, Italy, Carlo Terrone, Novara, Italy, Estevao Lima, Braga, Portugal, Jens Rassweiler, Heilbronn, Germany

MP10-12 COMPARISON OF LAPAROSCOPIC AND PERCUTANEOUS APPROACHES FOR CRYOABLATION OF SMALL RENAL CORTICAL NEOPLASM
Zhanshid Okhunov*, Jaime Landman, Orange, CA, Peter Clark, Duke Herrell, Nashville, TN, Stephen Savage, Charleston, SC, Stephen Strup, Lexington, KY, David Schulsinger, NY, NY, Chad LaGrange, Omaha, NE

MP10-13 THREE-DIMENSIONAL VERSUS STANDARD LAPAROSCOPY: COMPARATIVE ASSESSMENT USING A VALIDATED PROGRAM FOR LAPAROSCOPIC UROLOGIC SKILLS
Riccardo Autorino*, Cleveland, OH, Antonio Cicione, Braga, Portugal, Alberto Breda, Barcelona, Spain, Marco De Sio, Napoli, Italy, Rocco Danziano, Catanzaro, Italy, Francesco Greco, Halle/Salle, }
MP10-14 | COMPLETE HIFU IN LOCALIZED PROSTATE CANCER
Christian Chaussy*, Regensburg, Germany,
Derya Tilki, Stefan Thueroff, Muenchen, Germany

MP10-15 | SUCCESS OF PERCUTANEOUS ABLATION FOR RENAL CELL CARCINOMA IS DEPENDENT ON TUMOR SIZE: A MULTI-INSTITUTIONAL STUDY
Sara Best*, E. Jason Abel, Madison, WI, Ali Khalifeh,
Cleveland, OH, Meghan Lubner, Sutchin Patel,
Stephen Nakada, Madison, WI, Jihad Kaouk,
Cleveland, OH

MP10-16 | DOES STRENGTH OF MRI SCANNER AND BETWEEN BIOPSY AND EMRI SIGNIFICANTLY INFLUENCE THE ABILITY OF ENDORECTAL MAGNETIC RESONANCE IMAGING (EMRI) TO PREDICT EXTRACAPSULAR EXTENSION (ECE) AND SEMINAL VESICLE INVASION (SVI) IN PATIENTS WITH CLINICALLY LOCALIZED PROSTATE CANCER.
Ziho Lee*, Shailen Sekgal, Reid Graves, Yu-Kai Su,
Elton Llukani, Kelly Monahan, Alice McGill,
Philadelphia, PA

MP10-17 | HISTOPATHOLOGICAL DIFFERENCES BETWEEN PROSTATE CANCER FOCI THAT ARE DETECTED AND MISSED USING MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING IN KOREAN PATIENTS
Jae Dong Chung*, Seung Hyun Ahn, Jong Kyou Kwon,
Tae-Hyoun Kim, Soon Chul Myung,
Young Tae Moon, Kyung Do Kim, In Ho Chang,
Seoul, Korea, Republic of Korea

MP10-18 | INTRAOPERATIVE OPTICAL BIOPSY DURING ROBOTIC-ASSISTED RADICAL PROSTATECTOMY USING CONFOCAL LASER ENDOMICROSCOPY: INITIAL FEASIBILITY STUDY
Joseph Liao*, Daniel Bui, Jen-Jane Liu, Kathleen Mach,
Stanford, CA, Theodore Harris, Palo Alto, CA,
John Leppert, Stanford, CA

MP10-19 | FOCAL THERAPY OF LOCALIZED RENAL CELL CARCINOMA. INTERSTITIAL LASER COAGULATION
Oleg Teodorovich, Stanislav Narayshkin*,
Gennady Borisenko, Elena Rassichupkina,
Alina Ivanikova, Andrey Ryazantsev, David Kochiev,
Moscow, Russian Federation

MP10-20 | THE DIAGNOSTIC ACCURACY OF MULTI-DETECTOR COMPUTED TOMOGRAPHY WITH MULTIPLANAR REFORMATTED IMAGING AND VIRTUAL CYSTOSCOPY IN THE EARLY DETECTION AND EVALUATION OF BLADDER CARCINOMA: COMPARISON WITH CONVENTIONAL CYSTOSCOPY
Amr Abdel Hamid*, El Minia, Egypt

MP10-21 | WHITE LIGHT AND NARROW BAND IMAGE OF BLADDER UROTHELIAL CARCINOMA: COLOR COMPONENT ANALYSIS
Yi-Chia Lin*, Chen-Kun Liaw, Te-Fu Tsai,
Kuang-Yu Chou, Hung-En Chen, Thomas L.S. Huang,
Taipei, Taiwan

MP10-22 | RADIATION EXPOSURE ASSOCIATED WITH DEDICATED RENAL MASS COMPUTER TOHMOTOGRAPHY PROTOCOL: IMPACT OF PATIENT CHARACTERISTICS
Matvey Tsivian, Michael Abern, Peter Qi, John Yoo,
Paul Erans, Charles Kim, Michael Lipkin,
Thomas Polascik, Michael Ferrandino*, Durham, NC

MP10-23 | COMPARISON OF ONCOLOGIC OUTCOMES BETWEEN SUBJECTS UNDERGOING ON AND OFF CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY
Paras Shah*, Arvin George, Louis Kavoussi,
Manuf Alom, Sammy Elsamra, Soroush Rais-Bahrami,
Nikhil Waringan, New Hyde Park, NY

MP10-24 | IN VITRO COMPARISON OF A NOVEL FACILITATED ULTRASOUND TECHNOLOGY VERSUS STANDARD TECHNIQUE APPROACH FOR PERCUTANEOUS RENAL BIOPSY
Ashleigh Menhadji*, Vien Nguyen, Jane Cho,
Ringo Chu, Kathryn Osann, Philip Bucur, Puja Patel,
Achim Lusch, Orange, CA, Elspeth McDougall,
Vancouver, Canada, Jaime Landman, Orange, CA

MP10-25 | IN VITRO COMPARISON OF A STANDARD AND NOVEL ECHOGENIC NEEDLE FOR ULTRASOUND-GUIDED PERCUTANEOUS RENAL BIOPSY
Ashleigh Menhadji, Vien Nguyen*, Jane Cho,
Ringo Chu, Kathryn Osann, Philip Bucur, Puja Patel,
Achim Lusch, Orange, CA, Elspeth McDougall,
Vancouver, Canada, Jaime Landman, Orange, CA

MP10-26 | VIDEO ASSISTED DOCKING OF THE DA VINCI SURGICAL SYSTEM PATIENT CART
Saum Ghodoussipour*, Kristen Coffey,
Tamim Khaddash, John Ganguish, Philadelphia, PA,
Michael Louis, Irvine, CA, Phillip Mucksavage,
Philadelphia, PA
Wednesday, October 23, 2013

V04-01 TREATMENT OF LARGE VOLUME BPH WITH "SANDWICH" TECHNIQUE: DIODE LASER VAPORIZATION COMBINED WITH BIPOLAR PLASMA KINETIC TRANSURETHRAL RESECTION
Joao Padua Manzano*, Frederico Teixeira Barbosa, Gabriel Moulin Gouvea, Adalberto Andriolo Jr, Roberto Soler, Joaquim Francisco De Almeida Claro, Sao Paulo, Brazil

V04-02 THE USE OF THE EVOLVE™ 300 DUAL DIODE LASER FOR THE MINIMALLY INVASIVE TREATMENT OF BENIGN PROSTATIC ENLARGEMENT: TECHNIQUE AND PRELIMINARY RESULTS
Ioannis Kartalas Goumas*, Emanuele Itri, Francesco Dell'Aglio, Fabrizio Pozzoni, Lorenzo Innocenti, Gianpaolo Zanetti, Vimercate, Italy

V04-03 HOLEP: POINT OF TECHNIQUE, TIPS AND TRICKS
Ivano Vavassori*, Yasser Hussein, Giovanni Gilberto, Luca Cau, Francesca Ceresoli, Treviglio, Italy

V04-04 B-TUEP: PLASMA ENUCLEATION USING OLYMPUS BUTTON ELECTRODE IN BPH
Francesco Pisanti*, Luca Albanesi, Francesco Attisani, Barbara Cristina Gentile, Luca Mavilla, Gabriella Mirabile, Manlio Schettini, Roberto Giulianelli, Rome, Italy

V04-05 TRANSURETHRAL "ONE-PIECE" ENUCLEATION WITH BIPOLAR: SIMPLE AND RATIONAL SURGICAL PROCEDURE FOR BENIGN PROSTATIC HYPERPLASIA
Takao Mishima*, Tadashi Matsuura, Hirakata, Japan, Jiro Harada, Kenta Takayasu, Gen Kawa, Osaka, Japan, Shigenori Kurumada, Atsushi Yoshimizu, Niigata, Japan

V04-06 SAFETY IS OUR TOP PRIORITY: TIPS AND TRICKS FOR SAFE MORCELLATION DURING HOLEP
Hahn-Ey Lee*, Myong Kim, Jae-Seung Paick, Seung-Jin Soh, Seoul, Korea, Republic of

V04-07 TRANSURETHRAL RESECTION OF THE PROSTATE WITHOUT POSTOPERATIVE IRRIGATION
Mohammed Lezrek*, Khalil Bazine, Adil Slimani Aloui, Hicham Tazi, Mohamed Alami, Meknes, Morocco

V04-08 ROBOTIC SUPRAPUBIC PROSTATECTOMY: AN INTRAVESICAL APPROACH
Marc Bjurlin*, Arielle Miller, Suzannah Sorin, Benjamin Brucker, Michael Stifelman, New York, NY

V05-01 APPLICATION OF SINGLE NEEDLE RUNNING SUTURE BY TWO HANDS IN LAPAROSCOPIC RADICAL PROSTATECTOMY
Ma Lulin*, Zhang Shudong, Qiu Min, Beijing, China, People’s Republic of

V05-02 IATROGENIC DIRECT RECTAL INJURY: AN UNUSUAL COMPLICATION DURING SUPRAPUBIC CYSTOSTOMY INSERTION AND ITS LAPAROSCOPIC MANAGEMENT
Theodoros Tokas*, Ali Serdar Gözen, Rakesh Rajmohan, Bernardo Aguilar-Davidov, Jens Rassweler, Heilbronn, Germany
V05-03 PELVIC LYMPH NODE DISSECTION IN LAPAROSCOPIC RADICAL CYSTECTOMY - THREE-YEAR RESULTS
Wing Hang Au*, Chi-Fai Kan, Ho-Yin Ngai, Lap-Yin Ho, Steve Wai-Hoe Chan, Kowloon, Hong Kong

V05-04 EXTRAPERITONEAL VERUS TRANSPERITONEAL PELVIC LYMPH NODE DISSECTION IN LAPAROSCOPIC RADICAL PROSTATECTOMY
Trevor Churk Fai Li*, Wai Hee Steve Chan, Kowloon, Hong Kong

V05-05 LAPAROSCOPIC CLOSURE OF FAILED MITROFANOFF CATHERISABLE STOMA - IS IT FEASIBLE
Manickam Ramalingam*, Kallappan Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

V05-06 LAPAROSCOPIC URETEROCYSTOPLASTY WITH FASHIONING OF URETER
Manickam Ramalingam*, Kallappan Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

V05-07 LAPAROSCOPIC EXCISION OF A BLADDER CARCINOID TUMOR
Abraham Kurien*, Nagarajan Palaniappan, Ranjit Vijayan, Ashish Verma, Chennai, India

V05-08 ROBOTIC ASSISTED LAPAROSCOPIC REPAIR OF IATROGENIC BLADDER INJURY
Ahmet Gudeloglu*, Jamin Brahmbhatt, Sijo Parekkattil, Winter Haven, FL

V05-09 ROBOTIC RADICAL PROSTATECTOMY FOLLOWING SLEEVE GASTRECTOMY WITH CONCOMITANT ABDOMINOPLASTY CASE REPORT
René Sotelo*, Juan Castro, Ruben Contreras, Osvaldo Carmona, Javier Manrique, Robert De Andrade, Golea Fernandez, Roberto Garza, Roberto Cisneros, Caracas, Venezuela, Mihir Desai, Los Angeles, CA

V05-10 ROBOTIC RADICAL PROSTATECTOMY FOLLOWING SLEEVE GASTRECTOMY WITH CONCOMITANT ABDOMINOPLASTY CASE REPORT
René Sotelo*, Juan Castro, Ruben Contreras, Osvaldo Carmona, Javier Manrique, Robert De Andrade, Golea Fernandez, Roberto Garza, Roberto Cisneros, Caracas, Venezuela, Mihir Desai, Los Angeles, CA

V06-01 EN-BLOC RESECTION OF NON-MUSCLE INVASIVE BLADDER TUMORS WITH A NOVEL HYBRID INSTRUMENT (HYBRIDKNIFE®)
Christian Schwentner*, Tuebingen, Germany

V06-02 “5-PANG SYSTEM”-VERSION 2: A MULTIUTILITY SYSTEM FOR PERCUTANEOUS RENAL ACCESS
Ashish Rawandale*, Lokesh Patni, Preeti Patil, Dhule, India

V06-03 A PERITONEAL WALL ANCHOR TECHNIQUE USING A NEW DEVICE FOR LAPAROSCOPY-ASSISTED CATHETER PLACEMENT IN PERITONEAL DIALYSIS
Yoshiyuki Miya*, Keita Hirata, Hirohisa Takasaki, Seietsu Kit, Aya Takahara, Kazuhiro Fukumoto, Mikako Kaifu, Tomohiro Fujii, Yoshimasa Jo, Teruhiko Yokoyama, Atsushi Nagai, Kurashiki, Japan

V06-04 URETERIC AND BLADDER ENDOSCOPIC SUTURING IN NEPHROTOURETERECTOMY WITH ENDOSCOPIC URETERAL DETACHMENT: INITIAL EXPERIENCE
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alani, Meknes, Morocco

V06-05 INSERTION OF TWO MEMOKATH 051 TO STENT THE WHOLE URETER
Andreas Bourdoumis, Stefanos Kachrilas*, Janaid Masood, Noor Buchholz, London, United Kingdom

V06-06 INSERTION OF URETERIC ALLIUM STENT
Stefanos Kachrilas*, Andreas Bourdoumis, Janaid Masood, Noor Buchholz, London, United Kingdom

V06-07 FOCAL SALVAGE CRYOSURGERY FOR PROSTATE CANCER IN A POST RADIATION THERAPY PATIENT: TECHNIQUE
Aaron Katz*, Ajayram Lillal, Anne Darves-Boruvaz, Maureen Regan, Scott Quarrier, Mineola, NY

V06-08 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR CLINICAL STAGE I TESTIS CANCER
Gautam Jayram*, Mark Ball, Trinity Bivalacqua, Mohamad Alaf, Baltimore, MD

V06-09 FEASIBILITY OF INTERNAL ORGAN RETRACTOR SYSTEM FOR UROLOGIC LAPAROSCOPIC SINGLE-SITE SURGERY: INITIAL EXPERIENCES IN 17 PATIENTS
wonho jung*, Seh Ho Choo, Seong Soo jeon, Hyung Keun Park, Deok Hyun Han, Seoul, Korea, Republic of
V06-10 SINGLE PORT LAPAROSCOPIC DONOR NEPHRECTOMY: FIRST CASE REPORT IN THAILAND
Wisoot Kongchsreonsombat*, Bangkok, Thailand

V06-11 ROBOTIC-ASSISTED LAPAROSCOPIC TRANS-ABDOMINAL VASOVASOSTOMY
Dinesh Samarasekera*, Riccardo Autorino, Christopher Starks, Edmund S Sabanegh, Jihad H Kaouk, Cleveland, OH

Thursday, October 24, 2013
Moderated Poster Session MP11 2:30 pm–4:15 pm

ROBOTICS/LAPAROSCOPY: UPPER TRACT II
Room Rhythms 1 @ Sheraton New Orleans
Chair: Tadashi Matsuda
Faculty: Michelle Gallucci and J. Stuart Wolf

*Presenting author

MP11-01 REVIEW OF MANAGEMENT OF BILATERAL RENAL MASSES: ONCOLOGIC AND FUNCTIONAL OUTCOMES
Ben Woodson*, Sree Mandava, Phil Dorsey, Benjamin Lee, New Orleans, LA

MP11-02 ROBOTIC PARTIAL NEPHRECTOMY: INTERMEDIATE ONCOLOGIC & FUNCTIONAL OUTCOMES AT 58 MONTHS
Ben Woodson*, Sree Mandava, Michael Maddox, Alex Beazer, Benjamin Lee, New Orleans, LA

MP11-03 RETROPERITONEAL LAPAROSCOPIC SURGERY FOR THE PARARENAL CYST: A SINGLE CENTER'S EXPERIENCE
Qi Hui Chen, Zhi Hua Lu, Xiao Qing Wang*, Changchun, China, People's Republic of

MP11-04 PRACTICAL AND INTUITIVE SURGICAL APPROACH RENAL RANKING (SARR) TO PREDICT OUTCOMES IN THE TREATMENT OF RENAL TUMORS: A NOVEL SCORE TOOL
Matheus Tannus, Salvador, Brazil, Suzan Goldman, Cassio Andreoni*, Sao Paulo, Brazil

MP11-05 THE INTRAOPERATIVE TRENDS FOR RADICAL AND PARTIAL NEPHRECTOMIES IN LOCALIZED CANCER IN LARGE UROLOGY GROUP
David Albala*, Colin O'Keefe, Po Lam, Andres Madissoo, Angelo DeRosalia, Elan Salzhauer, Harvey Sauer, Ilijia Aleksic, Vladimir Mouravev, Syracuse, NY

MP11-06 ROBOTIC PARTIAL NEPHRECTOMY IN RENAL UNITS WITH MULTIPLE RENAL ARTERIES
Kyrollis Attalla*, Enad Rizkala, Riccardo Autorino, Ali Khalifeh, Dinesh Samarasekera, Humberto Ladynor, Georges Pascal-Haber, Robert Stein, Jihad Kaouk, Cleveland, OH

MP11-07 FIRST CLINICAL USE OF THE 3 DIMENSION (3D) HIGH DEFINITION (HD) ENDOEYE FLEX LAPAROSCOPIC TECHNOLOGY AND EVALUATION OF IMPAIRING SYMPTOMS USING A VALIDATED SIMULATOR SICKNESS QUESTIONNAIRE (SSQ) QUESTIONNAIRE DURING LAPAROSCOPIC PYELOPLASTY
Fernando Kim, David Sehrt, Wilson Molina*, Kyle Rove, Jason Phillips, Aurora, CO

MP11-08 POSTERIOR RETROPERITONEOSCOPIC ADRENALECTOMY FOR ADRENAL TUMORS
Zhong Wu*, Hao Wen Jiang, Chen-Chen Feng, Peng Gao, Lu Jia Wang, Qiang Ding, Shanghai, China, People's Republic of

MP11-09 HAND ASSISTED RETROPERITONEOSCOPIC NEPHROURETERECTOMY WITH BLADDER CUFFING AFTER BOTH PRE- AND RETROPERITONEAL PERIVESICAL BALLOONING
Kwang Taek Kim*, Chang Hoe Kim, Khai Huan Kim, Sang Jin Yoon, Incheon, Korea, Republic of

MP11-10 RENAL RECURRENCE AFTER ZERO ISCHEMIA PARTIAL NEPHRECTOMY
Rocco Papalia*, Giuseppe Simone, Mariaconsiglia Ferriero, Salvatore Guaglianone, Manuela Costantini, Michele Gallucci, Rome, Italy

MP11-11 UROLOGIC RECONSTRUCTIVE SURGERY OF THE UPPER TRACT: IMPACT OF THE ROBOT
Aaron Boonjindasup*, Daniel Rittenberg, Eric Shaw, Phillip Dorsey, Raju Thomas, New Orleans, LA

MP11-12 MINIMALLY INVASIVE PARTIAL NEPHRECTOMY WITHOUT HILAR CLAMPING IN PATIENTS WITH SOLITARY KIDNEY
Papalia Rocco*, Giuseppe Simone, Mariaconsiglia Ferriero, Salvatore Guaglianone, Manuela Costantini, Michele Gallucci, Rome, Italy

MP11-13 SAFETY AND FEASIBILITY OF A NEW ABSORBABLE CLIP DURING SLIDING CLIP RE-NORRHAPHY IN ROBOTIC PARTIAL NEPHRECTOMY
Christopher Reilly*, Elton Lukani, Blake Moore, Ziko Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

MP11-14 PNEUMOVESICUM APPROACH TO EN-BLOC LAPAROSCOPIC NEPHROURETERECTOMY WITH BLADDER CUFF EXCISION FOR UPPER TRACT UROTHELIAL CANCER: INITIAL EXPERIENCES OF 7 CASES
Mohammed Bhuiyan*, MF Islam, ZH Bhuiyan, KMH Tawhid, NIL Ahmed, K Salahuddin, Dhaka, Bangladesh
MP11-15 ROBOTIC UROLOGIC SURGERY IN THE ELDERLY: IS THERE AN INCREASED RISK OF COMPLICATIONS?
Kristen Scarpato*, Farmington, CT, Halil Kiziloz, Kyle Finnegan, Ryan Dorin, Steven Shichman, Anoop Meraney, Joseph Wagner, Stuart Kesler, Hartford, CT

MP11-16 RENAL NEPHROMETRY SCORE PREDICTS RENAL PARENCHYMAL ATROPHY AFTER ROBOTIC PARTIAL NEPHRECTOMY
Young Eun Yoon*, Kyung Hwa Choi, Kyo Chul Koo, Jooyong Lee, Won Sik Ham, Koon Ho Rha, Young Denk Choi, Woong Kyu Han, Seoul, Korea, Republic of

MP11-17 COMPLICATIONS IN LAPAROSCOPIC UROLOGY: 8 YEARS’ EXPERIENCE WITH 793 CASES
Oner Sanli, Tzevat Tefik*, Mazhar Ortac, Selcuk Erdem, Emre Salabas, Mohammad Khodr, Serkan Karakus, Asif Sadaqli, Feyyaz Ulral, Baris Yucel, Faruk Ozcan, Ismet Nane, Murat Tunc, Istanbul, Turkey

MP11-18 ROUTINE EN BLOCK STAPLING OF THE RENAL HILUM DURING LAPAROSCOPIC NEPHRECTOMY IS SAFE AND EFFECTIVE
David Albala*, Harvey Sauer, Po Lam, Elan Salzhauer, Angelo Rosalio, Jeffrey Sekula, Benjamin McHone, Vladimir Mouraviev, Syracuse, NY

MP11-19 MINIMAL-MARGIN ROBOTIC PARTIAL NEPHRECTOMY: ZERO-ISCHEMIA TECHNIQUE
Andre Berger*, Andre Luis de Castro Abreu, Dennis J. Lee, Shaunacive Tsai, Scott Leslie, Raed Azhar, Sunmeet S cyan, Mihir M. Desai, Montish Aron, Indiher S. Gill, Los Angeles, CA

MP11-20 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR RENAL NEPHROMETRY SCORE > 9: HILAR TUMORS
Ben Xu*, Qian Zhang, Jie Jin, Beijing, China, People’s Republic of

MP11-21 LAPAROSCOPIC VERSUS OPEN SURGERY FOR RENAL MASSES WITH LEVEL I TO II TUMOR THROMBUS: THE LARGEST SERIES OF RETROPERITONEAL EXPERIENCE FROM UROLOGICAL CANCER CENTER OF CHINA
Ben Xu*, Qian Zhang, Jie Jin, Beijing, China, People’s Republic of

MP11-22 LAPAROSCOPIC ANATROPHIC NEPHROLITHOTOMY FOR MANAGEMENT OF COMPLETE STAGHORN RENAL STONE: CLINICAL EFFICACY AND INTERMEDIATE-TERM FUNCTIONAL OUTCOME
Alireza Aminsharifi, Firoozeh Afshar*, Shiraz, Iran

MP11-23 A COMPARISON OF LAPAROSCOPIC VERSUS ROBOTIC PARTIAL NEPHRECTOMY PERIOPERATIVE OUTCOMES: A SINGLE SURGEON ANALYSIS
Junjiun Huang*, Zachary Klaassen, Qiang Li, W. Bruce Shingleton, Kelvin A. Moses, Martha K. Terris, Rabii Madi, Augusta, GA

MP11-24 COMPARISON BETWEEN RETROPERITONEAL LAPAROSCOPIC AND OPEN DISMEMBERED PYELOPLASTY (WITH 63 CASES)
Min Qiu*, Beijing, China, People’s Republic of

MP11-25 ROBOTIC PARTIAL NEPHRECTOMY FOR ANTERIOR VERSUS POSTERIOR TUMORS: ANALYSIS OF PERIOPERATIVE OUTCOMES
Gordon Fifer*, Michael Woods, Matthew Nielsen, Eric Wallen, Mathew Raynor, Chapel Hill, NC

MP11-26 NORMOTENSIVE LAPAROSCOPIC ZERO ISCHEMIA PARTIAL NEPHRECTOMY WITHOUT HILAR PREPARATION: INITIAL EXPERIENCE OF ONE SINGLE SURGEON IN LOW VOLUME FACILITY
Hitoshi Yanaihara*, Fuminari Hanashima, Hiroshi Kagyuama, Katchiro Oghira, Hirofumi Sakamoto, Kayo Aomuma, Koobi Mutsuda, Yoko Nakahira, Hirotsuka Asakura, Saitama, Japan
MP12-05 CONTEMPORARY PRACTICE PATTERNS IN THE MANAGEMENT OF ACUTE OBSTRUCTING URETERAL STONES: A SURVEY OF ENDOUROLOGISTS
Sri Sivalingam*, Ian Stormont, Stephen Nakada, Madison, WI

MP12-06 IN-VIVO EVALUATION OF A REVERSE THERMOSENSITIVE POLYMER FOR URETEROSCOPY WITH LASER LIGHTOTRIPSY: PORCINE MODEL
Jonathan Mobley*, Goutham Venuma, Robert Figenshau, Gerald Andriole, Marshall Strother, Joel Vetter, Brian Benway, St. Louis, MO

MP12-07 FLEXIBLE URETEROSCOPY WITH A URETERAL ACCESS SHEATH: WHEN TO STENT?
Bryan Hinck*, Fabio Torricelli, Shubha De, Mark Noble, Manoj Monga, Cleveland, OH

MP12-08 DOES TUMOR SIZE INFLUENCE THE ACCURACY OF URETEROSCOPIC BIOPSY FOR UPPER TRACT UROTHELIAL CARCINOMA?
Sima Porten, Andrew Park, Charles Guo, Ashish Kamat, Lianchun Xiao, Surena Matin*, Houston, TX

MP12-09 A CRITICAL EVALUATION OF THE THERMEDX FLUID MANAGEMENT SYSTEM (TFMS) IN A URETEROSCOPIC (URS) MODEL
Shubha De, Fabio Torricelli, Ganesh Kartha*, Carl Sarkissian, Manoj Monga, Cleveland, OH

MP12-10 URETEROSCOPIC MANAGEMENT OF LARGE (>2 CM) UPPER TRACT UROTHELIAL CARCINOMA
Nir Kleinmann*, Scott G Hubosky, Kelly A Healy, Marluce Bibbo, Demetrius H Bagley, Philadelphia, PA

MP12-11 ENDOSCOPIC FORCEPS FOR URETEROSCOPY: A COMPARATIVE IN VITRO ANALYSIS
Giovanni Marchini, Raman Ummikrishnan*, Shubha De, Carl Sarkissian, Manoj Monga, Cleveland, OH

MP12-12 A COMPARISON OF FLUOROSELS AND CONVENTIONAL URETEROSCOPY
Gaudencio Olgin*, Gene O Huang, Steven R Engbersten, Don C Arnold II, D Duane Baldwin, Loma Linda, CA

MP12-13 UPPER TRACT URETEROSCOPIC LASER LITHOTRIPSY: A CASE MATCHED COMPARISON BETWEEN CALCIUM OXALATE MONOHYDRATE VERSUS CALCIUM OXALATE DIHYDRATE STONES
Priyanka Sehgal*, Sri Sivalingam, Kristina Penniston, Stephen Nakada, Madison, WI

MP12-14 NEEDLEOSCOPY: THE INCORPORATION OF A NEW TECHNOLOGY FOR THE MANAGEMENT OF PEDIATRIC URETERAL CALCULI
Daniel Martinez*, Tampa, FL, Hubert Swana, Mark Rich, Orlando, FL

MP12-15 ERGONOMICALLY ENHANCED FLEXIBLE ENDOSCOPY SYSTEM: DESIGN, CONTROL AND PHANTOM TESTING
Linan Zhang, Tianjin, China, People’s Republic of, Rahul Khare, Aaron Martin, Kyle Wu, Kevin Cleary, Craig Peters*, Washington, DC

MP12-16 NEPHRON SPARING ENDOSCOPIC APPROACH FOR UPPER TRACT LOW GRADE TRANSITIONAL CELL CARCINOMA COMPARED TO NEPHROURETERECTOMY: MID TERM FOLLOW-UP RESULTS
Azik Hoffman, Danjuma U Kalber*, Ofer Yossepowitch, Don Lask, Pinhas M Levine, Ronen Holland, David Lifshitz, Tel Aviv, Israel

MP12-17 ENDOSCOPIC MANAGEMENT OF GENITOURINARY FOREIGN BODIES: WASHINGTON UNIVERSITY CASE SERIES
Joseph Song*, St Louis, MO, Youssef Tanagho, Saint Louis, MO, Mohammed Haseebuddin, Brian Benway, St Louis, MO, Aluna Desai, Sam Bhuyani, Robert Figenshau, Saint Louis, MO

MP12-18 URETEROSCOPY VIA AN ORTHOTOPIC NEO-BLADDER: SURGICAL TECHNIQUES AND COMMON PITFALLS
Marcelino River*, Amy Krambeck, Rochester, MN

MP12-19 FLEXIBLE URETERORENOSCOPY FOR STONES: SAFE AND EFFECTIVE EVEN DURING THE INITIAL LEARNING CURVE
Francesco Berardinelli, Luca Cindolo, Petros Sountoulides*, Fabrizio Pellegrini, Fabio Neri, Fabiola Tanburro, Luigi Schips, Vasto, Italy

MP12-20 COMPLICATIONS OF FLEXIBLE URETERORENOSCOPY CLASSIFIED BY THE MODIFIED CLAVIEN GRADING SYSTEM (A SINGLE CENTER’S EXPERIENCE OVER 10 YEARS)
Saeed M. Al-Qahtani*, Julien Letendre, Sabrina Benbourzid, Gauthier Raynal, Achilles Ploumiadis, Sixtina De medina, Mohamed Tligui, Olivier Traxer, Paris, France

MP12-21 URETEROSCOPIC BIOPSY OF UPPER TRACT UROTHELIAL CARCINOMA: COMPARISON OF BASKET AND FORCEPS
Nir Kleinmann*, Kelly Healy, Scott Hubosky, Philadelphia, PA, David Margel, Toronto, Canada, Marluce Bibbo, Demetrius Bagley, Philadelphia, PA

MP12-22 RIGID, FLEXIBLE? WHY NOT SIMULTANEOUSLY BOTH?
Jorge Campos Castellanos*, Huixquilucan, Mexico

MP12-23 VARIABLES AFFECTING RADIATION EXPOSURE IN PATIENTS UNDER GOING ENDO-UROLOGICAL PROCEDURES
Samuel Parker*, Sashi Kommu, Munir Ahmed, London, United Kingdom
**MP12-24** DOES URETERAL ACCESS SHEATH USE CONTRIBUTE TO POOR OUTCOME DURING URETEROPYELOSCOPY? WHAT SIZE OF STONE BURDEN INCREASES RISK OF POOR OUTCOME? THE UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER EXPERIENCE
Maxx Gallegos*, Maire Brennen, Michael Yap, Stephanie Tran, Antonia Harford, Susan Paine, Michael Davis, Albuquerque, NM

**MP12-25** ENDOSCOPIC MANAGEMENT OF UPPER URINARY TRACT TCC USING THE 1470 NM DIODE LASER
Sachin Agrawal*, Taufiq Shaikh, David Hrouda, Altaf Shamsuddin, London, United Kingdom

**MP12-26** A QUALITY AUDIT OF UPPER RENAL TRACT UROTHELIAL BIOPSY: OUR INITIAL EXPERIENCE OF BIGOPSY FORCEPS
Basharat Hussain*, Wai Min Chow, Manchester, United Kingdom, Khalid Ahmed, Oldham, United Kingdom, John Callery, Manchester, United Kingdom, Mukesh Gupta, Oldham, United Kingdom, Jacob Cherman, Manchester, United Kingdom, Zahid Hussain, Arun Jair, Ramesh Vennum, Ravendra Surange, Oldham, United Kingdom

*Presenting author

**MP13-01** A MODIFIED RENAL NEPHROMETRY SCORE PREDICTS ONCOLOGIC OUTCOMES FOR RADIO FREQUENCY ABLATION
Jeffrey Gahan*, Michael Richter, Casey Seideman, Danny Chan, Matthew Weaver, Dallas, TX, Ephrem Olweny, New Bruswick, NJ, Jeffrey Cadeddu, Dallas, TX

**MP13-02** LONG-TERM OUTCOMES IN HEALTHY ADULTS FOLLOWING RADIOFREQUENCY ABLATION OF T1A RENAL TUMORS
Yunbo Ma, Selhatthin Bedir, Monica Morgan*, Jeffrey Cadeddu, Jeffrey Gahan, Dallas, TX

**MP13-03** POST URETERAL STENT REMOVAL SYMPTOMS

**MP13-04** EFFECTIVENESS OF A SEGMENTAL THERMO-EXPANDABLE METAL ALLOY SPIRAL STENT (MEMOKATH 031™) AND SELF-EXPANDABLE COVERED METALLIC STENT (UVENTA™) IN THE MANAGEMENT OF URETERAL OBSTRUCTION
Kang Sup Kim*, Yong Sun Choi, Sung-Ho Hong, Hyuk Jin Cho, Tae Kwon Huang, Seoul, Korea, Republic of

**MP13-05** COMPARISON OF OUTCOMES IN PATIENTS UNDERGOING PERCUTANEOUS RENAL CRYOABLATION WITH SEDATION VERSUS GENERAL ANESTHESIA
Samuel Junical*, Zhamshid Okhunov, Michael Ordon, Achim Lasch, Philip Bucur, Orange, CA, Arvin George, Fatima Askarov, Lois Kasoussi, New York, NY, Cassio Andreoni, Sao Paulo, Brazil, Jaime Landman, Orange, CA

**MP13-06** EVALUATION OF CLINICAL OUTCOMES FOR PATIENTS WITH NONDIAGNOSTIC BIOPSY DURING CRYOABLATION OF RENAL CORTICAL NEOPLASMS
Samuel Junical*, Michael Ordon, Zhamshid Okhunov, Achim Lasch, Orange, CA, Cassio Andreoni, Sao Paulo, Brazil, Jaime Landman, Orange, CA

**MP13-07** HYDROPHILIC GUIDEWIRES: EVALUATION AND COMPARISON OF THEIR PROPERTIES AND SAFETY
Fabio Torricelli, Shubha De*, Carl Sarkissian, Manoj Monga, Cleveland, OH

**MP13-08** DOES DIAZEPAM ALTER PAIN PERCEPTION DURING PROSTATE BIOPSY?
Jonathan D Creech, Daedal Culpepper, Gene O Huang, Caroline L Wallner, Steven R Engelsbren, Gaudencio Olgin, Don C Arnold II, Roger Li*, Michelle A Lightfoot, Herbert C Ruckle, D Duane Baldwin, Loma Linda, CA

**MP13-09** INTRAOPERATIVE FROZEN SECTION ANALYSIS: PRACTICE PATTERNS OF HIGH-VOLUME SURGEONS PERFORMING ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY
Nina Harkani*, Khushabu Kasabwala, Pengbo Jiang, Jennifer Yates, Ravi Muwver, Hackensack, NJ

**MP13-10** SHIM VS. SHAM SCORE: PREOPERATIVE ERECTILE FUNCTION IS IN THE EYE OF THE BEHOLDER
Peter Sunarso*, Nina Harkhani, Pengbo Jiang, Jennifer Yates, Ravi Muwver, Hackensack, NJ

**MP13-11** CURRENT PATTERNS OF PRESENTATION AND TREATMENT OF RENAL MASSES: A CROES PROSPECTIVE STUDY
M. Pilar Laguna*, Amsterdam, Netherlands, Ferran Algaba, Barcelona, Spain, Jeffrey Cadeddu, Dallas, TX, Ralph Clayman, Irvine, CA, Inderbir Gill,
Los Angeles, CA, Guillermo Gueglio, Buenos Aires, Argentina, Markus Hohenfellner, Heidelberg, Germany, Adrian Joyce, Leeds, United Kingdom, Jaime Landman, Irvine, CA, Benjamin Lee, New Orleans, LA, Hein Van Poppel, Leuven, Belgium

MP13-12 START OF SALVAGE TREATMENT FOR PERSISTENT POSITIVE BIOPSIES AFTER HIFU
Rafael Sanchez-Salas*, Dominique Prapotnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP13-13 THE SECOND “-OUT”: A SURGICAL SAFETY CHECKLIST FOR LENGTHY ROBOTIC SURGERIES
JosephSong*, GouthamVemana, Jonathan Mobley, Sam Bhatnagar, St Louis, MO

MP13-14 TANDEM URETERAL STENTS FOR THE DECOMPRESSION OF MALIGNANT AND BENIGN OBSTRUCTIVE UROPATHY
Sammy Elsamra*, Hector Motato, Arthur Smith, Zeph Okeke, New Hyde Park, NY

MP13-15 AUTO TRANSPLANTATION – AN EXCELLENT TECHNIQUE FOR COMPLEX URETERAL AND RENAL VASCULAR PATHOLOGY
RichardJohnston*, Natalya Lopushyan, Thomas Hefty, Paul Kozlowski, Seattle, WA

MP13-16 RELIABILITY OF THE CT-SCAN PERCUTANEOUS BIOPSY FOR SMALL RENAL MASSES
Alexandre Ingels*, Eric Barret, Francois Audenet, Luca Lunelli, Giulherme Prada Costa, Francois Rozet, Marc Galiano, Rafael Sanchez-Salas, Stephane Lenoir, Pierre Validire, Xavier Cathelineau, Paris, France

MP13-17 THE USE OF A THERMOEXPANDABLE METAL ALLOY STENT IN THE MINIMALLY INVASIVE TREATMENT OF RETRO PERITONEAL FIBROSIS - A SINGLE CENTRE EXPERIENCE
Andreas Bourdoumis, Stefanos Kachrilas*, Faruqz Zaman, Shafi Wardak, Athensos Papatsoris, Noor Buchholz, Junaid Masood, London, United Kingdom

Thursday, October 24, 2013

UROLITHIASIS I
Room Grand Ballroom D @ Sheraton New Orleans
Chair: Hyung Keun Park
Faculty: Robert Marcovich and Joel Aldana

*Presenting author

MP14-01 RADIATION PRACTICE PATTERNS AND EXPOSURE IN THE HIGH-VOLUME ENDouroLOGIST
AnneDudley*, Michelle Semins, Pittsburgh, PA

MP14-02 TURKISH ROBOT ROBOFLEXAvICENNA FOR FLEXIBLE URETERORENOSCOPIC SURGERY: INITIAL MULTI-CENTRIC ANALYSIS
RemziSaglam, Ahmet Y. Muslimanoglu*, EmrahYuruk, ZaferTokatli, Ahmet Sinan Kabukci, MutSuluk, Ankara, Turkey, Abdullah Armagan,
MP14-03 EXPULSIVE THERAPY VERSUS EARLY ENDOSCOPIC STONE REMOVAL IN ACUTE RENAL COLIC: A COMPARISON OF INDIRECT COSTS

MP14-04 VALIDITY OF ADMINISTRATIVE CODING FOR PREGNANT PATIENTS WITH UROLITHIASIS
Anne Dudley*, Julie Riley, Michelle Semins, Pittsburgh, PA

MP14-05 ENDOSCOPIC, PATHOLOGIC AND RADIOGRAPHIC CHARACTERISTICS OF URIC ACID STONE FORMERS
Boyd Viers*, Xiangling Wang, Xujian Li, Terri Vrtiska, John Lieske, Amy Krambeck, Rochester, MN

MP14-06 STONE DISEASE IN LIVING - RELATED RENAL DONORS: LONG - TERM OUTCOMES FOR TRANSPLANT DONORS AND RECIPIENTS
Sarah Coleman*, Emad Rizkala, Christine Tran, Isaac Wahib, David Goldfarb, Stuart Flechner, Manoj Monga, Cleveland, OH

MP14-07 COST EFFECTIVENESS COMPARISON OF RENAL CALCULI TREATED WITH URETEROSCOPY WITH LASER LITHOTRIPSY VERSUS SHOCK WAVE LITHOTRIPSY
Eugene Cone, Durham, NC, Brian Eisner, Michal Ursiny, Boston, MA, Gyan Pareek*, Providence, RI

MP14-08 PATIENT EXPERIENCES AND PREFERENCES WITH DIFFERENT URETERAL STENT REMOVAL TECHNIQUES
Roger Low, Sacramento, CA, Mike Nguyen, Los Angeles, CA, Manoj Monga*, Cleveland, OH

MP14-09 CONCURRENT VALIDITY OF THE WISCONSIN STONE QUALITY OF LIFE SURVEY
Kristina Penniston, Rachel Bell, Stephen Nakada*, Madison, WI

MP14-10 THE GEOMETRIC COMPLEXITY INDEX: A NEW MEASURE OF STONE BURDEN
Michael Conlin*, Brian Duty, Gregory Adams, Matthias Schaefel, Eugene Fuchs, Portland, OR

MP14-11 EFFICACY OF TAMSULOSIN IN THE MANAGEMENT OF LOWER URETERAL STONES: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED STUDY OF 100 PATIENTS
Abdulla Al-Ansari*, Abdulla Al-Naimi, Abdulkader Aloobaidy, Khalid Assadiq, Mohamed Azmi, Doha, Qatar, Ahmed Shokeir, Almansoura, Egypt

MP14-12 EFFECT OF TAMSULOSIN ON STONE EXPULSION IN PROXIMAL URETERAL CALCULI: AN OPEN-LABEL RANDOMIZED CONTROLLED TRIAL

Jinsung Park*, Seung Hye Woo, Daejeon, Korea, Republic of, Seung Wook Lee, Guri, Korea, Republic of

MP14-13 NO DIFFERENCE IN 24-HOUR URINE PARAMETERS BETWEEN PATIENTS WITH OBSTRUCTING AND NON-OBSTRUCTING UROLITHIASIS PRESENTING TO A TERTIARY REFERRAL CENTER
Tarek Alzahrani*, Daniela Ghiculete, Andrea G Lantz, Kenneth T Pace, Jason Y Lee, R. John Honey, Toronto, Canada

MP14-14 PATIENT EDUCATION AND THE IMPACT ON URETEROSCOPY EXPERIENCE
Nathan Grunevald, Alison Marciniak, Carley Davis*, Milwaukee, WI

MP14-15 A MULTICENTER, RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY OF SILODOSIN TO FACILITATE MEDICAL EXPULSION OF URETERAL CALCULI
Roger Sur*, San Diego, CA, Scott Olsen, Salt Lake City, UT, Ojas Shah, New York, NY

MP14-16 MODIFIED SEOUL NATIONAL UNIVERSITY RENAL STONE COMPLEXITY SCORE FOR RETROGRADE INTRARENAL SURGERY: EVALUATION WITH SINGLE SURGEON’S COHORT
Byung Ki Lee*, Jin-Woo Jung, Yong Hyun Park, Sangchul Lee, Seek-So So, Sang Eun Lee, Seongnam, Korea, Republic of, Chang Wook Jeong, Seoul, Korea, Republic of

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Dong-Hoon Lim, Min-Soek Kim*, Joon Roh, Chul-Sung Kim, Dong-Hoon Yoo, Ju-Sung Kim, Sang-joon Jun, Gwangju, Korea, Republic of

MP14-18 MEDICAL EXPULSION THERAPY IS UNDER-UTILIZED IN WOMEN PRESENTING TO AN EMERGENCY DEPARTMENT WITH ACUTE URINARY STONE DISEASE
Herman Bagga*, Ayesha Appa, Ralph Wang, Thomas Chi, Joe Miller, Jeremy Neilson, Rebecca Smith-Bindman, Marshall Stoller, San Francisco, CA

MP14-19 IN VITRO EVALUATION OF THE URONET® STONE FRAGMENT RETRIEVER FOR PERCUANEOUS NEPHROLITHOTOMY
Kelly A. Healy*, Ryan C. Cleary, Demetrias H. Bagley, Philadelphia, PA

MP14-20 THE IMPACT OF FISH OIL SUPPLEMENTATION ON ENDOGENOUS OXALATE SYNTHESIS AND URINARY OXALATE EXCRETION
Jessica Lange*, Winston-Salem, NC, Patrick Mufarrij, Washington, D.C., DC, Linda Easter, Winston-Salem, NC, John Knight, Ross Holmes, Dean Assimos, Birmingham, AL

Istanbul, Turkey, Atilla Semercioz, Murat Binsbay, Ankara, Turkey

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Jessica Lange*, Winston-Salem, NC, Patrick Mufarrij, Washington, D.C., DC, Linda Easter, Winston-Salem, NC, John Knight, Ross Holmes, Dean Assimos, Birmingham, AL
MP14-21 HOW LONG IT TAKES TO LEARN TO USE ROBOT-FLEXAVICENA FOR FLEXIBLE URETERORENOSCOPY, COMPARISON OF AN EXPERIENCED FLEXIBLE URS USERS AND TRAINEES
Zafer Tokatli*, Ankara, Turkey, Ahmet Yaser Muslumanoglu, Murat Binbey, Abdulkadir Tepeler, Istanbul, Turkey, Evren Sayer, Remzi Saglam, Ankara, Turkey

MP14-22 TRENDS AND DEMOGRAPHICS IN STONE COMPOSITION - TRANSITION FROM NON-URIC ACID TO URIC ACID STONES
Kara L Watts*, Tian C Zhou, Joseph Divito, David M Hoenig, Bronx, NY

MP14-23 TOTAL CHOLESTEROL AS A SERUM BIOMARKER OF HYPERCALCIURIA IN PATIENTS WITH KIDNEY STONES
Raman Unnikrishnan*, Fabio Torricelli, Shubha De, Nima Almassi, Carl Sarkissian, Ina Li, Manoj Monga, Cleveland, OH

MP14-24 DEFINING VARIATION IN URINARY OXALATE IN HYPEROXALURIC STONE-FORMERS
Jodi Antonelli, Justin Friedlander*, Dallas, TX, Craig Langman, Chicago, IL, John Poindexter, Beverley Huet, Margaret Pearle, Dallas, TX

MP14-25 GOUT, STONE COMPOSITION AND URINARY STONE RISK: A CASE MATCHED COMPARATIVE STUDY
Ryan Mori*, Shubha De, Giovanni Marchini, Carl Sarkissian, Devin Tian, Manoj Monga, Cleveland, OH

MP14-26 RETROGRADE INTRARENAL SURGERY (RIRS) VS MINIMALLY INVASIVE PERCUTANEOUS NEPHROLITHOTRIPSY (MPNL) FOR RENAL STONES BETWEEN 1 TO 2 CM: A PROSPECTIVE COMPARATIVE STUDY
Rajesh Kukreja*, Indore, India

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Thursday, October 24, 2013
Moderated Poster Session MP15
2:30 pm–4:15 pm

ROBOTICS/LAPAROSCOPY: PROSTATE, LOWER TRACT II
Room Grand Cherier @ Sheraton New Orleans
Chair: Ben Challacombe
Faculty: Thomas Ahlering and Duane Baldwin

*Presenting author

MP15-01 TIPS TO AVOID POSITIONING INJURY TO THE PATIENT AND ASSISTANT DURING ROBOTIC SURGERY
James Borin*, Jeff McDaniel, Baltimore, MD

MP15-02 FUNCTIONAL AND ONCOLOGICAL OUTCOMES OF ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP) LEARNING CURVE ANALYSIS OF 418 CONSECUTIVE PATIENTS WITH UP TO 7 YEAR FOLLOW-UP
Philippe Violette*, Stephen Pautler, London, Canada

MP15-03 ROBOTIC ASSISTED RADICAL PROSTATECTOMY FOR HIGH RISK PROSTATE CANCER: QUALITY OF LIFE OUTCOMES IN MEN WHO ELECT SURGERY AS PRIMARY THERAPY
Huyt Doak*, Farmington, CT, Ryan Dorin, Halil Kiziloz, Joseph Wagner, Hartford, CT

MP15-04 ONCOLOGIC OUTCOMES FOLLOWING ROBOT ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY IN OBESE PATIENTS WITH NON-ORGAN CONFINED PROSTATE CANCER
Edris Negron*, Kyle Richards, Joshua Cohn, Scott Eggener, Gregory Zagoja, Arich Shalhav, Chicago, IL

MP15-05 DOES SIMULTANEOUS EXTRAPERITONEAL LAPAROSCOPIC HERNIA REPAIR INFLUENCE MORBIDITY AND PAIN LEVELS AFTER EXTRAPERITONEAL LAPAROSCOPIC RADICAL PROSTATECTOMY?
Xin Gao*, Ke Li, Dongen Jiang, Jelin Li, Li Lu, Guangzhou, China, People’s Republic of

MP15-06 POPULATION-BASED DETERMINANTS OF RADICAL PROSTATECTOMY OPERATIVE
Stacey Carter*, Los Angeles, CA, Stuart Lipsitz, Boston, MA, Ya-Chen Shih, Chicago, IL, Paul Nguyen, Quoc-Dien Trinh, Boston, MA, Jim Hu, Los Angeles, CA

MP15-07 DRAINS ARE NOT NECESSARY IN THE MAJORITY OF ROBOTIC UROLOGIC PROCEDURES
Daniel Gilbert*, Jordan Angell, Romney Abaza, Dublin, OH

MP15-08 IS THE SURGICAL, ONCOLOGIC AND FUNCTIONAL OUTCOMES OF RALP AFFlicted BY THE PERIOD OF AFTER TURP?
Sang Woon Kim*, Kyo Chul Koo, Young Eun Yoon, Yong Seung Lee, Joo Yong Lee, Woong Kyu Han, Byung Ha Chang, Koop Ha Rha, Seoul, Korea, Republic of

MP15-09 A COMPARATIVE STUDY OF LAPAROSCOPIC RADICAL PROSTATECTOMY BY EXTRA-PErITONEAL VS SINGLE-PORT TRANSVESICAL APPROACH FOR LOW-RISK
Xin Gao*, Ke Li, Dongen Jiang, Jelin Li, Li Lu, Guangzhou, China, People’s Republic of
MP15-10 BLADDER NECK CONTRACTURE – INCIDENCE AND MANAGEMENT FOLLOWING CONTEMPORARY ROBOT ASSISTED LAPAROSCOPIC PROSTATECTOMY TECHNIQUES
Jaspreet Parihar*, Isaac Kim, New Brunswick, NJ

MP15-11 D’AMICO RISK STRATIFICATION CORRELATES WITH PERIOPERATIVE COMPLICATION RATES FOLLOWING ROBOTIC PROSTATECTOMY
Katherine Rotker*, Michael Maddox, Shadi Al Ekish, Gyan Pareek, Dragun Golijanin, Joseph Renzulli, Providence, RI

MP15-12 INCIDENCE OF CORNEAL ABRASION FOLLOWING ROBOTIC-ASSISTED LAPAROSCOPIC PROSTATECTOMY AT A SINGLE HIGH-VOLUME INSTITUTION
Michael Large, Edris Negron*, Joshua A. Cohn, Gregory Zagaja, Scott Eggener, Arieh Shalhav, Chicago, IL

MP15-13 PREDICTIVE FACTORS OF BIOCHEMICAL RECURRENCE IN MEN WITH SEMINAL VESICLE Invasion

MP15-14 NOVEL UROFLOW STOP TEST AT TIME OF CATHETER REMOVAL IS A STRONG PREDICTOR OF EARLY URINARY CONTINENCE RECOVERY FOLLOWING ROBOTIC-ASSISTED RADICAL PROSTATECTOMY
Assaad El-Hakim*, Naif Alhathal, Talal Al-Qaoud, Ginette Gagne, Suzanne Larocque, Ronald Denis, Kevin C Zorn, Montreal, Canada

MP15-15 ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: INITIAL EXPERIENCE AND THE LEARNING CURVE
Kau Han Lee*, Chien-Liang Liu, Steven K Huan, Taichung, Taiwan

MP15-16 ROBOT-ASSISTED SALVAGE RADICAL PROSTATECTOMY AFTER RADIATION FAILURE: INITIAL RESULTS AND SHORT-TERM FUNCTIONAL OUTCOMES
Wei-Chun Weng*, Chun-Kuang Yang, Yen-Chuan Ou, Taichung, Taiwan

MP15-17 LONG-TERM ONCOLOGICAL RESULTS OF RADICAL PROSTATECTOMY FOR HIGH-RISK PROSTATE CANCER: A SINGLE-CENTRE EXPERIENCE
Youness Ahallal*, Rafael Sanchez-Salas, Laurent Masule, Luca Lunelli, Petr Macek, Camilo Giedelman, Dominique Prapontin, Eric Barret, Francois Rozet, Marc Galain, Annick Monbet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP15-18 ROBOTIC SIMPLE PROSTATECTOMY FOR SEVERE BENIGN PROSTATIC HYPERPLASIA
Wesley White, Knoxville, TN, David Thiel, Jacksonville, FL, James Bienvenu*, Frederick Klein, Bedford Waters, Knoxville, TN

MP15-19 ROBOTIC-ASSISTED LAPAROSCOPIC VERSUS OPEN URETERAL REIMPLANTATION: A SINGLE INSTITUTION MATCHED COHORT REVIEW
David Duchene*, Daniel Zainfeld, Kirk Redger, Andrew Windsperger, Kansas City, KS

MP15-20 ANALYSIS OF FACTORS PREDICTING RECOVERY OF ERECTILE FUNCTION AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY
Bi Hai*, Ma Lu-lin, Hou Xiao-fei, Beijing, China, People’s Republic of

MP15-21 ANALYSIS OF ROBOT ASSISTED RADICAL PROSTATECTOMY COMPLICATIONS ACCORDING TO DURATION OF FOLLOW-UP
Ahmed Ghazi*, Nandini Venkateswaran, Viveet Agrawal, Emilien Scosyrev, Jean Joseph, Rochester, NY

MP15-22 EFFECT OF PUBOPELVIC ANGLE ON SURGICAL OUTCOMES IN RETROPUBIC AND ROBOT-ASSISTED RADICAL PROSTATECTOMY
Kyungtae Ko*, Woo Suk Choi, Ja Hyeon Ku, Hyeon Hoe Kim, Cheol Kwak, Seoul, Korea, Republic of

MP15-23 CONTEMPORARY SERIES OF ROBOTIC ASSISTED DISTAL URETERAL RECONSTRUCTION UTILIZING SIDE DOCKING POSITION
Julie Riley*, Albuquerque, NM, Michael Ost, Pittsburgh, PA

MP15-24 MULTI-INSTITUTIONAL OUTCOMES OF ROBOTIC-ASSISTED LAPAROSCOPIC DISTAL URETERAL REIMPLANTATION

MP15-25 IS R.E.N.A.L NEPHROMETRY SCORING SYSTEM ASSOCIATED WITH THE OUTCOME OF LPN?
Masahiro Sugiuara*, Kazuhiro Araki, Kyokusin Ho, Masahiko Inabara, Ichihara, Japan, Syuko Cho, Nobuyuki Sekita, Chiba, Japan, Hiroshi Masuda, Yukio Naya, Ichihara, Japan

MP15-26 RENAL HILAR CLEARANCE (DENERVATION) AS A TREATMENT FOR INTRACTABLE/REFRACTORY HYPERTENSION
Shakir Tabrez, Mohan keshamurthy, Prem kumar*, Uday Bhaskar, Mohan Balaiath Ashivaathiah, Bangalore, India
Thursday, October 24, 2013  Video Session V07  2:30 pm–4:30 pm

LAPAROSCOPY: UPPER TRACT I
Room Armstrong @ Sheraton New Orleans
Chair: Jaime Landman
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*Presenting author

V07-01 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR COMPLETELY INTRARENAL TUMOR
Ma Lulin*, Zhang Shudong, Beijing, China, People’s Republic of China

V07-02 LAPAROSCOPIC RESOLUTION OF VASCULAR COMPLICATIONS IN RETROPERITONEAL NEPHRECTOMY
Zhang Shudong*, Ma Lulin, Beijing, China, People’s Republic of China

V07-03 LAPAROSCOPIC DONOR NEPHRECTOMY: MANAGING COMPLEX VENOUS ANOMALIES

V07-04 A STANDARDIZED SUTURE TECHNIQUE USING A BARBED SUTURE IMPROVES EFFICACY AND SAFETY IN RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY
Christian Wülfing*, Nicolas Flechtmann, Serkan Filiz, Johannes Göcksch, Jörn Bode, David Marghawal, Hamburg, Germany

V07-05 CLAMPLESS LAPAROSCOPIC PARTIAL NEPHRECTOMY: OUR TECHNIQUE
Ioannis Georgioupolos*, Jason Kuriatzis, Panagiotis Kalidoni, Stavros Kontogiannis, Evangelos Liatsikos, Patras, Greece

V07-06 RETROPERITONEOSCOPIC DISMEMBERED PYELOPLASTY IN THE TREATMENT OF PUJ OBSTRUCTION- OUR EXPERIENCE WITH 60 CASES
Venugopal Ganapathy*, Harris C H, Thiruvananthapuram, India, Sudin S R, Kollam, India, Nabin C Angas, Ginson V George, Sandeep Krishnan, Thiruvananthapuram, India, Suchendra P Umni, Kochi, India, Jithu K Pillai, Thrissur, India

V07-07 LAPAROSCOPIC PYEOLITHOTOMY IN A HORSE SHOE KIDNEY IN THE ERA OF PCNL AND RIRS
Manickam Ramalingam*, Kallappan Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

V07-08 LAPAROSCOPIC URETEROCALICOSTOMY: PELVICURETERIC JUNCTION OBSTRUCTION IN INTRARENAL PELVIS WITH MULTIPLE SECONDARY CALCULI
Vikas Agarwal*, Atul Goswami, Delhi, India

V07-09 LAPAROSCOPIC CYTOREDUCTIVE NEPHRECTOMY: MPJH EXPERIENCE
Amit Bhatta*, Nadiad, Gujarat, India, Shashikant Mishra, Arvind Gampule, Jitendra Jagtap, Ravindra Subnis, Mahesh Desai, Nadiad, India

V07-10 NEPHRON-SPARING SURGERY FOR RENAL TUMORS USING PARENCYMAL CLAMPING
Mohammed Lezrek*, Khalil Bazine, Hicham Tazi, Adil Slimani Alaoui, Mohammad Alami, Meknes, Morocco

V07-11 ROBOTIC ASSISTED LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION FOR STAGE I NONSEMINOMATOUS GERM CELL TUMOR: PORT PLACEMENT AND SURGICAL TECHNIQUE
Dinesh Samarasekera*, Maria C Mir, Riccardo Autorino, Joseph Klink, Andrew J Stephenson, Jihad H Kaouk, Cleveland, OH

Thursday, October 24, 2013  Video Session V08  2:30 pm–4:30 pm

LAPAROSCOPY/ROBOTICS: PROSTATE, BLADDER & LOWER TRACT II
Room Grand Ballroom E @ Sheraton New Orleans
Chair: Mathew C. Raynor
Faculty: Sri Sivalingam and Jonathan Silverstein

*Presenting author

V08-01 LAPAROSCOPIC URETEROURETEROSTOMY FOR THE MANAGEMENT OF OBSTRUCTIVE UROPATHY CAUSED BY CONGENITAL URETERIC ENTRAPMENT IN THE ILIAC BONE
Alireza Aminsharifi*, Shiraz, Iran

V08-02 LAPAROSCOPIC REPAIR OF VESICOUTERINE FISTULA USING TACHOSILTM SPONGE
Roberto Sanseverino*, Tommaso Redfonso, Oliver Intilia, Umberto Di Mauro, Giovanni Molisso, Giorgio Napodano, Nocera Inferiore, Italy
V09-08 MODIFIED TECHNIQUE OF RETROGRADE INTRA RENAL SURGERY
Nilkamal Joshi*, Al Ain, United Arab Emirates
Besharat Hussain*, Wai Man Chow, Manchester, United Kingdom

V09-09 EXTRA-ANATOMIC STENTS: CHANGE IN REFRACTORY URETERIC OBSTRUCTION
Samuel Grimsley*, Kesapattula Subramoniam, Birmingham, United Kingdom

V09-10 THE TWO-WIRE TECHNIQUE: SHEATHLESS RETROGRADE INTRODUCTION OF FIBREOPTIC URETERORENOSCOPE IN INTRARENAL ENDO-SCOPIC LASER LITHOTRIPSY
Basharat Hussain*, Wai Man Chow, Manchester, United Kingdom

V09-11 UPPER URINARY TRACT AMYLOIDOSIS: CASE PRESENTATION AND ENDOSCOPIC VIDEO
Ariel Schulman*, William Hilton, Antoun Toubaji, Hikmat Al-Almadie, Jonathan Coleman, New York, NY

Thursday, October 24, 2013
Moderated Poster Session MP16 4:30 pm–6:15 pm
UROLITHIASIS II
Room Rhythms 1 @ Sheraton New Orleans
Faculty: Roger Sur and Richard Babayan

*Presenting author

MP16-01 ENDOCKSCOPE: USING MOBILE TECHNOLOGY TO CREATE GLOBAL POINT OF SERVICE ENDOSCOPY
Renai Yoon*, Samir Shreim, Atreya Dash, Ralph Clayman, William Sohn, Hak J. Lee, Irvine, CA
Young Tae Moon, Kyung Do Kim, In Ho Chang, Seoul, Korea, Republic of

MP16-02 ENDOURETERAL MANAGEMENT OF UROLITHIASIS IN THE HORSESHOE KIDNEY
Marcelino Rivera*, Amy Krambeck, Rochester, MN

MP16-03 SINGLE ENDOUROLOGY CENTRE EXPERIENCE IN PERCUTANEOUS CHEMOLYSIS OVER THE LAST TEN YEARS

MP16-04 PREVALENCE OF 24-HOUR URINE COLLECTION AMONG HIGH-RISK STONE FORMERS
Jaclyn Milose*, Brent Hollenbeck, Samuel Kaufman, Gary Faerber, J. Stuart Wolf, Jeffrey Montgomery, Alan Weizer, John Hollingsworth, Ann Arbor, MI

MP16-05 MANIFOLD PURE URIC ACID BLADDER STONES: PRESENTATION AND ENDOSCOPIC MANAGEMENT
Shih-Chieh Jeff Chueh*, Fabio C. M. Torricelli, Shujane Shen, Manoj Monga, Cleveland, OH

MP16-06 IS THERE A DIFFERENCE IN 24-HOUR URINE COMPOSITION BETWEEN STONE PATIENTS WITH AND WITHOUT DIABETES MELLITUS?
Christopher Hartman*, Justin Friedlander, Daniel Moreira, Sammy Elsamra, Arthur Smith, Zeph Okeke, New Hyde Park, NY

MP16-07 EFFECTIVENESS OF FLEXIBLE URETEROSCOPIC STONE REMOVAL FOR TREATING URETERAL AND IPSILATERAL RENAL STONES: A SINGLE CENTER EXPERIENCE
Jae Dong Chung*, Seung Hyun Ahn, Jong Kyu Kwon, Tae-Hyoung Kim, Soon Chul Myung, Seoul, Korea, Republic of

MP16-08 AN EVALUATION OF THE IMPACT OF CREATININE TO WEIGHT RATIO BY GENDER IN 24-HOUR URINE STUDIES FOR RENAL STONE PREVENTION
Justin M. Watson*, Shaun Wason, Michael D. Fabrizio, Norfolk, VA, Nicole L. Miller, Nashville, TN, Mark D. Sawyer, Norfolk, VA

MP16-09 INFECTION, SIRS AND SEPSIS IN PATIENTS WITH OBSTRUCTIVE PYELONEPHRITIS DUE TO URETERAL STONES
Jodi Antonelli*, Daniel Mollengarden, Jeffrey Shoss, Yair Rotan, Margaret Pearle, Dallas, TX

MP16-10 MULTIPLE SCLEROSIS AND KIDNEY STONE DISEASE
Shubha De*, Giovanni Marchini, Benjamin Larson, Manoj Monga, Cleveland, OH

MP16-11 BILATERAL TUBELESS AND JJ STENTLESS PCNL EXPERIENCE OF 37 CASES
Mohammed Bhuiyan*, MF Islam, ZH Bhuiyan, KMH Tawhid, NILI Ahmed, K Salahuddin, Dhaka, Bangladesh

MP16-12 NON-LINEAR LOGISTIC REGRESSION MODEL FOR OUTCOMES AFTER ENDOUROLOGIC PROCEDURES: A NOVEL PREDICTOR
Adam Kadlec*, Maywood, IL, Samuel Ohlander, James Hotaling, Chicago, IL, Jessica Hannick, Maywood, IL, Craig Niederberger, Chicago, IL, Thomas Turk, Maywood, IL

MP16-13 RANDALL’S PLAQUE AND INTRADUCTAL PLUGGING: ASSOCIATION WITH STONE EVENTS AND COMPOSITION
Mitra de Cogain*, Amy Krambeck, Eric Bergstrahl, Xujian Li, John Lieske, Rochester, MN
MP16-14 DIABETES MELLITUS AND UROLITHIASIS: DOES RANDALL’S PLAQUE ACCOUNT FOR INCREASED STONE RISK?
Mitra de Cogain*, Amy Krambeck, Eric Bergstralh, Xujian Li, John Lieske, Rochester, MN

MP16-15 NEW DESIGNED TIP-FLEXIBLE SEMI-RIGID URETEROSCOPY IN THE MANAGEMENT OF RENAL STONES: INITIAL EXPERIENCE
Yinghao Sun*, Xiaofeng Gao, Shanghai, China, People’s Republic of, Ling Li, Shanghai, China, People’s Republic of, Yonghao Peng, Shanghai, China, People’s Republic of

MP16-16 EVALUATION OF HEAVY METALS AND TRACE ELEMENTS CONTENTS IN URINARY CALCULI: MICROANALYTICAL STUDY
Mahmoud Elnagar*, Naimat Alsayegh, Alain, United Arab Emirates, Bedier Ali-El-Dein, Mansoura, Egypt, Saed Alqahtani, Paris, France, Sanjeev Mehta, Ahmedabad, India, Nikkamat Joshi, Alain, United Arab Emirates, Eman Elsobky, Abu Dhabi, United Arab Emirates

MP16-17 EVALUATION OF MICRO CT ANALYSIS OF URINARY STONE COMPOSITION
James Williams*, Indianapolis, IN, Kalba Usman, Ruth Tor, Petach Tikva, Israel, James McAteer, Indianapolis, IN, David Lifshitz, Petach Tikva, Israel

MP16-18 SIMULTANEOUS DIGITAL FLEXIBLE URETERORENOSCOPY AND EXTRACORPORAL SHOCK WAVE LITHOTRIPSY: A NEW APPROACH FOR RENAL STONE TREATMENT?
Thomas Knoll*, Patrick Honeck, Sindelfingen, Germany, Ulf Balsmeyer, Dirk Fahlenkamp, Chemnitz, Germany, Gunnar Wendt-Nordahl, Sindelfingen, Germany

MP16-19 HIGHER HEMOGLOBIN A1C IS ASSOCIATED WITH A GREATER LIKELIHOOD OF URIC ACID STONE FORMATION: IS CONTROL OF DIABETES IMPORTANT FOR STONE PREVENTION?
Sara Best, Jonathan Shiu*, Rachel Bell, Kristina Penniston, Madison, WI

MP16-20 URETEROSCOPY VERSUS SHOCK WAVE LITHOTRIPSY – FACTORS INFLUENCING PATIENT TREATMENT PREFERENCES
Adam Shrewsberry*, Steven Gerhard, Tania Solomon, Dana Nickleach, Yuan Liu, John Pattaras, Kenneth Ogan, Atlanta, GA

MP16-21 HYPERLIPIDEMIA IS ASSOCIATED WITH AN INCREASED RISK OF NEPHROLITHIASIS

MP16-22 GENDER INEQUALITIES IN URINARY METABOLIC EVALUATION OF STONE FORMERS: A 10 YEAR EXPERIENCE FROM A WESTERN INDIAN STONE BELT REGION
Jitendra Jagtap*, Raguram Ganesamoni, Jigish Vyas, Shashikant Mishra, Arvind Gampule, Ravindra Sabnis, Mahesh Desai, Nadiad, India

MP16-23 MONTHLY VARIATIONS IN UROLITHIASIS PRESENTATIONS AND THEIR ASSOCIATION WITH METEOROLOGICAL FACTORS IN NEW YORK CITY

MP16-24 URINARY TRACT STONE DEVELOPMENT IN PATIENTS WITH MEYOLODYSPLASIA SUBJECT TO AUGMENTATION CYSTOPLASTY
Courtney Shepard*, David Joseph, Dean Assimos, Betsy Hopson, Ralee Bishop, Birmingham, AL

MP16-25 USING 24-HOUR URINALYSIS TO PREDICT STONE TYPE

MP16-26 THE PREDICTION FACTORS OF FLEXIBLE URETERORENOSCOPY REQUIREMENT AFTER RIGID URETERORENOSCOPY IN RENAL PELVIS STONES
Evren Suer, Omer Gulpinar, Cihat Ozcan*, Cagatay Gogus, Seymur Kerimov, Siddik Mut Safak, Ankara, Turkey
MP17-03 LAPAROSCOPIC VARICOCELECTOMY FOR CHRONIC SCROTAL PAIN. A SINGLE CENTRE EXPERIENCE
Stefanos Kachrilas*, Elenko Popov, Andreas Bourdounis, Faryqz Zaman, Christian Bach, Anuj Goyal, Athanassios Papatsoris, Junaid Masood, Norr Buchholz, London, United Kingdom

MP17-04 EXTRAPERITONEAL LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION FOR TESTICULAR NON-SEMINOMATOUS GERM CELL TUMORS
Changjun Yin*, Nanjing, China, People's Republic of

MP17-05 LAPAROSCOPIC PARTIAL VERSUS TOTAL ADRENALECTOMY FOR ADRENAL MASS
Young Gon Kim, Hyung Jin Kim, Young Beom Jeong*, Jeonju, Korea, Republic of

MP17-06 LAPARASCOPIC SACROPEXY USING A TITANIZED POLYPROPYLENE MESH FOR PELVIC ORGAN PROLAPSE: FUNCTIONAL AND ANATOMICAL OUTCOME AFTER 2.5 YEARS
Jan-Peter Jessen, Gunnar Wendt-Nordahl, Thomas Knoll, Patrick Honeck*, Sindelfingen, Germany

MP17-07 OUTCOMES OF ROBOT-ASSISTED URERETROCECTOMY IN THE MANAGEMENT OF GYNECOLOGICAL SURGERY ASSOCIATED URERETIC COMPLICATIONS
Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Goudelocke, Juan Class, Chattanooga, TN

MP17-08 COMPARISON OF POSTOPERATIVE PAIN AFTER TRANSBUTURATOR OR RETROPUBLIC SUBURETHRAL SLING FOR FEMALE STRESS URINARY INCONTINENCE: A PROSPECTIVE RANDOMIZED STUDY
Jin Ho Choe*, Hui Dai Lee, Se Hwan Park, Dae Gi Jo, Hyo Serk Lee, Joong Shik Lee, Ju Tae Seo, Seoul, Korea, Republic of

MP17-09 A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL OF THE EFFICACY OF TAMSULOSIN AFTER EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR A SINGLE PROXIMAL URETERAL STONE
Yong Hyun Park*, Gyeonggi-do, Korea, Republic of, Jae Young Park, Ansan, Korea, Republic of, Hyunsoo Ahn, Hyeon Hoe Kim, Seoul, Korea, Republic of

MP17-10 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR CLINICAL STAGE I TESTIS CANCER: INITIAL SERIES AND FEASIBILITY STUDY
Gautam Jayram*, Mark Ball, Trinity Bivalacqua, Mohamad Allaf, Baltimore, MD

MP17-11 CORRELATION OF ULTRASOUND WITH SURGERY IN PATIENTS WITH UNILATERAL NON-PALPABLE TESTICLES: IMPACT OF WEIGHT AND CONTRALATERAL TESTICULAR SIZE
Wissem Hmida, Ghassen Tlili*, Faouzi Mallat, Sidiya Charey, Nadia Mama, Mahdi Jaidane, Faouzi Mosbah, Sousse, Tunisia

MP17-12 COMPARATIVE ANALYSIS OF ROBOTIC VS. OPEN RETROPERITONEAL LYMPH NODE DISSECTION FOR TESTICULAR CANCER STAGING
Sean Stroup*, San Diego, CA, Michael Liss, Kerrin Palazzi, La Jolla, CA, James Masterson, San Diego, CA, Ithar Derweesh, La Jolla, CA, James L’Esperance, San Diego, CA

MP17-13 POST-CHEMOTHERAPY LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION IN LOW VOLUME RESIDUAL GERM CELL CANCER
Christian Schwaenbert*, Tilman Todenhöfer, Georgios Gakis, Stefan Außerklamm, Tuebingen, Germany

MP17-14 ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY: A COMPARISON OF TECHNIQUES
Brett Parker*, Mohammad Malik, Jennifer Yates, Ravi Munver, Hackensack, NJ

MP17-15 COEXISTENCE OF LOWER EXTREMITY VARICES AND STRESS URINARY INCONTINENCE IN WOMEN
Alper Otuncetmurl, Emin Ozbek*, Murat Dursun, Mustafa Erkoc, Equp Danis, Recep Bayraktarli, Tahsin Yasar, Istanbul, Turkey

MP17-16 MINIMALLY INVASIVE TREATMENT OF URERETOVAGINAL FISTULA: A REVIEW AND REPORT OF A NEW TECHNIQUE
Khalid Al Otaibi, Reem Al Damooh*, Alkhobar, Eastern Province, Saudi Arabia

MP17-17 INTRAVESICAL MIGRATION OF IUCD (INTRAUTERINE DEVICE) WITH CALCULUS FORMATION
Yoheeswaran Nallaswami*, Sangeetha Karunanidhi, Erode, India

MP17-18 FERTILITY OF PATIENTS WITH A HISTORY OF BILATERAL CRYPTORCHIDISM TREATED Wissem Hmida, Ghassen Tlili*, Faouzi Mallat, Sidiya Charey, Nadia Mama, Mahdi Jaidane, Faouzi Mosbah, Sousse, Tunisia

MP17-19 ROBOT-ASSISTED LYMPH NODE DISSECTION IN TESTIS CANCER. EXPERIENCE IN 12 CONSECUTIVE CASES
Octavio Castillo, Ivar Vidal-Mora, Daniel Revello*, Matius Poblete, Andres Silva, Jorge Lopez-Vallejo, Santiago, Chile

MP17-20 DIAGNOSIS AND TREATMENT OF ELEVEN CASES OF ADRENOCORTICAL ONCOCYTIC ADENOMA:REPORT OF 11 CASES
Xiao Qing Wang, Yan Wang, Hai Feng Zhang, Hai Ming Wang, Chun Xi Wang*, Changchun, China, People’s Republic of

MP17-21 IS THERE ANY INDICATION OF PERCUTANEOUS BIOPSY OF A LARGE ADRENAL MASS BEFORE CONSIDERING SURGERY?
Janica Chavda*, Aditi Kumar, Tamer El-Husseiny, Nuvan Premachandra, Birmingham, United Kingdom, Sashi Kommu, London, United Kingdom, Aniruddha Chakravarti, Birmingham, United Kingdom
MP17-22 INVESTIGATION AND MANAGEMENT OF INCIDENTAL ADRENAL MASSES
Jorge Clavijo-Eisele*, Mark Rogers, Shahzad Laghari, Lucy Nicholson, Grimsby, United Kingdom, Diego Abreu, Montevideo, Uruguay

MP17-23 CHANGING TRENDS IN ACUTE SCROTUM PRESENTATION: UK EXPERIENCE
Syed Ali Shahzad*, Ugo Otite, Birmingham, United Kingdom

MP17-24 THE UTILITY OF NOVEL REUSABLE DOPPLER PROBE INTEGRATED WITH GRASP FORCEPS
Junichi Inokuchi*, Takeshi Ohdaira, Keijiro Kiyoshima, Katsunori Tatsugami, Akira Yokomizo, Makoto Hashizume, Seiji Naito, Fukuoka, Japan

MP17-25 TRANURETHRAL SEMINAL VESICULOSCOPY FOR INTRACTABLE SEMINAL VESICULITIS
Bianjiang Liu, Jie Li, Jinxiu Zhang, Pengchao Li, Zengjun Wang*, Nanjing, China, People’s Republic of

Thursday, October 24, 2013
Moderated Poster Session MP18 4:30 pm–6:15 pm

ROBOTICS/LAPAROSCOPY: UPPER TRACT III
Room Rhythms 3 @ Sheraton New Orleans
Chair: Gunter Janetschek
Faculty: Mohammed Allaf and Jay Bishoff

*Presenting author

MP18-01 ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR CLINICAL T1B RENAL MASSES
Young Hyun Park*, Gyeonggi-do, Korea, Republic of, Hyunsoo Ahn, Seoul, Korea, Republic of, Junghun Lee, Byung Ki Lee, Jin-Woo Jeong, Chang Wook Jeong, Seok-So Byun, Gyeonggi-do, Korea, Republic of

MP18-02 ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: LESSONS LEARNED AFTER 9 YEARS
Nicholas Faure Walker*, Oussama Elhage, Corinna Sławinski, Ben Challacombe, Prokar Dasgupta, London, United Kingdom

MP18-03 THE LEARNING CURVE FOR ROBOTIC PARTIAL NEPHRECTOMY IN A HIGH VOLUME ROBOTIC SURGERY CENTRE

MP18-04 COMPARISON OF SELECTIVE PARENCHYMAL CLAMPING TO HILAR CLAMPING DURING ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY
Ryan Hsi*, Liam Macleod, John Gore, Jonathan Wright, Jonathan Harper, Seattle, WA

MP18-05 RETROPERITONEAL VERSUS TRANSPERITONEAL ROBOTIC PARTIAL NEPHRECTOMY FOR POSTERIOR RENAL TUMORS: RESULTS OF MATCHED-PAIR COMPARISON FROM TWO MAJOR REFERRAL CENTERS

MP18-06 EVALUATION OF PERIOPERATIVE OUTCOMES IN ELDERLY PATIENTS AND COMPARISON WITH YOUNGER PATIENTS UNDERGOING ROBOTIC ASSISTED PARTIAL NEPHRECTOMY
Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

MP18-07 COMPARING MINIMALLY INVASIVE SURGICAL APPROACHES TO RADICAL NEPHRECTOMY
Priyanka Arshanapalli, Tim Large*, Jason Sea, Clint Buhler, Thomas Gardner, Chandru Sundaram, Indianapolis, IN

MP18-08 OPEN AND ROBOTIC NEPHRON SPARING SURGERY FOR T1B OR GREATER RENAL CELL CARCINOMA: A SINGLE CENTER EXPERIENCE
Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Goudelocke, Juan Class, Chattanooga, TN

MP18-09 ROBOT-ASSISTED MANAGEMENT OF BENIGN DISTAL URETERAL STRICTURES IN REOPERATIVE FIELD: SINGLE INSTITUTION EXPERIENCE
Alonso Carrasco*, Matthew Gettman, George Chow, Matthew Tolleson, Rochester, MN

MP18-10 PERINEPHRIC FAT THICKNESS INCREASES OPERATIVE COMPLEXITY INDEPENDENT OF NEPHROMETRY SCORE DURING ROBOTIC PARTIAL NEPHRECTOMY

MP18-11 ROBOTIC NEPHRECTOMY IS NOT COSTLIER THAN STANDARD LAPAROSCOPY WHEN ROBOT AVAILABLE
Daniel Gilbert*, Dublin, OH, Iahn Gonenhauser, Columbus, OH, Ronnie Abaza, Dublin, OH
MP18-12 THE IMPACT OF BODY MASS INDEX ON RENAL FUNCTIONAL OUTCOMES FOLLOWING MINIMALLY INVASIVE PARTIAL NEPHRECTOMY
Edris Negron*, Kyle Richards, Joshua Cohn, Zoe Steinberg, Scott Eggenger, Arieh Shalhav, Chicago, IL

MP18-13 COST AND SAFETY ANALYSIS OF LAPAROSCOPIC CRYOABLATION AND ROBOTIC PARTIAL NEPHRECTOMY FOR MANAGEMENT OF RENAL MASSES
Qiang Li*, Zachary Klaassen, Bruce Shingleton, Rabii Madi, Augusta, GA

MP18-14 PREOPERATIVE, POSTOPERATIVE RENAL FUNCTION TEST USING TC 99-M-DTPA FOLLOWING LAPAROSCOPIC AND ROBOTIC PARTIAL NEPHRECTOMY AT SHORT WARM ISCHEMIC
Kang Sup Kim*, Young Sun Choi, Hyuk Jin Cho, Sung-Hoo Hong, Seoul, Korea, Republic of

MP18-15 IMPACT OF EARLY ARTERIAL UNCLAMPING DURING ROBOTIC PARTIAL NEPHRECTOMY
Christopher Reilly*, Elton Lukani, Blake Moore, Ziho Lee, David Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

MP18-16 OUTCOMES OF PARTIAL NEPHRECTOMY IN PATIENT WHO MEET PERCUTANEOUS ABLATION CRITERIA
Mark Ball*, Michael Gorin, Gautam Jayram, Mohamad Allaf, Baltimore, MD

MP18-17 ROBOT-ASSISTED VERSUS PURE LAPAROSCOPIC RADICAL NEPHRECTOMY: ARE ADDITIONAL COSTS OFFSET BY TECHNICAL GAINS?
Scott Tobis, Helen Levey*, Anees Fazili, Justin Houman, Deep Trivedi, Bruce Allio, Tamara John, Emilian Scosyrev, Jean Joseph, Hamid Rashid, Qian Wu, Rochester, NY

MP18-18 THE “EUNORRHAPHY”: A MODIFIED SLIDING CLIP RENORRHAPHY USING A DOUBLE-ARMED BARBED SUTURE FOR ROBOTIC PARTIAL NEPHRECTOMY
Christopher Reilly*, Elton Lukani, Blake Moore, Ziho Lee, David Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

MP18-19 MINIMALLY INVASIVE PARTIAL NEPHRECTOMY VERSUS RENAL CRYOABLATION FOR SMALL RENAL MASSES
Samuel Juncal*, Michael Ordon, Achim Lusch, Zhanushid Okhusnov, Orange, CA, Cassio Andreoni, Sao Paulo, Brazil, Jaime Landman, Orange, CA

MP18-20 ROBOTIC PARTIAL NEPHRECTOMY IN PT1B AND LARGER RENAL MASSES: SINGLE INSTITUTION ANALYSIS WITH 3 YEAR FOLLOW UP
Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

MP18-21 EQUIVOCAL OVERALL SURVIVAL IN ROBOTIC, LAPAROSCOPIC, AND OPEN NEPHROURETERECTOMY AT INTERMEDIATE FOLLOW UP
David Koslov*, Louis Spencer Krane, Winston Salem, NC, Theodore Manny, Ashok Hemal, Winston-Salem, NC

MP18-22 DEFINING THE LEARNING CURVE OF ROBOTIC PARTIAL NEPHRECTOMY: ANALYSIS OF ISCHEMIA S
Philip Dorsey*, Eric Shaw, Sree Mandava, Benjamin Lee, New Orleans, LA

MP18-23 A COMPARATIVE STUDY OF OPEN, LAPAROSCOPIC AND ROBOTIC PARTIAL NEPHRECTOMY IN OBESE PATIENTS
Clarese Webb*, Mohamed Kamel, Ehab Eltahawy, Mohammed Elfarahmany, Rodney Davis, Nabil Bissada, Little Rock, AR

MP18-24 DO WE NEED TO CLAMP THE RENAL HILUM LIBERALLY DURING THE INITIAL PHASES OF THE LEARNING CURVE FOR ROBOT-ASSISTED NEPHRON-SAVING SURGERY?
Tarik Esen, Omer Acar*, Ahmet Musaoglu, Metin Vural, Istanbul, Turkey

MP18-25 LAPAROSCOPIC NEPHROURETERECTOMY IS A SAFE AND ADHERENT MODALITY IN PATIENTS WITH UPPER TRACT UROTHELIAL CARCINOMA IRRESPECTIVE OF BODY MASS INDEX
Takahiro Hiragama*, Kazumasa Matsumoto, Morihiro Nishi, Kenichi Tabata, Daisuke Ishii, Tetsuo Fujita, Kazumori Yoshida, Masatugu Iwamura, Kanagawa, Japan

MP18-26 LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH SEGMENTAL RENAL ARTERY CLAMPING
Changjun Yin*, Pengfei Shao, Chao Qin, Nanjing, China, People’s Republic of
**Thursday, October 24, 2013**

**Moderated Poster Session MP19**

**IMAGING, UROLITHIASIS & NEW TECHNIQUES**

**Room Grand Ballroom D @ Sheraton New Orleans**

**Chair: David Tolley**

**Faculty: Salvatore Micali and Gianpaolo Bianchi**

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**Presenting author**

**MP19-01** EMERGENCY SEMIRIGID URETROSCOPY FOR MANAGEMENT OF DIFFERENT URETERAL DISEASES  
Mohamed Mohamed*, Mostafa Shamaa, Hassan A.elwahab, Gamal Elatrash, Ismailia, Egypt

**MP19-02** RETROGRADE ENDOSCOPIC URETERAL STENT PLACEMENT IN TRANSPLANT KIDNEYS: TECHNIQUE AND OUTCOMES OF A CONTEMPORARY SERIES  
Shailja Mehta*, Chris Wright, Khushabu Kasabwala, Jennifer Yates, Michael Shapiro, Nicole Ali, Ravi Munner, Hackensack, NJ

**MP19-03** SPECTROSCOPIC HIGH-INTENSITY FOCUSED ULTRASOUND (HIFU) MONITORING IN KIDNEY  
Mei Wang*, Kate Elfer, Nguyen Hoang, Damir Khismatullin, J. Quincy Brown, New Orleans, LA

**MP19-04** FLUORESCENCE STAINING STRATEGIES FOR HISTOLOGICAL ASSESSMENT OF PROSTATE BIOPSY  
Kate Elfer, New Orleans, LA, Andrew Moore*, Hillary Kimbrell, New Orleans, LA, J. Quincy Brown, New Orleans, LA

**MP19-05** IN VIVO OPTICAL COHERENCE TOMOGRAPHY FOR THE EVALUATION OF UPPER URINARY TRACT UROTHELIAL CARCINOMA: INITIAL RESULTS FROM A PILOT STUDY  
Mieke Bus*, Berrend Muller, Daniel de Bruin, Dirk Faber, Maria Laguna Pes, Ton van Leeuwen, Theo de Reijke, Jean de la Rosette, Amsterdam, Netherlands

**MP19-06** ENDOSCOPIC MANAGEMENT OF URINE LEAKS AFTER PARTIAL NEPHRECTOMY WITH URETEROSCOPIC RETROGRADE FIBRIN SEALANT  
Aaron D Weiss*, John G Pattaras, Atlanta, GA

**MP19-07** THE CLINICAL UTILITY OF MRI IN CHARACTERIZING THE DYNAMIC EFFECTS OF 5-ALPHA REDUCTASE INHIBITORS ON PROSTATE ZONAL VOLUMES  
Hong Truong*, Jennifer Logan, Baris Turkbey, M. Minhaj Siddiqui, Sorosh Rais-Bahrami, Anthony Hoang, Chad Pusateri, Brian Shuch, Annerlein Walton-Diaz, Srinivas Vourganti, Jeffrey Nix, Lambros Stamatakis, Peter L. Chayke, Bradford J. Wood, Peter A. Pinto, Bethesda, MD

**MP19-08** HIGH INCIDENCE OF DONOR GIFTED LITHIASIS FROM CADAVERIC GRAFTS SCREENED USING NON CONTRASTED COMPUTERIZED AXIAL TOMOGRAPHY INITIAL RESULTS FROM A TERTIARY CENTRE IN MEXICO CITY  
Jorge David Magaña Rodríguez*, Christian Isaac Villoda, Carolina Culebro Garcia, Ricardo Alonso Castellanos Molina, Bernardo Gabilondo Pliego, Jorge Vazquez Lamadrid, Carlos E Mendez Probst, Mexico, Mexico

**MP19-09** REDUCTION OF RADIATION EXPOSURE TO ENDOUROLOGIC SURGEONS WITH THE URO DYNA-CT  
Manuel Ritter*, Marie-Claire Rassweiler, Carolin Hörmann, Mannheim, Germany, Alexandre E. Pelzer, Ingolstadt, Germany, Axel Hacker, Maurice-Stephan Michel, Mannheim, Germany

**MP19-10** PRELIMINARY INVESTIGATION OF MICROWAVE ABLATIONS AT 915 MHZ IN EX-VIVO AND IN-VIVO PORCINE KIDNEYS  
Karli Pease*, Gáeoul Lorber, Raymond Leveillee, Nelson Salas, Miami, FL

**MP19-11** REDUCED RADIATION EXPOSURE OF ENDOUROLOGICAL PATIENTS BY NEW PROTOCOLS IN THE URO DYNA-CT  
Marie-Claire Rassweiler*, Mannheim, Germany, Rosemarie Banckwitz, Christoph Koehler, Bernd Mueller-Allissat, Forchheim, Germany, Maurice-Stephan Michel, Axel Hacker, Manuel Ritter, Mannheim, Germany

**MP19-12** EFFICACY OF A NOVEL TECHNIQUE FOR PERSISTENT AND RECURRENT HEMOSPERMIA BY TRANSURETHRAL SEMINAL VESICULOSCOPY IN A SINGLE-CENTER OF SOUTH CHINA: LONG-TERM FOLLOW-UP RESULTS  
Heng-Jun Xiao*, De-Juan Wang, Jun Chen, Jun Pang, Yun Luo, Xiao-Peng Liu, Yan Zhang, Jin-Ming Di, Jian-Guang Qiu, Xiang-Fu Zhou, Xin Gao, Guangzhou, China, People's Republic of China

**MP19-13** CAN RENAL MASS FEATURES ON CT PREDICT POSITIVE MARGINS?  
Brian Duty*, Nick Tadros, Michael Conlin, Portland, OR

**MP19-14** INITIAL INVESTIGATION OF A 2450 MHZ MICROWAVE SYSTEM FOR ABLATION OF RENAL TISSUES  
Karli Pease*, Arturo Castro, Raymond Leveillee, Nelson Salas, Miami, FL
MP19-15  EVIDENCE FOR REVERSE STAGE MIGRATION AFTER ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY
Aaron Bernie*, Ranjith Ramasamy, Adnan Ali, Ashutosh Tewari, New York, NY, Zachary Smith, New York, NY

MP19-16  IMPACT OF URETERAL JET FLOW ON URINARY TRACT STONE FORMATION
Serdar Celik*, Canan Alay, Sakir Ongun, Gorkem Uz, Ozan Baskurt, Omer Denir, Mustafa Secil, Gurn Aslan, Izmir, Turkey

MP19-17  EVALUATION OF A DISPOSABLE CYSTOSCOPE IN CONJUNCTION WITH PHOTOSELECTIVE LASER VAPORIZATION OF THE PROSTATE (PVP)
Joseph V. DiTrolio, M.D.*, Roseland, NJ, Nina N. Harkhani, Newark, NJ, Rahuldev Bhalla, M.D., Millburn, NJ

MP19-18  STONE DETECTION FOR RENAL COLIC: COMPARATIVE RESULTS BETWEEN IVU AND NCCT
Saher Anwer*, Tim Bryant, Iain Wilson, Bhaskar Somani, Southampton, United Kingdom

MP19-19  A NOVEL TECHNIQUES OF RETRO-PERITONEAL LAPAROSCOPIC NEPHRON-SPARING SURGERY WITHOUT SUTURE (WITH VIDEO)
Lulin Ma*, Xiaojun Tian, Yi Huang, Beijing, China, People’s Republic of China

MP19-20  THE IMPACT OF MUSIC ON PAIN AND ANXIETY EXPERIENCED IN PATIENTS UNDERGOING FLEXIBLE CYSTOSCOPY: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL

MP19-21  ARE PSA, FREE TO TOTAL PSA RATIO, & P2PSA LEVELS HELPFUL TO MONITOR PATHOLOGICAL GRADES OF PROSTATE CANCER PATIENTS ON ACTIVE SURVEILLANCE?
Waseem Akhter*, Sally Benton, Frank Chinegwundoh, London, United Kingdom

MP19-22  ULTRASOUND-GUIDED CRYOABLATION OF SMALL RENAL TUMORS
Jian Bo Lu, Xiao Qing Wang*, Changchun, China, People’s Republic of China

MP19-23  HOW TO DO PROSTATE BIOPSY IN PATIENTS WITH NO ANUS
Andy Huang*, Allen Chiu, Thomas Hsueh, Taipei City, Taiwan

MP19-24  OUTCOME OF SEMIRIGID URETEROSCOPY FOR BILATERAL URETERAL DISEASES
Mohamed Bakr*, Hassan Abd Elwahab, Gamal Eltrash, Mostafa Shamaa, Ismailia, Egypt

MP19-25  LARGE OBSTRUCTED UPPER URETERIC CALCULIAIM=TO COMPARE THE EFFICACY BETWEEN LAPAROSCOPY & URS IN THE TREATMENT OF LARGE UPPER URETERIC CALCULI (>2.5 CM)
Prashant Pattnaik, Mumbai, India, Prashant Pattnaik, Prashant Pattnaik*, Mumbai, India

MP19-26  SINGLE-SESSION INTRACORPOREAL PNEUMATIC LITHOTRIPSY FOR NUMEROUS URETERIC CALCULI IN ONE URETER OF A COMPLETE PELVI-CALYCEAL AND URETERIC DUPLICATION: A CASE REPORT
Arif Hanni*, Srinagar, India

MP19-27  ENDOUROLOGY AND INFECTION CONTROL
Nilkamal Joshi*, Al Ain, United Arab Emirates

MP19-28  COMPLICATIONS IN UPPER URETEROSCOPY AND LITHOTRIPSY
Andrius Gaizauskas*, Sergejus Gaizauskas, Vilnius, Lithuania

Thursday, October 24, 2013
Moderated Poster Session MP20 4:30 pm–6:15 pm
ENDOUROLOGY & NEW TECHNOLOGIES II
Room Grand Chenier @ Sheraton New Orleans
Faculty: Matthew Raynor and Murali Ankem and John Dushinski

*Presenting author

MP20-01  UROLOGY AND INTERVENTIONAL RADIOLOGY: MOVING TOWARDS AN INTEGRATED CARE MODEL

MP20-02  MAPPING OF THE USSQ SCORES TO EQ-5D VALUES TO PERFORM ECONOMIC AND UTILITY IMPACT OF URETERAL STENTS
Ana Carvalho, Prof. S. Salek, Hrishi Joshi*, Cardiff, United Kingdom

MP20-03  ANTERGRADE AND RETROGRADE ENDOPYELOTOMY AS TREATMENT FOR PRIMARY AND SECONDARY URETEROPELVIC OBSTRUCTION (PUJO)
MP20-04 RESCUE FROM PCN DRAINAGE AFTER FAILURE OF INTERNAL URETERAL STENT PLACEMENT FOR EXTRINSIC URETERAL OBSTRUCTION WITH A WIRE-REINFORCED URETERAL STENT

MP20-05 CONSERVATIVE RESECTION AND BCG INSTILLATION FOR UPPER URINARY TRACT UROTHELIAL CARCINOMA – PRELIMINARY DATA FROM A SINGLE INSTITUTE IN TAIWAN
Jentai Lin*, Chia-Cheng Yu, Tony Wu, Kaohsiung, Taiwan

MP20-06 LONG-TERM OUTCOMES OF RESONANCE METALLIC STENTS FOR MALIGNANT AND CHRONIC-BENIGN URETERAL OBSTRUCTION
Crystal Castaneda*, Yungkhan Tan, Edan Shapiro, Natasha Leigh, Mantu Gupta, New York, NY

MP20-07 BASELINE SERUM 25-HYDROXYVITAMIN D LEVELS IN MEN UNDERGOING RADICAL PROSTATECTOMY: IS THERE AN ASSOCIATION WITH ADVERSE PATHOLOGIC FEATURES?
Edan Shapiro*, William Berg, Ari Bergmann, Kyle Scarberry, Trushar Patel, Ketan Badani, New York, NY

MP20-08 ANTERIOR URETHRAL VALVE- A STUDY OF 8 PATIENTS
Dipak Rajyaguru*, Mehsana, India, Jitendra Amlani, Rajkot, India, Ashwin Gami, Palanpur, India

MP20-09 EVOLUTION OF TECHNOLOGY: SHORT TERM OUTCOMES WITH INTEGRATED IMAGING ABLATHERM-HIFU
Rafael Sanchez-Salas*, Dominique Prapotnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galliano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP20-10 ENDOSCOPIC INGUINOFEMORAL LYMPH NODE DISSECTION FOR MALIGANCIES OF THE EXTERNAL GENITAILA
Christian Schwoertner*, Tilman Todenhöfer, Stefan Auferklaam, Georgios Gakis, Tuebingen, Germany

MP20-11 UPPER URINARY TRACT RECURRENCE FOLLOWING RADICAL CYSTECTOMY FOR BLADDER CANCER WITH ITS HISTOLOGY: AN ANALYSIS OF INCIDENCE AND RISK FACTORS
JungHoon Lee*, Jae Hyun Jung, Sang Han KIM, EunSik Lee, EunSik Lee, Seoul, Korea, Republic of

MP20-13 LONG-TERM ONCOLOGIC OUTCOME AND COMPLICATIONS OF LAPAROSCOPIC RADICAL NEPHRECTOMY IN 286 CONSECUTIVE PATIENTS IN AKITA-JAPAN: RELATIVELY HIGH RECURRENCE RATE IN CT1 TUMORS
Kazuyuki Numakura*, Hiroshi Tsuruta, Susumu Akihama, Mitsuru Saito, Takamitsu Inoue, Shintaro Narita, Norihiko Tsuchiya, Shigeru Satoh, Tomonori Habuchi, Akita, Japan

MP20-14 5-YEAR EXPERIENCE OF METALLIC MESH STENT (UVENTA) IN MALIGNANT URETERAL OBSTRUCTION
Wonho Jung*, Seol Ho Choo, Seong Soo Jeon, Hyung Keun Park, Deok Hyun Han, Seoul, Korea, Republic of

MP20-15 AN OVERVIEW OF THE USE OF CHECKLISTS IN SURGICAL SPECIALITIES - A SYSTEMATIC REVIEW
Janki Patel*, Kamran Ahmed, London, United Kingdom, Khurshid Guru, Buffalo, NY, Howard Marsh, Kent, United Kingdom, Mohammed Shamin Khan, Prokar Dasgupta, London, United Kingdom

MP20-16 LONG-TERM RESULTS FOR SUBCUTANEOUS DETOUR® PROSTHESIS FOR URETERAL OBSTRUCTION: EXPERIENCES OF IMPLANTATION, AFTERCARE AND MANAGEMENT OF COMPLICATIONS
Andreas Janitzky, Markus Porsch, Uwe-Bernd Liehr, Martin Schostak*, Magdeburg, Germany

MP20-17 DOES SOCIOECONOMIC DEPRIVATION, BODY MASS INDEX AND SMOKING STATUS INFLUENCE GRADE, STAGE, MULTIFOCALITY AND RECURRENCES IN UPPER TRACT TRANSITIONAL CELL CARCINOMA?
Angela Gillan*, Paimaun Zakikhani, Bhavan Rai, Campbell Tait, Ghulam Nabi, Dundee, United Kingdom

MP20-18 TRENDS IN THE MANAGEMENT PATTERNS OF RENAL ANGIOMYOLIPOMAS: A CASE SERIES OF 392 PATIENTS
Idir Ouzaid*, Riccardo Autorino, Richard Fatica, Vishnuvardhan Ganesan, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

MP20-19 KIDNEY SIZE AND CANCER SPECIFIC SURVIVAL FOR PATIENTS UNDERGOING NEPHRECTOMY TO TREAT PT1 CLEAR CELL RENAL CELL CARCINOMA
Jacob Jorns*, David Thiell, Jacksonville, FL, Christine Lohse, Rochester, MN, Adrienne Williams, Michelle Arnold, Jacksonville, FL, John Cheville, Bradley Leibovitch, Rochester, MN, Alexander Parker, Jacksonville, FL

MP20-20 RADIOFREQUENCY ABLATION OF RENAL TUMORS: 4-YEAR FOLLOW-UP RESULTS IN 47 PATIENTS
Soo-dong Kim*, Seong Guk Yoon, Gyung Tak Sung, Busan, Korea, Republic of

MP20-21 ISOLATION AND BIOLOGICAL BEHAVIOR STUDY OF CD133 POSITIVE CELLS FROM BLADDER CANCER CELL LINE 5637
Shuaiqi Chen, Tao Yang, Yuchuan Hou*, Changchun, China, People’s Republic of
MP20-22 A NOVEL PNEUMATIC ELECTROCAUTERY DEVICE
Herman Bagga*, Joe Miller, Thomas Chi, San Francisco, CA, Michael Blomeyer, Walnut Creek, CA, Marshall Stoller, Maxwell Meng, San Francisco, CA

MP20-23 THE IMPACT OF OUTPATIENT ENDOSCOPY ON UROLOGY SERVICES IN A TERTIARY HOSPITAL IN A LOW RESOURCE ENVIRONMENT
Augustine Takure, Sikuru Adebayo, Olayiwola Shittu, Linus Okeke, Oluwabunmi Olapade-Olaopa, Augustine Takure*, Ibadan, Nigeria

MP20-24 "CLOSED ACCESS" STERILE DRAINAGE: IT WORKS FOR PERITONEAL DIALYSIS—IT WILL WORK FOR THE URINARY BLADDER, ALSO
Chris Smith*, Don Griffith, Houston, TX

MP20-25 RETROPERITONEAL AND EXTRAPERITONEAL LAPAROSCOPIC UROLOGICAL SURGERY USING SPACEMAKER™, DISSECTION BALLOON (COVIDIEN, USA): SINGLE SURGEON’S EXPERIENCE OF THE FIRST 27 CASES
Cheol Kyu Oh*, Seok San Park, Sang Hyun Park, Jae Seung Chung, Seong Cheol Kim, Busan, Korea, Republic of

MP20-26 A DECADE OF NATIONAL AND INTERNATIONAL TRENDS IN BASIC SCIENCE UROLOGIC RESEARCH: 2002-2011
Christopher Miller, David Kurz, Philadelphia, PA, Saum Ghodoussipour, Los Angeles, CA, John Graham Jr., Brooklyn, NY, Phillip Mucksavage*, Philadelphia, PA

Thursday, October 24, 2013 Video Session V10 4:30 pm–6:00 pm

UROLITHIASIS
Room Armstrong @ Sheraton New Orleans
Chair: Fernando Kim
Faculty: Saint Siou Chen, Ryan C. Hedgepeth and Alex Martov

*Presenting author

V10-01 RETROGRADE RENAL ACCESS IN PATIENTS WITH URINARY DIVERSION
Aryeh Keeltn*, David Hoenig, Bronx, NY

V10-02 MYTHS, DOUBTS AND FACTS ABOUT LASER LITHOTRIPSY
Peter Kronenberg*, Amadora, Portugal, Olivier Traxer, Paris, France

V10-03 PERCSCAC: A NOVEL DEVICE TO PREVENT STONE FRAGMENT MIGRATION DURING PERCUTANEOUS LITHOTRIPSY
Jodi Antonelli*, Jeffrey Galan, Justin Friedlander, Heather Beardsley, Margaret Pearle, Jeffrey Cadeddu, Dallas, TX

V10-04 COMBINED ROBOTIC CYSTOLITHOTOMY, URETEROLITHOTOMY, AND PYELOLITHOTOMY IN A MORBIDLY OBESE PATIENT
Mathew Oommen*, Abnet Gundeloch, Kevin Lee, Jamin Brahimbhatt, Sijo Parekkattil, Winter Haven, FL

V10-05 TRANSPERITONEAL FLEXIBLE ENDOSCOPY FACILITATES STONE REMOVAL DURING MINIMALLY INVASIVE PYELOLITHOTOMY
James Borini*, Jeff McDaniel, Sarah Chan, Baltimore, MD

V10-06 IATROGENIC COLON INJURY DURING PERCUTANEOUS STONE EXTRACTION
Sammy Elsamra*, Nithin Thechammarampil, Justin Friedlander, Hector Motato, Arthur Smith, Zept Okele, New Hyde Park, NY

V10-07 RETROGRADE ENDOSCOPIC MANAGEMENT OF CALYCEAL DIVERTICULUM WITH CONCOMITANT RENAL CALCULI
Mathew Oommen, Kush Patel, Arthur Caire, Philip Dorsey*, Ben Woodson, Raju Thomas, New Orleans, LA

V10-08 ANTEROGRADE URETERORENOSCOPY – PERCUTANEOUS LITHOTRIPSY AND INTESTINAL DILATION OF URETEROSIGMOIDOSTOMY STENOSIS AND ASSOCIATED LITHIASIS
Sandro Gaspar*, José Dias, Tito Leitão, Ricardo Silva, Joao Lopes, Tomé Lopes, Lisboa, Portugal

V10-09 RETROGRADE PERCUTANEOUS EXTRAPELVIC LASER ENDOPYELOTOMY
Khulid Alotaibi*, khobar, Saudi Arabia

V10-10 TREATMENT OF PEDIATRIC RENAL MATRIX STONE WITH PERC NCIRCLES® IN MINIMALLY INVASIVE PERCUTANEOUS NEPHROLITHOTOMY
Hakan Kılıçarslan*, Onur Kaygisiz, Hakan Viruskan, Yalçın Kordan, Sinan Celen, Bursa, Turkey

V10-11 THE WORLD’S FIRST SUPINE ULTRA-MINI PERCUTANEOUS NEPHROLITHOLAPAXY (UMP)
Andreas Bourdoumis, Stefanos Kachris*, Junaid Masood, Noor Buchholz, London, United Kingdom

V10-12 HEMOSTATIC PLUG: NOVEL TECHNIQUE FOR CLOSURE OF PERCUTANEOUS NEPHROSTOMY TRACTS
Joel E Abbott*, Roger W Jump III, Detroit, MI, Arman Cicic, Des Moines, IA, Julio G Davalos, Baltimore, MD
V11-01 ROBOT – ASSISTED RADICAL CYSTECTOMY FOR FEMALE PATIENTS. THE O.L.V. VATTIKUTI ROBOTIC SURGERY INSTITUTE TECHNIQUE
Achilles Ploumidis*, Melanie Gan, Geert De Naeyer, Peter Schatteman, Aalst, Belgium, Alessandro Volpe, Novara, Italy, Alexandre Mottrie, Aalst, Belgium

V11-02 ROBOT–ASSISTED SACROCOLOPEXY FOR PELVIC ORGAN PROLAPSE (POP). THE O.L.V. TECHNIQUE
Anne-Francoise Spinato*, Achilles Ploumidis, Melanie Gan, Geert De Naeyer, Peter Schatteman, Alexandre Mottrie, Aalst, Belgium, Alessandro Volpe, Novara, Italy

V11-03 ROBOTIC RADICAL CYSTECTOMY. TIPS AND TRICKS IN PELVIC LYMPHADENECTOMY AND NEUROVASCULAR BUNDLES PRESERVATION
Camilo Giedelman*, Bogota, Colombia, Francois Rozet, Rafael Sanchez-salas, Eric Barret, Marc Galano, Luca Lamelli, Youness Ahallal, Paris, France, Petr Macek, Prague, Czech Republic, Laurent Mascie, Xavier Cathelineau, Paris, France

V11-04 EXPLORING THE MARCILLE TRIANGLE DURING ROBOT-ASSISTED PELVIC LYMPHADENECTOMY FOR BLADDER CANCER: REPLICATING THE OPEN SURGICAL TECHNIQUE
Ahmed M. Mansour*, Hassan Abol-Enein, Mansoura, Egypt, Murugesan Manoharan, Miami, FL

V11-05 ROBOTICALLY ASSISTED BILATERAL VASOVASECTOMY AFTER A SUCCESSFUL BILATERAL VASECTOMY
Theodoros Tokas*, Ali Serdar Gozen, Jens Rassweiler, Heilbronn, Germany

V11-06 ROBOT-ASSISTED LAPAROSCOPIC REPAIR OF RECTO-VESICAL FISTULA FOLLOWING OPEN RADICAL PROSTATECTOMY
Raguram Ganeshamoni*, Shashikant Mishra, Arvind Ganpule, Jigish Vyas, Jitendra Jagtap, Amit Bhattu, Ravindra Sabnis, Mahesh Desai, Nadiad, India

V11-07 NERVE-SPARING ROBOTIC ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY AND URINARY DIVERSION
Amit Bhattu*, Nadiad, Gujarat, India, Shashikant Mishra, Jitendra Jagtap, Raguram Ganeshamoni, Jigish Vyas, Arvind Ganpule, Ravindra Sabnis, Nadiad, India, Mihir Desai, Los Angeles, CA, Mahesh Desai, Nadiad, India

V11-08 ROBOTICALLY ASSISTED TOTALLY INTRACORPOREAL STAPLED ILEAL NEOBLADDER IN FEMALE
Giuseppe Simone*, Rocco Papulia, Mariaconsiglia Ferriero, Salvatore Guaglianone, Michele Gallucci, Rome, Italy

V11-09 ROBOT ASSISTED LAPEROSCOPIC URETEROCECTOMY FOR VESICOURETERAL REFUX AFTER URETEROCELE INCISION FOR HUGE URETEROCELE WITH MULTIPLE STONES
Won Sik Jeong*, Won Sik Ham, Hong Sang Moon, Tchun Yong Lee, Sung Yul Park, Kyoung Hyun Moon, Seoul, Korea, Republic of

V11-10 ROBOTICALLY ASSISTED LAPAROSCOPIC RADICAL TOTALLY INTRACORPOREAL STUDER POUCH CONSTRUCTION
Erdal Alkan, Oguz Ozkanli, Merve Yilmaz, Derya Balbay*, Istanbul, Turkey

V11-11 RE-DO ROBOTIC-ASSISTED RADICAL PROSTATECTOMY AT 48 HOURS: SUCCESSFUL RE-RESECTION FOR POSITIVE MARGINS
Paul Sturch*, Declan Cahill, Prokar Dasgupta, Rikki Vendivil, Ashish Chandra, Ben Challacombe, London, United Kingdom

V11-12 TECHNICAL MODIFICATIONS TO ROBOTIC-ASSISTED LAPEROSCOPIC PROSTATECTOMY FOR PATIENTS WITH HIGH-RISK PROSTATE CANCER AS DEFINED BY NATIONAL COMPREHENSIVE CANCER NETWORK CRITERIA
ADRENAL, IMAGING & NEW TECHNIQUES
Room Nottoway @ Sheraton New Orleans
Chair: Marshall L. Stoller
Faculty: Michael Maddox and Steven J. Schichman

Thursday, October 24, 2013
Video Session V12 4:30 pm–6:00 pm

V12-01 LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION (L-RPLND): CHALLENGING YET TECHNICALLY FEASIBLE WITHOUT CHANGE IN PATIENT POSITION
Arap Mandal*, Ravimohan Mavuduru, Shrawan Singh, Sudheer Devana, Chandigarh, India

V12-02 RETROPERITONEAL LAPAROSCOPIC ADRENALECTOMY
Roberto Sanseverino*, Giorgio Napodano, Oliver Intilla, Umberto Di Mauro, Carmine Cicalese, Tommaso Realfonsi, Nocera Inferiore, Italy

V12-03 LAPAROSCOPIC REMOVAL OF A PARAGANGLIOMA SURROUNDED WITH THE INFERIOR VENA CAVA AND THE RENAL VEIN AND ARTERY AT THE RIGHT RENAL HILUM: A CASE REPORT
Mamoru Fukuda*, Masayoshi Kawakami, Nobuyuki Nakajima, Toshiro Terachi, Isehara City, Japan

V12-04 POST CHEMOTHERAPY BILATERAL ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION (PC-RRPLND) FOR TESTICULAR MIXED GERM CELL TUMOR (MGCT): THREE ARMS APPROACH
Mohamed Kamel*, Rodney Davis, C Mark Jackson, J Taylor Moore, Little Rock, AR

V12-05 AN INNOVATIVE INSIDE-OUT APPROACH TO SUPRAPUBIC CATHETER INSERTION IN THE OBESE PATIENT WITH A NEUROGENIC BLADDER: THE TRANURETHRAL SUPRAPUBIC ENDO-CYSTOSTOMY DEVICE
Vassilis Siomos*, Thomas Pshak, Brian Flynn, Aurora, CO

V12-06 NOVEL LAPAROSCOPIC APPROACH TO PENILE PROSTHESIS RESERVOIR ABSCESS
Erin M. Burns*, Jonathan Picard, Rana C. Pullatt, Charleston, SC

V12-08 ENDOCKSCOPE: BRIDGING ENDOSCOPY WITH MOBILE TECHNOLOGY
Philip Bucur, B.S.*, Adam Spjute, B.A., Renai Yoon, B.S., Ashleigh Menshidi, B.S., Samir Shreim, Ph.D., Victor Hayn, B.S., Atrega Dash, M.D., Ralph Clayman, M.D., Hak Lee, M.D., William Sohn, M.D., Orange, CA

V12-09 THE FIRST ASSISTANT SPARING TECHNIQUE (F.A.S.T) OF ROBOTIC PARTIAL NEPHRECTOMY USING IMMUNOFLUORESCENCE AIDED SELECTIVE ARTERIAL CLAMPING
Ketan Badani, Ari Bergman*, Edan Shapiro, Trushar Patel, New York, NY

V12-10 FLEXIBLE CO2 LASER FOR ROBOTIC TARGETED MICROSURGICAL DENERVATION OF THE SPERMATIC CORD
Jamin Brahmbhatt, Ahmet Gudeloglu*, Sijo Parekkattil, Winter Haven, FL

V12-11 DEVELOPMENT OF DEDICATED STONE DETECTION PROTOCOLS USING A RESEARCH-BASED ULTRASOUND IMAGER
Ryan Hsi*, Bryan Cunitz, Barbrina Dunmire, Marla Paun, Jonathan Harper, Michael Bailey, Mathew Sorensen, Seattle, WA

V12-12 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR STAGE 1 TESTICULAR CANCER USING THREE ROBOTIC ARMS
Mohamed Kamel*, Rodney Davis, C Mark Jackson, Samy M Heshmat, Little Rock, AR
ROBOTICS/LAPAROSCOPY: UPPER TRACT IV
Room Rhythms 1 @ Sheraton New Orleans
Chair: Ali Kural
Faculty: Chang-Jun Yin and Kun-Yuan Chiu

*Presenting author

MP21-01 ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY: A META-ANALYSIS OF SURGICAL OUTCOMES
Riccardo Autorino*, Georges-Pascal Haber, Humberto Laydner, Dinesh Samarasekera, Ali Khalifeh, Idir Ouzaid, Luis Felipe Brandao, Cleveland, OH, Marco De Sio, Napoli, Italy, Francesco Porpiglia, Orbassano, Italy, Robert J. Stein, Jihad Kaouk, Cleveland, OH

MP21-02 MEDIUM TERM RESULTS OF MINI LAPAROSCOPIC PYELOPLASTY USING THE SMALL-INCISION ACCESS RETROPERITONEOSCOPIC TECHNIQUE IN ADULTS
Murad Al Nasser*, Ali Goezen, Theodore Tokas, Giovanniberto Pini, Marcel Hruza, Jens Rassweiler, Heilbronn, Germany

MP21-03 SURGICAL TEAM ASSESSMENT OF THE OF THE 3D VIDEO SYSTEM AS USED IN LAPAROSCOPIC PARTIAL NEPHRECTOMY
Bogdan Petrut*, Derek Prabharasuth, Andrew Fishman, Michael Grasso, Valhalla, NY

MP21-04 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR PTIB AND ABOVE LESIONS
Eric Moskowitz*, Derek Prabharasuth, Andrew Fishman, Michael Grasso, Valhalla, NY

MP21-05 REVIEW OF COMPLICATIONS FOR OPEN VERSUS ROBOTIC PARTIAL NEPHRECTOMY
Rudolph Bouvens*, J Sea, C Bahler, C Sundaram, Indianapolis, IN

MP21-06 DOES THE AMOUNT OF PERI-RENAL FAT AFFECT TOTAL OPERATIVE DURING ROBOTIC PARTIAL NEPHRECTOMY?
Piruz Motamedinia*, Trushar Patel, Yungkhan Tan, Vijay Goru, Eden Shapiro, Ari Bergman, Ketan Badani, New York, NY

MP21-07 OUTCOMES OF AN AGED AND COMPLEXITY MATCHED COMPARISON BETWEEN OPEN AND ROBOTIC-ASSISTED PARTIAL NEPHRECTOMY

MP21-08 SINGLE-CENTER EXPERIENCE OF RETROPERITONEOSCOPIC ADRENALECTOMY FOR ADRENAL TUMORS LARGER THAN 6 CM
Jianfei Ye*, Lulin Ma, Beijing, China

MP21-10 RETROPERITONEAL LAPAROSCOPIC RADICAL NEPHROURETERECTOMY WITH 3 FORMS OF BLADDER CUFF CONTROL
Jianfei Ye*, Lulin Ma, Beijing, China

MP21-11 NEW TECHNOLOGIES OF IDENTIFICATION OF RENAL ARTERY IN RETROPERITONEAL LAPAROSCOPIC RENAL SURGERY
Yichang Hao*, Lulin Ma, Beijing, China

MP21-12 OUTCOMES OF LAPAROSCOPIC PARTIAL NEPHRECTOMY IN PATIENTS WITH CHRONIC RENAL DISEASE
Ahmed Alasker, Steve Williams*, Reza Ghavamian, Bronx, NY

MP21-13 SUPER SELECTIVE RENAL ARTERIAL CLAMPING WITHOUT INTRA-OPERATIVE IMAGING IN ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY USING PRE-OPERATIVE CT ANGIOGRAPHY AND INTRAOPERATIVE PERFUSION VISUALIZATION
Shadi Al Ekish, Michael Maddox*, Andrew Leone, Gyan Pareek, Dragan Golijanin, Providence, RI

MP21-14 LUMBOSCOPIC SURGERY FOR THE LITHIASIS OF LUMBAR URETER
Tania González, María Elena Suárez, Mayuri Machado, David Perdomo*, Havana, Cuba

MP21-15 ASSOCIATION OF R.E.N.A.L. SCORE, PADUA SCORE AND CENTRALITY INDEX SCORE WITH PERIOPERATIVE OUTCOMES AND POSTOPERATIVE RENAL FUNCTION
Katsunori Tatsugami*, Junichiro Inokuchi, Takumi Adachi, Seiji Naito, Fukuoka, Japan

MP21-16 RETROPERITONEAL LAPAROSCOPIC NEPHRECTOMY FOR NONFUNCTIONING TUBERCULOUS KIDNEY: A SINGLE-CENTER EXPERIENCE WITHOUT LARGE VOLUME OF PATIENTS
Bi Hai*, Hou Xiao-fei, Ma Lu-lin, Beijing, China

MP21-17 SELECTIVE RENAL PARENCHYMAL CLAMPING IN LAPAROSCOPIC PARTIAL NEPHRECTOMY
Noriaki Utsunomiya*, Yuka Kono, Daisaku Nishihara, Keiya Matsutomo, Takashi Matsuoka, Toshifumi Yano, Hirojuki Tsunemori, Takuya Okada, Takehiko Segawa, Koci Muguruza, Mutsushi Kawakita, Kobe, Japan
MP21-18  A MATCHED COMPARISON OF PERIOPERATIVE OUTCOMES OF A SINGLE LAPAROSCOPIC SURGEON VERSUS A MULTISURGEON ROBOT-ASSISTED COHORT FOR PARTIAL NEPHRECTOMY  
Icar Vidal-Mora, Octavio Castillo, Daniel Revello*, Matias Poblete, Santiago, Chile  

MP21-19  METACHRONOUS RENAL CRYOABLATION FOR BILATERAL RENAL MASSES  
Zachary Klaassen*, Qiang Li, Rabii Madi, W. Bruce Shingleton, Augusta, GA  

MP21-20  HYBRID COMBINATION OF LAPAROSCOPE AND VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR RENAL CANCER WITH LEVEL IV INFERIOR VENA CAVAL THROMBUS  
Changjun Yin*, Pengfei Shao, Chao Qin, Nanjing, China, People’s Republic of  

MP21-21  LEARNING CURVE ANALYSIS FOR TRANSUMBILICAL LAPAROENDOSCOPIC SINGLE-SITE SURGERY (LESS) ADRENALECTOMY  
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2:30 pm–4:15 pm  
PERCUTANEOUS NEPHROLITHOTOMY II  
Room Rhythms 2 @ Sheraton New Orleans  
Chair: Manoj Monga  
Faculty: Michael Wong and Norberto Bernardo  

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Moderated Poster Session MP23

BPH/LUTS II
Room Rhythms 3 @ Sheraton New Orleans
Chair: Andreas Gross
Faculty: Neville Perera and Richard Vanlangendonck

*Presenting author

Helen Nicholson*, Henry Woo, Sydney, Australia

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Christopher Netsch, Alexander Engbert, Thorsten Bach, Sophie Knipper*, Andreas Gross, Hamburg, Germany

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<th>LONGTERM RESULTS AFTER TWELVE YEARS OF RETROPERITONEOSCOPIC PYELOPLASTY FOR THE TREATMENT OF URETEROPELVIC JUNCTION OBSTRUCTION</th>
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Friday, October 25, 2013

**PEDIATRICS**

Moderated Poster Session MP25 2:30 pm–4:15 pm

*Presenting author*

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<th>MP25-01</th>
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<th>MP25-02</th>
<th>MINI PCNL IN PAEDIATRIC UROLITHIASIS</th>
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<td>Jitendra Amlani*, Deepak Rajyaguru, Aswin Gami, Rajkot, India</td>
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<tr>
<th>MP25-03</th>
<th>NATURAL HISTORY OF HYDRONEPHROSIS AFTER ROBOTIC EXTRAVESICAL URETERAL REIMPLANTATION IN CHILDREN</th>
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<td>Dennis Lee, Leo Dalag, Mukil Patil, Roger De Filippo, Andy Chang, Los Angeles, CA, Chester Koh*, Houston, TX</td>
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MP25-04 A LEVEL ONE TRAUMA CENTER REVIEW OF PEDIATRIC RENAL TRAUMA
Katherine Rotker*, Liza Aguia, Kennon Miller, Pamela Ellsworth, Jeremy Aidlen, Anthony Caldamone, Providence, RI

MP25-05 EXPERIENCE WITH ENDOSCOPIC INJECTION OF NONANIMAL DEXTRANOMER/HYALURONIC ACID WITH SMALLER DIAMETER MICROSPHERES (80–120 MICRON) IN THE TREATMENT OF PRIMARY VUR AND A MULTIVARIATE ANALYSIS OF FACTORS FOR FAILURE
Yigit Akin*, Erzincan, Turkey, Erol Gunтекın, Mehmet Baykara, Seçük Yücel, Antalya, Turkey

MP25-06 OUR EXPERIENCE IN HOLMIUM LASER CYSTOLITHOTRIPSY IN CHILDREN
Waseem Aboul Ela*, Hani Morsi, Ahmed Shoman, Mohamed El Shemy, Ahmed Shokry, Mohamed Eissa, Cairo, Egypt

MP25-07 HIDES TECHNIQUE TROCAR PLACEMENT FOR PEDIATRIC ROBOTIC PYELOPLASTY: COMPARISON TO CONVENTIONAL TROCAR PLACEMENT
Danesh Bansal, Nicholas G. Cost, Christopher M. Bean, W. Robert DeFoor, Jr., Pramod P. Reddy, Eugene A. Minevich, Brian A. VanderBrink, Paul H. Noh*, Cincinnati, OH

MP25-08 TREATMENT OF RENAL STONES WITH FLEXIBLE URETEROSCOPY IN PRE-SCHOOL AGE CHILDREN
Bürekt Urkt, Tserhan Gasklrl, Gkkan Atis*, Cenk Gurbuz, Sabri Pelit, Ozgur Arkan, Bulent Altay, Istanbul, Turkey

MP25-09 CAVITATION-BASED FOCUSED ULTRASOUND FOR NONINVASIVE PUNCTURE OF UREROCLES: IN VITRO RESULTS
Adam Maxwell*, Ryan Hsi, Michael Bailey, Seattle, WA, Pasquale Casale, New York, NY, Thomas Lendvay, Seattle, WA

MP25-10 SMALL INCOMPLETE POSTERIOR URETHRAL VALVES
Amlesh Sethi*, Rajan Gupta, Akpish Saini, Prabhjot Singh, PN Dogra, New Delhi, India

MP25-11 TRANSURETHRAL NEOURETERAL ORIFICE CREATION: A NEW TECHNIQUE FOR MANAGEMENT OF UPPER POLE HYDROURETERONEPHROSIS IN INFANTS: INITIAL EXPERIENCE
Hubert Sounra*, Orlando, FL, Tariq Hakky, Tampa, FL, Mark Rich, Orlando, FL

MP25-12 MANAGEMENT OF DISLODGED URETERAL STENT THROUGH A NEFROSCOPIC APPROACH IN A INFANT CHILD – TWO CASE REPORT AND REVIEW OF THE LITERATURE
Marino Cabrera*, Camilo Orjuela, Yair Cadena, Adolfo Serrano, Bogota, Colombia

MP25-13 LAPAROSCOPIC MODIFIED BYPASS PYELOPLASTY: INITIAL EXPERIENCES
Nobuhiro Haga*, Yuichi Sato, Tomoaki Kaguchi, Junya Hata, Tomomichi Yabe, Hidemori Akahata, Norio Takahashi, Tomotoko Yanagida, Yoshiyuki Kajima, Fukushima, Japan

MP25-14 INFANT ROBOTIC PYELOPLASTY: INITIAL EXPERIENCE AND COMPARISON WITH AN OPEN COHORT

MP25-15 INFANT ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: COMPARISON WITH NON-INFANT COHORT

MP25-16 LEARNING CURVES FOR PEDIATRIC ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: A SINGLE PEDIATRIC INSTITUTION EXPERIENCE
Danesh Bansal, Nicholas G. Cost, Christopher M. Bean, W. Robert DeFoer, Jr., Pramod P. Reddy, Paul H. Noh*, Cincinnati, OH

MP25-17 EFFECTS OF ACETYLSALICYLIC ACID ON SYMPTOMS RELATED TO THE SYNDROME NUTCRACKER
Sidlay Chatoy*, Sousse, Tunisia, Wissem Hmida, Faouzi Mallat, Sana Mosbah, Medhi Jaidane, Faouzi Mosbah, Sahloul, Tunisia

MP25-18 COMPARISON OF CHILDREN VERSUS ADULTS UNDERGOING MINI-PERCUTANEOUS NEPHROLITHOTOMY: LARGE-SCALE ANALYSIS OF A SINGLE INSTITUTION
Guohua Zeng*, Wenyi Wu, Guangzhou, China, People’s Republic of China

MP25-19 EFFECTIVENESS OF PENILE BLOCK WITH BUPIVACAINE DURING CIRCUMCISION IN CHILDREN: A COMPARATIVE STUDY
Faouzi Mallat*, Wissem Hmida, Nour Bouari, Faouzi Mosbah, Sahloul, Tunisia

MP25-20 HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP) BEFORE HIGH-INTENSITY FOCUSED ULTRASOUND (HIFU) FOR THE PROSTATE CANCER TREATMENT: OUR EXPERIENCE
Antonio Salvaggio*, Angelo Cafarelli, Donato Dente, Abano Terme (Padua), Italy, Emanuele Cappa, Chieti, Italy, Angelo Porreca, Abano Terme (Padua), Italy

MP25-21 SIMPLE TECHNIQUE FOR NON-INVASIVE REMOVAL OF URETERAL STENT IN RENAL TRANSPLANT RECIPIENTS; COMPARISON WITH CONVENTIONAL CYSTOSCOPIC REMOVAL
Taek Sang Kim*, Jung Hyun Oh, Hyun Yul Rheu, Busan, Korea, Republic of Korea
MP25-22 SURGEONS’ PREFERENCES AND PRACTICE PATTERNS REGARDING INTRA-OPERATIVE FROZEN SECTION DURING PARTIAL NEPHRECTOMY
Abhinav Sidana*, James F Donovan, Krishnanath Gaitonde, Cincinnati, OH

MP25-23 ALL OUT: THE INGLORIOUS END OF “BUCKY-BALLS”
Lawrence Wyner*, Huntington, WV

MP25-24 INNER PREPUTIAL INLAY GRAFT URETHROPLASTY IN HYSPADIAS REPAIR: WORTH DOING?
Mandouh Ahmed*, Abdulnaser Al Said, Kuwait, Kuwait

MP25-25 NEW THERAPEUTIC APPROACH TO TREAT SLOWLY RISING PROSTATIC SPECIFIC ANTIGEN FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY
Alaa Hamada*, Sanjay Razdan, Jolly Varki, Yubiry Morales, Miami, FL
V13-11 PERCUTANEOUS ACCESS UNDER DIRECT ENDOSCOPIC VISUALIZATION: A MODIFIED APPROACH FOR PERCUTANEOUS NEPHROLITHOTOMY
Shubha De, Robert Brown*, Giovanni Marchini, Carl Sarkissian, Manoj Monga, Cleveland, OH

V13-12 ROBOTIC INGUINAL LYMPHADENECTOMY FOR PENILE CANCER
Rene Sotelo*, Oswaldo Carmona, Robert De Andrade, Golenia Fernández, Marino Cabrera, Oscar Martin, Juan Arriaga, Caracas, Venezuela, David Canes, Burlington, MA

Friday, October 25, 2013
Video Session V14 2:30 pm–4:30 pm
LAPAROSCOPY: UPPER TRACT II
Room Grand Ballroom E @ Sheraton New Orleans
Chair: Alejandro Rodriguez
Faculty: Ashley Bowen and Alex Lin

*Presenting author

V14-01 LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH “KIDNEY INVERSION”
Roberto Sanseverino*, Oliver Intilla, Umberto Di Mauro, Giovanni Molisso, Carmine Cicalese, Giorgio Napodano, Nocera Inferiore, Italy

V14-02 ZERO ISCHEMIA LAPAROSCOPIC PARTIAL NEPHRECTOMY
Roberto Sanseverino*, Oliver Intilla, Umberto Di Mauro, Giovanni Molisso, Carmine Cicalese, Giuseppe Lubrano, Giorgio Napodano, Nocera Inferiore, Italy

V14-03 ALTERNATIVE TECHNIQUES TO PERFORM SUPERSELECTIVE MICROSURGERY DURING UNCLAMPED LAPAROSCOPIC PARTIAL NEPHRECTOMY
Giuseppe Simone*, Rocco Papalia, Mariaconsiglia Ferriero, Salvatore Guaglianone, Michele Gallucci, Rome, Italy

V14-04 A LAPAROSCOPIC URETEROVESICOOSTOMY IS A SAFE AND EFFECTIVE PROCEDURE USING INTRAVESICAL OR EXTRAVESICAL APPROACH IN PATIENTS WITH MEGAURETER DUE TO URETEROVESICAL JUNCTION OBSTRUCTION
Dai Kouguchi*, Morihiro Nishi, Kazumasa Matsumoto, Takahiro Hirayama, Teppen Ohama, Tetsuo Fujita, Kazunari Yoshida, Masatsugu Iwamura, Sagamihara, Japan

V14-05 LAPAROSCOPIC PYELOPLASTY WITH INTRACORPOREAL FLEXIBLE URETEROSCOPY FOR MANAGEMENT OF PELVIURETERIC JUNCTION OBSTRUCTION AND MULTIPLE CALICEAL CALCULI: PRELIMINARY EXPERIENCE
Krishanu Das*, Muscat, Oman

V14-06 J-TUBE TECHNIQUE FOR DOUBLE-J STENT INSERTION DURING LAPAROSCOPIC UPPER URINARY TRACT SURGERY
Byung Ki Lee*, Seongnam, Korea, Republic of, Chang Wook Jeong, Seoul, Korea, Republic of, Jin-Woo Jung, Jung Keun Lee, Yong Hyun Park, Seok-Soo Byun, Sang Eun Lee, Seongnam, Korea, Republic of

V14-07 RETROPERITONEAL ADRENALECTOMY USING LIGASURE
Redouane Rabii*, Mohamed El Mrini, Youssef Elkattani, Rachid Aboutaieb, Fathi Meziane, Casablanca, Morocco

V14-08 LAPAROSCOPIC PYELOPLASTY WITH INTRACORPOREAL FLEXIBLE URETEROSCOPY FOR MANAGEMENT OF PELVIURETERIC JUNCTION OBSTRUCTION AND MULTIPLE CALICEAL CALCULI: PRELIMINARY EXPERIENCE
Krishanu Das*, Muscat, Oman

V14-09 SINGLE SESSION LAPAROSCOPIC PARTIAL NEPHRECTOMY AND CONTRALATERAL TOTAL NEPHRECTOMY: A FEASIBLE PROCEDURE THROUGH THE SAME PORTS
Isaac Braga*, João Cabral, Nuno Louro, Avelino Fraga, José Soares, Luís Osório, Porto, Portugal

V14-10 LAPAROSCOPIC PARTIAL NEPHRECTOMY: INITIAL EXPERIENCE AND TECHNIQUE ILLUSTRATION
Diogo Gil Sousa*, Filipe Coutinho, Avelino Fraga, José Soares, Luís Osório, Porto, Portugal
ROBOTICS: UPPER TRACT II
Room Nottoway @ Sheraton New Orleans
Chair: Richard E. Link
Faculty: Andres Hernandez Porras and Shuo Wang

V15-01 OFF-CLAMP RIGHT ROBOTIC PARTIAL NEPHRECTOMY USING INTUITIVE ENDOWRIST® ONE™ VESSEL SEALER
Derek Prabharasuth, Valhalla, NY,
Farshid Hajimirzaee*, Gregory Lovallo,
Mutahar Ahmed, Hackensack, NJ

V15-02 ROBOTIC-ASSISTED LAPAROSCOPIC DISTAL URETERAL REIMPLANTATION TECHNIQUES
Tracy Marien*, New York, NY, Darko Kropfl,
Michael Musch, Lukas Hohenhorst, Essen, Germany,
Matthew Bilbily, Suzanneh Sorin, New York, NY,
Gaurav Rao, Buffalo, NY, Ojas Shah,
Michael Stifelman, New York, NY

V15-03 A NOVEL USE OF RUMMEL TOURNIQUET FOR RENAL ARTERY OCCLUSION DURING ROBOTIC PARTIAL NEPHRECTOMY
Gordon Fifer*, Matthew Raynor, Eric Wallen,
Michael Woods, Matthew Nielsen, Chapel Hill, NC

V15-04 ROBOTIC MICROSURGICAL MANAGEMENT OF LARGE RENAL ARTERY ANEURYSM
Kush Patel*, Matthew Oommen, Janet Colli,
Philip Dorsey, Arthur Caire, Christopher Keel,
Albert Sam, Anil Paramesh, Raju Thomas,
New Orleans, LA

V15-05 ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY: RESECTION OF MULTIPLE RENAL MASSES AND DEMONSTRATION OF THE SEQUENTIAL PRE-PLACED SUTURETECHNIQUE
Dinesh Samarasekera*, Emad Rizkala,
Riccardo Autorino, Jihad Kaouk, Cleveland, OH

V15-06 ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR A COMPLEX CYSTIC TUMOR: TIPS, TRICKS, AND TROUBLESHOOTING
Dinesh Samarasekera*, Riccardo Autorino,
Ali Khalfefh, Jihad Kaouk, Cleveland, OH

V15-07 ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR A COMPLETELY ENDOPHYTIC HILAR RENAL MASS
Dinesh Samarasekera*, Humberto Laydhner,
Ali Khalfefh, Luis Felipe Brandao,
Riccardo Autorino, Jihad Kaouk, Cleveland, OH

V15-08 OFF-CLAMP ROBOTIC-ASSISTED LAPAROSCOPIC RETROPERITONEAL PARTIAL NEPHRECTOMY
Michael Johnson*, Jonathan Mobley,
R. Sherburne Fugenshau, Saint Louis, MO

V15-09 ROBOTIC-ASSISTED LAPAROSCOPIC CALICEAL DIVERTICULECTOMY
Richard Link*, Dominic Lee, Houston, TX

V15-10 ROBOT-ASSISTED ADRENAL METASTASECTOMY IN LARGER-SIZED TUMORS, REPORT OF TWO CASES
René Sotelo*, Oswaldo Carmona, Robert De Andrade,
Marino Cabrera, Golea Fernandez, Eric Saez,
Caracas, Venezuela, David Canes, Burlington, MA

V15-11 FEMALE ORGAN-SPARING ROBOTIC CYSTECTOMY: A STEP-BY-STEP ANATOMIC APPROACH
Alvin Goh*, Houston, TX, Andre Abreu,
Los Angeles, CA, Miguel Mercado, Houston, TX,
Rene Sotelo, Golea Fernandez, Caracas, Venezuela,
Monish Aron, Inderbir Gill, Milir Desai,
Los Angeles, CA

V15-12 ROBOT-ASSISTED INTRACORPOREAL ILEAL NEOBLADDER: SIMPLIFIED STEP-BY-STEP TECHNIQUE AND SURGICAL OUTCOMES
Idir Ouzaid*, Riccardo Autorino, Emad Rizkala,
Dinesh Samarasekera, Vishnuvardham Ganesan,
Robert Stein, Jihad Kaouk, Georges-Pascal Haber,
Cleveland, OH

ROBOTICS/LAPAROSCOPY: UPPER TRACT V
Room Rhythms 1 @ Sheraton New Orleans
Chair: Pilar Laguna
Faculty: Peter Remington and Tomonori Habuchi

MP26-01 TRANSPERITONEAL ROBOTIC PARTIAL NEPHRECTOMY FOR POSTERIOR RENAL MASSES
Mark Ball*, Michael Gorin, Phillip Pierorazio,
Gautam Jayram, Mohanad Allaf, Baltimore, MD

MP26-02 LONG-TERM FOLLOW-UP RESULTS OF LAPAROSCOPIC PYELOPLASTY
Ill Young Seo*, Tae Hoon Oh, Jea Whan Lee,
Ilksan/Jeonbuk, Korea, Republic of
MP26-03 ROBOTIC PARTIAL NEPHRECTOMY: WHERE DO WE STAND IN TERMS OF ONCOLOGIC OUTCOMES?  
Brandy Hood*, Spencer Krane, Theodore Manny, Ashok Hemal, Winston-Salem, NC

MP26-04 LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR HILAR TUMORS: ONCOLOGIC AND RE-NAL FUNCTIONAL OUTCOMES  
Arvin George*, Amin Herati, Soroush Rais-Bahrami, Nikhil Waingankar, Zhamshid Ohkunoov, Louis Kavoussi, Lee Richstone, New Hyde Park, NY

MP26-05 OFF-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY: LONG TERM RENAL FUNCTIONAL OUTCOMES  

MP26-06 ROBOTIC VS. PURE LAPAROSCOPIC PARTIAL NEPHRECTOMY: COMPARISON OF OUTCOMES AND EVALUATION OF LEARNING CURVE  
Steve K Williams*, Jared Winoker, Abhishek Sriwastava, Reza Ghavamian, Bronx, NY

MP26-07 FACTORS PREDICTIVE OF SYMPTOMATIC PRESENTATION IN RENAL CELL CARCINOMA  
Joseph Song*, Youssef Tanagho, Saint Louis, MO, Sam Bhayani, St Louis, MO, Robert Figenshau, Saint Louis, MO

MP26-08 MULTI-CENTER, LONGITUDINAL OUTCOMES OF ROBOTIC PARTIAL NEPHRECTOMY FOR MODERATE TO HIGHLY COMPLEX RENAL MASSES: COMPARATIVE OUTCOMES BASED ON R.E.N.A.L. NEPHROMETRY SCORE  
James Bienvenu*, Brent Hardin, Eric Heidel, Frederick Klein, Knoxville, TN, David Thiel, Jacksonville, FL, Wesley White, Knoxville, TN

MP26-09 POSTERIOR ABDOMINAL AND LATERAL ABDOMINAL WALL FAT IS CORRELATED WITH OPERATIVE IN ROBOTIC ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMIES  
Andrew Leone*, William Loverme, Providence, RI, Sammy Eslamra, New Hyde Park, NY, Michael Maddox, Shadi Al-Ekish, Damian Dupuy, Gyan Pareek, Dragan Golijanin, Providence, RI

MP26-10 COMPARISON OF PERIOPERATIVE OUTCOMES OF RETROPERITONEAL AND TRANS-PERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY  
Greg Gin*, Alexandra Maschino, Massimiliano Spaliviero, Melanie Bernstein, Jonathan Coleman, New York, NY

MP26-11 LAPAROSCOPIC NEPHRECTOMY: SAFETY AND EFFICACY IN PATIENTS ON ANTICOAGULANT THERAPY  
Takaharu Ichikawa*, Kurashiki, Japan, Yasuhiro Nishiyama, Sussumu Yamane, Shunji Hayata, Tottori, Japan, Tomoko Sako, Youichi Shiotsuka, Yasuo Yamamoto, Noritaka Ishito, Hitoshi Takamoto, Kurashiki, Japan

MP26-12 UTILIZATION OF THE ROBOTIC SURGICAL PLATFORM FOR RADICAL NEPHRECTOMY: A NATIONAL COMPARISON OF TRENDS FOR OPEN, LAPAROSCOPIC, AND ROBOTIC APPROACHES  
Aaron Weinberg*, Christopher Deibert, Bronx, NY, Tim Wen, Mitchell Benson, Ketan Badani, New York, NY

MP26-13 MID-TERM OUTCOMES OF LAPAROSCOPIC RADICAL NEPHRECTOMY IN PATIENTS WITH LOCALIZED RENAL TUMOR  
Luca Lunelli*, Eric Barret, Rafael Sanchez-Salas, Youness A halluc, Laurent Mascle, Petr Macek, Camilo Giedelman, Dominique Prapotnich, Francois Rozel, Marc Galiano, Annick Monbet, Nathalie Cathala, Xavier Cathelineau, Paris, France

MP26-14 MULTI-INSTITUTIONAL ANALYSIS OF RENAL FUNCTION FOLLOWING CRYOABLATION OF SMALL RENAL MASSES IN SOLITARY KIDNEYS  
Fadhil Khan*, Wasim Mahmalji, Sanjeev Madan, Ian K. Dickinson, Kent, United Kingdom, Frank X. Keeley, Bristol, United Kingdom, Brunol Lagerved, Amsterdam, Netherlands, Seshadri Srirupasad, Kent, United Kingdom

MP26-15 LAPAROSCOPIC NEPHRECTOMY FOR XANTHOGRANULOMATOUS PYELONEPHRITIS  
Oscar Fugita*, Sao Paulo, Brazil, Paulo Kawano, Hamilto Yamamoto, Joao Amaro, Rodrigo Guerra, Botucatu, Brazil, Marcos Nogueira, Sao Paulo, Brazil, Horacio Consolnogyno, Sao Paulo, Brazil, Americo Sakai, Sao Paulo, Brazil

MP26-16 ASSESSING THE USEFULNESS OF DIAMETER-AXIAL-POLAR NEPHROMETRY SCORE FOR PREDICTION OF OPERATIVE PARAMETERS IN ROBOTIC PARTIAL NEPHRECTOMY  
Young Eun Yoon, Kwang Suk Lee*, Kyung Hua Choi, Sang Woon Kim, Ji Yong Ha, Won Sik Ham, Koon Ho Rha, Young Deuk Choi, Woong Kyu Han, Seoul, Korea, Republic of

MP26-17 RETROPERITONEAL LAPAROSCOPIC APPROACH IN UROLOGY DEPARTMENT OF IBN ROCHD HOSPITAL UNIVERSITY: A REPORT OF 133 CASES  
Redouane Rabii*, Mohamed El Mrini, Youssef Elkattani, Rachid Aboutaieb, Fathi Meziane, casablanca, Morocco

MP26-18 LAPAROENDOSCOPIC SINGLE SITE PYELOPLASTY AND NEPHROLITHOTOMY PERFORMED SIMULTANEOUSLY  
Yasuyuki Naitoh*, Akihiro Kawauchi, Fumiya Hongo, Jintetsu Soh, Kazumi Kamoi, Tsuneharu Miki, Kyoto, Japan

MP26-19 INDUCTION OF COLD ISCHEMIA IN PATIENTS WITH SOLITARY KIDNEY USING RETROGRADE INTRARENAL COOLING: UPDATE AND 3-YEAR FUNCTIONAL OUTCOMES  
Philip Dorsey*, New Orleans, LA, Janet Colli, Memphis, TN, Benjamin R Lee, New Orleans, LA

MP26-20 LAPAROSCOPIC DISMEMBERED PYELOPLASTY  
Boris Komyakov, Bakhran Galiev*, Ruslan Aliev, Saint-Petersburg, Russian Federation
MP26-21 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY: 10 YEAR SURGICAL EXPERIENCE AND OUTCOMES
Derek Prabharasuth*, Eric Moskowitz, Andrew Fishman, Michael Grasso, Valhalla, NY

MP26-22 LAPAROSCOPIC NEPHROURETERECTOMY IN A PATIENT WITH UNUSUAL STONE LOCALISATION

MP26-23 INITIAL OPERATIVE EXPERIENCE WITH ROBOTIC URETERAL RECONSTRUCTION DISTAL TO THE URETEROPELVIC JUNCTION
Gordon Fifer*, Matthew Raynor, Michael Woods, Eric Wallen, Raj Pruthi, Chapel Hill, NC

MP26-24 ROBOTIC PARTIAL NEPHRECTOMY: THE IMPACT OF WARM ISCHEMIA
Mohamad Salkini*, AbdulRaouf Lamoshi, Morgantown, WV

MP26-25 A SINGLE SURGEON, SINGLE CENTRE, 5 YEARS EXPERIENCE IN RETROPERITONEOSCOPY- AN INDIAN SCENARIO
Venugopal Ganapathy, Haris C H*, Thiruvananthapuram, India, Sudin S R, Kollam, India, Navin C Angus, Ginson V George, Sandeep Krishnan, Thiruvananthapuram, India, Suchindra P Unni, Kochi, India, Jibu K Pillai, Thiruvananthapuram, India, Jithunath M R, Thrissur, India

Friday, October 25, 2013
Moderated Poster Session MP27
4:30 pm–6:15 pm

ROBOTICS/LAPAROSCOPY: UPPER TRACT VI
Room Rhythms 2 @ Sheraton New Orleans
Faculty: Rene Sotelo and Hiromitsu Mimata

*Presenting author

MP27-01 LAPAROSCOPIC RADICAL NEPHRECTOMY FOR CLINICAL T1B AND T2A RENAL MASSES. DOES THE APPROACH MAKE A DIFFERENCE? COMPARISON OF LAPARO-ENDOSCOPIC SINGLE-SITE AND MULTIPORT LAPAROSCOPIC SURGERY
Omer Raheem, Michael Liss, La Jolla, CA, Reza Mehradzadeh, Memphis, TN, Jason Woo, Sean Stroup, Ilhaar Derweesh*, La Jolla, CA

MP27-02 THE PRESENCE OF GLOMERULOSCLEROSIS IS NOT ASSOCIATED WITH WORSENED DECLINE IN RENAL FUNCTION FOLLOWING ROBOTIC ASSISTED PARTIAL NEPHRECTOMY
Michael Johnson*, Jonathan Mobley, Joel Vetter, R. Sherburne Figenshau, Sam Bhayani, Saint Louis, MO

MP27-03 HAND-ASSISTED LAPAROSCOPIC LIVING DONOR NEPHRECTOMY (HALDN): A 10-YEAR SINGLE-CENTER EXPERIENCE IN ORIENTAL POPULATION
Yoshihiro Higuchi*, Akihito Kanematsu, Kentaro Shimatani, Takeshi Hatanaka, Teeki Yo, Yukako Nakainishi, Yotaka Togai, Shukuo Go, Toru Suzuki, Michio Nojima, Shingo Yamamoto, Nishinomiya, Japan

MP27-04 R.E.N.A.L. NEPHROMETRY SCORE DOES NOT PREDICT SURGICAL COMPLEXITY
Nikhil Wamngkhar*, Arvin George, Mostafa Sadek, Louis Kavoussi, Rochester, MN

MP27-05 THE INCREASED POSTOPERATIVE RENAL FUNCTION LOSS AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH GREATER WARM ISCHEMIA TENDS TO BE RECOVERED IN MID TERM FOLLOW-UP
Selcuk Erdem*, Abubekir Boyuk, Tzevat Tefik, Fugayaz Ural, Halim Issever, Ismet Nane, Omer Sanli, Istanbul, Turkey

MP27-06 PORT-SITE METASTASIS AFTER SURGERY FOR RENAL CELL CARCINOMA: A HARBINGER OF FUTURE METASTASIS
Joseph Song*, Eric Kim, Jonathan Mobley, Goutham Venana, Yousef Tanagho, Joel Vetter, Sam Bhayani, Robert Figenshau, St Louis, MO

MP27-07 ROBOT-ASSISTED URETERECTOMY AND URETERAL REIMPLANT FOR MANAGEMENT OF DISTAL URETERAL MALIGNANCIES: SINGLE INSTITUTION EXPERIENCE WITH LONG FOLLOW-UP
Alonso Carrasco*, Matthew Gettman, George Chow, Matthew Tollefsen, Rochester, MN

MP27-08 COMPARATIVE ANALYSIS OF VASCULAR BULLDOG CLAMPS USED IN ROBOTIC PARTIAL NEPHRECTOMY
Brian Le, Richard Matulewicz, Samuel Eaton*, Kent Perry, Robert Nadler, Chicago, IL

MP27-09 STATIN THERAPY MAY BE ASSOCIATED WITH INCREASED RISK OF LONG TERM RENAL DYSFUNCTION FOLLOWING HILAR CLAMPING IN ROBOTIC PARTIAL NEPHRECTOMY
Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

MP27-10 ROBOT-ASSISTED CYSTECTOMY WITH SIMULTANEOUS NEPHROURETERECTOMY: CASE SERIES FROM A SINGLE INSTITUTION
Helen Levey*, Justin Houman, Annes Fazili, Hani Rashid, Guan Wu, Rochester, NY
MP27-11 OUTCOMES IN PARTIAL NEPHRECTOMY AT UNIVERSITY HOSPITAL COVENTRY AND WARWICKSHIRE, UK
Claire Webster*, Coventry, United Kingdom,
Salil Unranikar, Solihull, United Kingdom,
Husam Ibrahim, Anthony Blacker, Michael Wills,
Coventry, United Kingdom

MP27-12 RETROPERITONEAL LAPAROSCOPIC LIVING DONOR NEPHRECTOMY: REPORT OF 151 CASES
Hongxian Zhang*, Xian Zhang, Lei Zhao, Lulin Ma,
Beijing, China, People’s Republic of

MP27-13 PRONE VERSUS SUPINE LASIX RENAL SCAN TO ASSESS SURGICAL SUCCESS FOLLOWING LAPAROSCOPIC AND ROBOTIC ASSISTED PYELOPLASTY
Andrea G. Lantz*, Michael Ordon, Kenneth T. Pace,
R. John Honey,
Toronto, Canada

MP27-14 PURE RETROPERITONEAL LAPAROSCOPIC COMPLETE NEPHROURETERECTOMY AND BLADDER CUFF RESECTION FOR UPPER URINARY TRACT TRANSITIONAL CELL CARCINOMA
Fang Zhenqiang*, Ye Gang, He Fan, Shen Chongxing, Wang Xiangwei, Yi Shanhang, Jia Weisheng, Chongqing, China, People’s Republic of

MP27-15 COMPARATIVE ASSESSMENT OF PERIOPERATIVE OUTCOMES FOR TRANSPERITONEAL LAPAROSCOPIC RADICAL NEPHRECTOMIES PERFORMED ON VERY LARGE TUMOURS (>10 CM). DOES SIZE MATTER?
Simon Ouellet*, Michel Carmel, Arold Martel,
Robert Sabbagh,
Sherbrooke, Canada

MP27-16 CAN THE R.E.N.A.L. NEPHROMETRY SCORE BE OPTIMIZED FOR PATIENTS UNDERGOING CRYOABLATION?
Peter Clark*, S. Duke Herrell, Nashville, TN,
Jaime Landman, Irvine, CA, Stephen Savage,
Charleston, SC, Stephen Strup, Lexington, KY,
Chad LaGrange, Omaha, NE, David Schulsinger,
Stony Brook, NY

MP27-17 THE EFFECT OF THE SURGICAL ROBOT ON THE HOSPITAL-LEVEL UTILIZATION OF PARTIAL NEPHRECTOMY
Ganesh Sirivarjun*, Glen Taksler, Dawn Walter,
Marc Bjurlin, New York, NY, Cary Gross,
New Haven, CT, R Ernest Sosa, Danil Makarov,
New York, NY

MP27-18 ROBOTIC ASSISTED RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY FOR SMALL RENAL MASS: EXPERIENCE OF CHI MEI MEDICAL CENTER
Chien-Liang Liu*, Steven K Huan, Tainan, Taiwan,
Allen W Chiu, Taipei, Taiwan

MP27-19renal parenchymal non-suturing technique using tachosil tissue sealing sheet in laparoscopic partial nephrectomy
Hidehumi Kinoshita, Motohiko Sugi*,
Tadashi Matsuki, Hirakata, Japan

MP27-20 ROBOTIC PARTIAL NEPHRECTOMY FOR COMPLETELY ENDOPHYTIC RENAL MASSES: A SINGLE INSTITUTION EXPERIENCE
Riccardo Autorino*, Ali Khalifeh, Humberto Laydner,
Dinesh Samarasekera, Idir Ouzaïd,
Luis Felipe Brandao, Robert J. Stein,
Georges-Pascal Haber, Jihad Kaouk, Cleveland, OH

MP27-21renal cryoablation versus robot-assisted partial nephrectomy: single-center experience
Youssef Tanagho, Eric Kim*, Sam Bhayani,
Robert Figenshau, St. Louis, MO

MP27-22 DOWNWARD NEPHROPEXY IS A USEFUL ADJUNCTIVE MANEUVER DURING ROBOT-ASSISTED URETROURETEROSTOMY
Ziho Lee*, Daniel Parker, Elton Luukan,
Christopher Reilly, Daniel Eun, Philadelphia, PA

MP27-23 MINIMALLY INVASIVE HEMINEPHRECTOMY: A SPECIFIC DEFINITION
Joseph Klink*, Ali Khalifeh, Dinesh Samarasekera,
Kamil Panumatrasamee, Jihad Kaouk,
Cleveland, OH

MP27-25 ANALYSIS OF OPERATIVE METHODS AND CENTER-SPECIFIC PROPORTION IN MAJOR UROLOGICAL ONCOLOGY SURGERIES IN KOREA, BASED ON THE 2010 ANNUAL REPORT OF KOREAN UROLOGICAL ASSOCIATION
Sunghyun Paick*, Sangrak Bae, Hyeongkeun Park,
Yongsoo Lho, Hyeonggon Kim, Seoul, Korea,
Republic of
**MP28-01** URETEROSCOPY FOR BENIGN ESSENTIAL HEMATURIA: A SYSTEMATIC REVIEW  
_Nicholas Tadros*, Michael Conlin, Portland, OR_

**MP28-02** HIGH DEFINITION FLEXIBLE CYSTOSCOPY: IS IT WORTH THE COST?  
_Nicholas J Kuntz, Andreas Neisius, W. Neal Simmons, Muhammad W Iqbal, Richard H Shin*, Ramy Youssef, Michael N Ferrandino, Glenn M Preminger, Michael E Lipkin, Durham, NC_

**MP28-03** BALLOON DILATION OF THE URETER: A CONTEMPORARY REVIEW OF OUTCOMES AND COMPLICATIONS  
_Nicholas Kuntz, Andreas Neisius, Matvey Tsivian, Momin Ghaffar, Richard Shin*, Muhammad W Iqbal, Roger Sur, San Diego, CA, Michael Ferrandino, Glenn Preminger, Michael Lipkin, Durham, NC_

**MP28-04** A NOVEL STONE MANAGEMENT DEVICE DURING ENDO Lithotripsy FOR URETERAL STONES: FIRST MULTI-INSTITUTIONAL EXPERIENCE  
_Nicola Macchione, Milan, Italy, Francesco Sanguedolce*, London, United Kingdom, Stephan Hruby, Salzburg, Austria, Fabrizio Longo, Milan, Italy, Stefanos Kachrilas, Junaad Masood, Noor Buchholz, London, United Kingdom, Emanuele Montanari, Milan, Italy_

**MP28-05** URETEROSCOPY AND LASER LITHOTRIPSY OF LARGE RENAL STONE BURDEN >2.0 CM  
_Jessica M. Yih*, Cleveland Heights, OH, Robert M. Kohut, Edward E. Cherullo, Cleveland, OH_

**MP28-06** A CRITICAL COMPARISON OF THE PERFORMANCES AND LIMITATIONS OF THREE OF THE LATEST MODELS OF FLEXIBLE URETEROSCOPES  
_Razvan Multescu*, Bogdan Geavlete, Petrisor Geavlete, Bucharest, Romania_

**MP28-07** COMPARATIVE STUDY OF THE TREATMENT OF RENAL STONES WITH FLEXIBLE URETERO-RENOSONOSCOPY IN OBESE, MORBIDLY OBESE AND NORMAL WEIGHT PATIENTS  
_Steere Doizi*, Sixtina Gil Diez De Medina, Olivier Traxter, Paris, France_

**MP28-08** EXTENDED OPERATIVE FOR URETEROSCOPIC STONE REMOVAL: DOES IT IMPACT MORBIDITY?  
_Patrick Mufarrij*, Washington, DC, Jessica Lange, L. Spencer Krane, Kyle Wood, Winston-Salem, NC, Dean Assimos, Birmingham, AL_

**MP28-09** HOW ACCURATE IS ENDOSCOPIC INTRA-OPERATIVE ASSESSMENT OF KIDNEY STONE SIZE?  
_Nishant Patel*, San Diego, CA, Ben Chew, Vancouver, Canada, Bodo Knudsen, Columbus, OH, Michael Lipkin, Durham, NC, Roger Sur, San Diego, CA_

**MP28-10** INITIAL CLINICAL EXPERIENCE WITH A BALL TIPPED HOLMIUM:YAG OPTICAL FIBER FOR FLEXIBLE URETEROSCOPY  
_Bodo Knudsen*, Columbus, OH, Shubha De, Cleveland, OH, Manog Monga, Cveland, OH_

**MP28-11** BEST STENT LENGTH PREDICTED BY SIMPLE CT MEASUREMENT, RATHER THAN PATIENT HEIGHT  
_Kirsten Foell*, Andrea G. Lantz, Michael Ordon, Jason Y. Lee, Kenneth T. Pace, R. John D’A. Honey, Toronto, Canada_

**MP28-12** USE OF PERCSYS ACCORDIONTM TO AVOID URETERAL STONE FRAGMENT MIGRATION DURING LASER ENDO Lithotripsy: INITIAL RESULTS OF AN OPEN RANDOMIZED CONTROLLED TRIAL  
_Christian Villeda Sandoval*, Daniel Olvera Posada, Mario Ramirez Bonilla, Francisco Rodriguez Covarrubias, Carlos Mendez Probst, Mexico City, Mexico_

**MP28-13** RECURRENT SYMPTOMS FOLLOWING SURGICAL MANAGEMENT OF URETEROPELVIC JUNCTION OBSTRUCTION WITH A NORMAL ENDOSCOPIC EVALUATION: ASSESSMENT AND OUTCOMES  
_Dominic Lee*, Richard E. Link, Houston, TX_

**MP28-14** IS PROLONGED OPERATION A PREDICTOR FOR THE OCCURRENCE OF COMPLICATIONS?  
_Sophie Knipper*, Christian Tiburtius, Christopher Netsch, Andreas Gross, Hamburg, Germany_

**MP28-15** THE CLINICAL RESEARCH OFFICE OF THE ENDouroLOGICAL SOCIETY URETEROSCOPY GLOBAL STUDY: INDICATIONS, COMPLICATIONS, AND OUTCOMES IN 11885 PATIENTS  
_Jean de la Rosette*, Amsterdam, Netherlands, John Denstedt, London, Canada, Petrisor Geavlete, Bucharest, Romania, Francis Keeley, Bristol, United Kingdom, Tadashi Matsuda, Osaka, Japan, Margaret Pearle, Dallas, TX, Glenn Preminger, Durham, NC, Olivier Traxter, Paris, France_
MP28-16 A NEW STONE OCCLUSION DEVICE (INNOVEX) PARALLEL TO NTRAP IN URETEROSCOPIC HO:YAG LITHOTRIPSY FOR UPPER URETERAL CALCULI
Zhong Wu*, Chen-chen Feng, Peng Gao, Lu jia Wang, Qiang Ding, Shanghai, China, People’s Republic of China

MP28-17 COMPLETELY STANDARDIZED FLEXIBLE URETERORENOSCOPY FOR TREATING RENAL CALCULI: A SINGLE-CENTER EXPERIENCE
Nikolaos Karpathakis, Konstantinos Fasoulakis, Ioannis Georgopoulos, Ioannis Bolonakis, Fragiskos Sforas, Charalampos Mamoaulakis*, Heraklion, Greece

MP28-18 URETERIC STENT INSERTION AND DOCUMENTATION OF REMOVAL: IS IT CONTRIBUTING TO ‘FORGOTTEN’ STENTS
Carolyn Thomas*, Zubair Al-Qassim, Zeb Khan, Kettering, United Kingdom

MP28-19 USE OF A 1.3 F NITINOL STONE RETRIEVAL BASKET FACILITATES EXTRACTION OF RENAL AND URETERAL CALCULI TO RENDER PATIENTS STONE FREE
Mohammad Malik*, Chris Wright, Jennifer Yates, Ravi Munner, Hackensack, NJ

MP28-20 ASSESSING DIFFICULTY OF URETEROSCOPIC STONE EXTRACTION USING PREOPERATIVE CT IMAGING
Saman Moazami*, Mira Herman, Abhishek Srivastava, David Hoenig, Joshua Stern, Bronx, NY

MP28-21 NEW URETERAL ACCESS SHEATHS: A DOUBLE-STANDARD
Shubha De, Fabio Torricelli, Carl Sarkissian*, Manoj Monga, Cleveland, OH

MP28-22 MODULAR FLEXIBLE URETEROSCOPY AND HOLMIUM LASER LITHOTRIPSY FOR TREATMENT OF UPPER URINARY TRACT CALCULI: A SINGLE-SURGEON EXPERIENCE OF 382 CASES
Cheng Yue*, Yan Zejun, Xie Guohai, Yuan Hesheng, Ningbo, China, People’s Republic of China

MP28-23 RISK FACTORS FOR URETERIC STRICTURES FOLLOWING SEMI-RIGID URETEROSCOPIC LASERTRIPSY: RESULTS FROM MULTICENTRE STUDY
Syed Ali Shahzad*, Phil Polson, Birmingham, United Kingdom, Fahad Khan, Howard Marsh, Sri Sriprasad, Kent, United Kingdom, Raghu Devavan, Birmingham, United Kingdom

MP28-24 RETROGRADE INTRARENAL SURGERY (RIRS) IN THE TREATMENT OF RENAL STONES IN SOLITARY KIDNEY
Guido Giusti*, Rozzano (MI), Italy, Silvia Proietti, Rozzano, Italy, Roberto Pescechere, Davide Giraudo, Gianluigi Taverna, Pierpaolo Graziotti, Rozzano (MI), Italy

MP28-25 URETEROSCOPIC TREATMENT OF LARGE, COMPLEX, NON-INFECTION STONE BURDENS GREATER THAN 2.0 CM
Andrew I. Fishman*, Jacob Cohen, Michael Grasso, Valhalla, NY

MP28-26 PREVENTING FLEXIBLE URETERORENOSCOPE DAMAGE: HOW WE DID IT
Hiro Ishii*, Tamsin Drake, Bhaskar Somani, Southampton, United Kingdom

Friday, October 25, 2013 Moderated Poster Session MP29 4:30 pm–6:15 pm

PERCUTANEOUS NEPHROLITHOTOMY & URETEROSCOPY
Room Grand Ballroom D @ Sheraton New Orleans
Faculty: Ranan DasGupta and Evangelos Liatsikos

*Presenting author

MP29-01 COMPARISON OF USING SPLITTED SIDE AND CONVENTIONAL AMPHATZ SHEATH IN PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY
Nasim Irani*, Daryush Irani, Shiraz, Iran

MP29-02 STAGHORN CALCULI: COMPOSITION, BACTERIOLOGY AND MANAGEMENT: AT MONKLANDS HOSPITAL, WEST OF SCOTLAND, UK
Edward Mains*, Imran Ahmad, Sarah Nalagatla, Airdrie, United Kingdom

MP29-03 SUPINE PCNL: AN EFFECTIVE AND SAFE APPROACH FOR RENAL STONES MANAGEMENT – AN EARLY EXPERIENCE
Tarek El-Leithy*, Hany Nour, Mohandessin City, Egypt

MP29-04 PERCUTANEOUS NEPHROLITHOTOMY: CRITICAL ANALYSIS OF UNFAVORABLE RESULTS
Abdulqadir Alobaidy*, doha, Qatar, Abdulla Al-Naimi, Doha, Qatar, Khalid Assadiq, Haider Alkhuwaji, Abdulla Al-Ansari, doha, Qatar, Ahmed Shokeir, Almansoura, Egypt

MP29-05 PCNL RENAL TRACT ACCESS BY UROLOGISTS–OUR EXPERIENCE
Alexandra Zachou*, Calvin Nathaniel, Maneesh Ghei, Barry H. Maraj, London, United Kingdom

MP29-06 PERCUTANEOUS NEPHROLITHOTOMY (PCNL) IN AN ELDERLY POPULATION. IS IT SAFE?
Ross Vint*, Sarah Nalagatla, Airdrie, United Kingdom
MP29-07 STANDARD-TRACT COMBINED WITH MINI-TRACT IN PERCUTANEOUS NEPHROLITHOTOMY FOR RENAL STAGHORN CALCULI
Yanbo Wang*, Ning Xu, Min Liu, Chunxi Wang, Changchun, China, People’s Republic of

MP29-08 RENAL ACCESS BY SONOGRAPHER VERSUS UROLOGIST DURING PERCUTANEOUS NEPHROLITHOTOMY
Yanbo Wang*, Zhihua Lu, Jinghai Hu, Haifeng Zhang, Chunxi Wang, Changchun, China, People’s Republic of

MP29-09 PERCUTANEOUS NEPHROLITHOTRIPSY (PCNL) IN CHILDREN
Mohammad Reza Darabi Mahboub*, Mashhad, Iran, Mohammad Aszlare, Alireza Ghoreifi, Mashhad, Iran

MP29-10 MASSIVE HEMORRHAGE AFTER PERCUTANEOUS NEPHROLITHOTOMY: HOW TO SAVE THE KIDNEY WHEN ANGIOEMBOLIZATION HAS FAILED OR IS UNAVAILABLE?
Alireza Aminsharifi*, Shiraz, Iran

MP29-11 COMPARISON BETWEEN SUPINE AND PRONE PCNL IN THE THERAPY OF STAGHORN STONES
Viorel Bucurras*, Razvan Bardan, Adrian Muresan, Alin Campanas, Cristina Balarie, Ciprian Secasan, Timisoara, Romania

MP29-12 EVALUATION OF SAFETY AND EFFICACY PERCUTANEOUS NEPHROLITHOTRIPSY IN TREATMENT OF ANTERIOR DIVERTICULAR RENAL STONES
Dargush Irani, Nasim Irani*, Reza Haghighanah, Shiraz, Iran

MP29-13 RESULTS AND COMPLICATIONS OF SUPINE POSITION FOR PERCUTANEOUS NEPHROLITHOTOMY (PCNL)
Sadrollah Mehrabi Sisakht*, Yasuj, Iran

MP29-14 THE EVALUATION OF SAFETY AND EFFICACY OF MULTIPLE TRACKS PERCUTANEOUS NEPHROLITHOTOMY UNDER SPINAL ANESTHESIA
Sejad Hadiollah Mousavi-Bahar*, abdolmajid iloon kashkouli, Babak Borzouei, hamadan, Iran

MP29-15 COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY: A SINGLE SURGEON’S EXPERIENCE
Nathaly Francois*, Springfield, IL

MP29-16 COMPARATIVE STUDY OF RESULTS AND COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY (PNL) WITH NEPHROSTOMY AND WITHOUT NEPHROSTOMY (TUBELES)

MP29-17 THE HISTORY OF PERCUTANEOUS NEPHROLITHOTOMY

Katherine Hall*, Priyadarshi Kumar, Meeketsi Mokete, Preston, United Kingdom

MP29-18 EXPERIENCE OF MINI-PERCUTANEOUS NEPHROLITHOTOMY FOR PROXIMAL URETERAL STONES OF PATIENTS WITH REPEATED EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FAILURE
Jingjing Guan*, Yanbo Wang, Xuesong Li, Yangyang Li, Zhengyi Lv, Xiaoming Yang, Qianqian Zhao, Changchun, China, People’s Republic of

MP29-19 LOCKED DEFLECTION DURING FLEXIBLE URETEROSCOPY: AN UNDERREPORTED COMPLICATION
Scott Hubosky*, Nir Kleinmann, Demetrius Bagley, Philadelphia, PA

MP29-20 PREOPERATIVE STENTING ENABLE US TO REMOVE RENAL STONES WITH FLEXIBLE URETERORENOSCOPE AT FIRST ATTEMPT
Shohei Ishida*, Toru Kimura, Takashi Kato, Yuta Sano, Fumitoshi Sakamoto, Tomonori Komatsu, Yoshikazu Tsuji, Tsuneo Kinukawa, NAGOYA, Japan

MP29-21 THE WALLSTENT®: 23 YEARS OF EXPERIENCE IN THE TREATMENT OF BENIGN URETEROENTERIC ANASTOMOTIC STRICTURES AFTER BRICKER DEVIAION
Thijs Campschroer*, Tycho Lock, Utrecht, Netherlands

MP29-22 TUL-ASSISTED PCNL (TAP): IMPACT OF URETEROSCOPY IN THE MODIFIED SUPINE POSITION FOR MANAGEMENT OF UPPER URINARY TRACT STONE DISEASE
Kae Ante-Sugihara*, Noritaka Ishito, Yumiko Yamashita, Tomoko Saklo, Shohei Yokayama, Yoichi Shiotsuka, Takaharu Ichikava, Yassao Yamamoto, Hitoshi Takamoto, Kurashiki, Japan

MP29-23 COMPARISON OF OPTICAL RESOLUTION AMONG 2 DIGITAL AND STANDARD FIBEROPTIC URETERORENOSCOPES USING AN IN VITRO MODEL
Kikuo Nutahara*, Mitaka, Japan, Junichi Matsuzaki, Yokohama, Japan, Soichi Mugiya, Hamamatsu, Japan, Akito Yamaguchi, Hukuoka, Japan

MP29-24 APPLICATION OF FLEXIBLE URETEROSCOPY IN UPPER URINARY DISEASES
Yan Zejun*, Cheng Yue, Xie Guohai, Ningbo, China, People’s Republic of

MP29-25 OUR THREE CENTRE TREATMENT OUTCOME OF RETROGRADE INTRARENAL SURGERY FOR RENAL STONES AND PREDICTIVE FACTORS OF STONE FREE
Ashvinkumar Gami*, Palanpur, India, Dipak Rajyaguru, Mahesana, India, Jitendra Amlani, Rajkot, India

MP29-26 ACUCISE® ENDoureterotomy: A FORGOTTEN TREATMENT OPTION IN URETERAL STRICTURES
Thijs Campschroer*, Tycho Lock, Utrecht, Netherlands
Friday, October 25, 2013

UROLITHIASIS III
Room Grand Chenier @ Sheraton New Orleans
Chair: Viorel Bucaras
Faculty: Mohamad Alomar and Mordechai Duvdevani

*Presenting author

**MP30-01** EXTRACORPOREAL LITHOTRIPSY USING IN LINE AND ON LINE FLUOROSCOPY WITH THE INTEGRA LITHOTRIPTER
Dr. Ruben Munoz Montastruc*, Dr. Ricard Recasens Guijuan, Dr. C. Berbegal Colas, Dr. D. Garcia Belmonte, Dra. Merce Pascual Queralt, Lleida, Spain

**MP30-02** UNDERUTILIZATION OF 24-HOUR URINE TESTING IN KIDNEY STONE PATIENTS
E. Will Kirby, David C. Johnson, James E. Ferguson, D. Kim Chantala, Davis P. Viprakasit*, Chapel Hill, NC

**MP30-03** MANAGEMENT OF STRUVITE STONES USING COMBINED ENDouroLOGICAL AND MEDICAL TREATMENT: PREDICTORS OF UNFAVORABLE CLINICAL OUTCOME
Muhammad Iqbal, Ranny Youssef*, Andreas Neisius, Nicholas Kunts, Richard Shin, Jonathan Hanna, Michael Ferrandino, Glenn Preminger, Michael Lipkin, Durham, NC

**MP30-04** CLINICO-METABOLIC CHARACTERISTICS OF OLDER PATIENTS WITH URINARY STONE DISEASE
Won Tae Kim*, Sang-Cheol Lee, Cheongju, Korea, Republic of, Hoon Jang, Daejeon, Korea, Republic of, Yong-June Kim, Seok-Joong Yun, Wan-Jae Kim, Cheongju, Korea, Republic of

**MP30-05** PREDICTION OF URIC ACID STONE COMPOSITION BY HOUNSFIELD UNITS: TECHNIQUE AND STONE SIZE IMPACTS PREDICTIVE VALUES
Sangtae Park*, Glencoe, IL

**MP30-06** SURVEY OF PRACTICE PATTERNS FOR THE TREATMENT OF UPPER URINARY TRACT STONES IN NEW ENGLAND
Vik Uberoi*, David Wang, Boston, MA

**MP30-07** EFFECT OF POMEGRANATE SUPPLEMENTATION ON SERUM AND URINE MARKERS OF INFLAMMATION, OXIDATIVE STRESS AND 24 HOUR URINE IN PATIENTS WITH RECURRENT NEPHROLITHIASIS
Jonathan Henning*, Lincoln, NE, Mark Newton, Miriam Zimmerman, Chad Tracy, Iowa City, IA

**MP30-08** A GLOBAL UROLITHIASIS MANAGEMENT SURVEY BY THE CLINICAL RESEARCH OFFICE OF THE ENDOUROLOGICAL SOCIETY (CROS): DO UROLOGISTS FOLLOW THE “GOLDEN RULE”?
Gregory Roberts*, Darren Beiko, Kingston, Canada, Dedan Opondo, Jean de la Rosette, Amsterdam, Netherlands, Hassan Razvi, London, Canada

**MP30-09** COMPARISON OF STONE COMPOSITION AND URINARY RISK FACTORS BETWEEN ELDERLY AND YOUNGER COHORT WITH NEPHROLITHIASIS
Yaniv Shilo*, Pittsburgh, PA, Ilia Beberashvili, Zerifin, Israel, Julie M. Riley, Jocelyn Kim, Stephen V. Jackman, Timothy D. Averch, Pittsburgh, PA

**MP30-10** STONEDIAGNOSTIC IN THE URO DYNA-CT COMPARED TO STANDARD NON-CONTRAST CT
Marie-Claire Rassweiler*, Stefan Haneder, Joachim Brade, Benjamin Meister, Maurice-Stephan Michel, Axel Haeger, Manuel Ritter, Mannheim, Germany

**MP30-11** CORELATION BETWEEN GUY’S STONE CLASSIFICATION AND PERCUTANEOUS LITHOTRIPSY OUTCOMES
Norberto Bernardo*, Horacio Sanguinetti, Buenos Aires, Argentina, Maximiliano Lopez Silva, Javier Garcia Villalba, bu, Argentina, Osvaldo Mazzia, Buenos Aires, Argentina

**MP30-12** THE CONCORDANCE OF ULTRASOUND AND CT SCAN IMAGES FOR KIDNEY STONE DISEASE
Dan Greene*, Shubha Dr, Carl Sarkissian, Manoj Monga, Cleveland, OH

**MP30-13** UPPER URINARY TRACT STONES PRESENTING TO THE EMERGENCY DEPARTMENT IN THE UNITED STATES: TRENDS IN HOSPITALIZATION AND CHARGES
Khurshid Ghani*, Florian Roghman, Montreal, Canada, Jesse Sammon, Detroit, MI, Vincent Trudeau, Montreal, Canada, Ramesh Kumar, Shyam Sukumar, James Peabody, Mani Menon, Detroit, MI, Quoc-Dien Trinh, Montreal, Canada

**MP30-14** RADIATION EXPOSURE OF THE PATIENT SUBMITTED TO URETEROSCOPY FOR URETERAL CALCULI
Filippo Ngo, Paolo Ferrarese, Ciro Ammendola, Enrico Scremin, Giuseppe Benedetto, Emiliano Bratti, Andrea Tasci*, Vicenza, Italy

**MP30-15** GIANT URETERIC AND STAGHORN CALCULI IN YOUNG-ADULTS
Wissam Hmida*, Sousse, Tunisia, Faouzi Mallat, Mouna Ben Othmen, Ghassem Tili, Mehdi Jaidane, Faouzi Mosbah, Sahloud, Tunisia

**MP30-16** RESULTS OF TRANSURETHRAL URETEROLITHOTRIPSY (TUL) AND CLINICAL CHARACTERISTICS OF ACUTE PYELONEPHRITIS FOLLOWING TUL
MP30-17 IS URINARY LITHIASIS RELATED TO CORONARY ATHEROSCLEROSIS?
Hector Sandoval Barba*, Christian Villeda Sandoval, Ricardo Castillejos Molina, Monica Chapa Ibarguengoitia, Carlos Mendez Probst, Mexico City, Mexico

MP30-18 DIFFERENT ANALGESIC METHODS FOR SHOCKWAVE LITHOTRIPSY
Farkhod Abdurakhmonov*, Samarkand, Uzbekistan

MP30-19 OUTCOMES AND SAFETY OF RETROGRADE INTRA-RENAL SURGERY (RIRS) FOR RENAL STONES - OUR EXPERIENCE
Vikas Agarwal*, Atul Goswami, Delhi, India

MP30-20 CLINICAL EVALUATION OF DIGITAL FLEXIBLE URETEROSCOPY WITH HOLMIUM LASER LITHOTRIPSY FOR COMPLICATED RENAL CALCULI
Cheng Yue, Yan Zejun*, Xie Guohai, Ningbo, China, People’s Republic of

MP30-21 DIABETES IN ASIAN AND CAUCASIAN PATIENTS WITH NEPHROLITHIASIS
Raghuram Devarajan*, Solihull, United Kingdom

MP30-22 THE CORRELATIONS BETWEEN THE HOUNSFIELD UNIT (HU) ON NON-CONTRAST COMPUTERIZED TOMOGRAPHY SCANS AND THE METABOLIC TEST RESULTS OF URINARY STONE PATIENTS
Hoon Jang*, Daejeon, Korea, Republic of

MP30-23 IS IT POSSIBLE TO REDUCE THE COST OF FLEXIBLE URETEROSCOPIC LITHOTRIPSY
Cenk Gurbuz*, Gokhan Atiy, Ozgur Arikan, Ozgur Efikoglu, Onur Danacyoglu, Turhan Caskurlu, Istanbul, Turkey

MP30-24 PREVENTING RETROGRADE STONE DISPLACEMENT DURING PNEUMATIC LITHOTRIPSY FOR URETERAL CALCULI USING LIDOCAINE JELLY
Mohammad Reza Derabadi Mahboub*, Mashhad , Iran

MP30-25 THE EFFECT OF STONE LOCALIZATION ON SUCCESS RATES OF RETROGRADE INTRARENAL SURGERY
Hakan Kilicarslan*, Burhan Coskun, Yakup Kordan, Hakan Vuruskan, Onur Kaggyisz, Onur Gunseren, Bursa, Turkey

MP30-26 SHORT TERM RESULTS OF URETEROSCOPIC LASER LITHOTRIPSY AT AKDENIZ UNIVERSITY
Mehmet Baykara*, Antalya, Turkey, Yigit Akin, Erzincan, Turkey, Selcuk Yucel, Arif Kol, Ilker Fatih Sahiner, Antalya, Turkey

Friday, October 25, 2013
4:30 pm–6:00 pm
LAPAROSCOPY: UPPER TRACT III
Room Armstrong @ Sheraton New Orleans
Chair: Yew-Lam Chong
Faculty: Benjamin W. Woodson and Ramakrishna Venkatesh

*Presenting author
V16-07 NYU TECHNIQUE FOR ROBOTIC-ASSISTED BOARI FLAP
Arielle Miller*, Tracey Marien, Suzanne Sorin, Marc Bjurlin, Michael Stifelman, New York, NY

V16-08 LAPAROSCOPIC PYELOLITHOTOMY IN AN EC-TOPIK PELVIC KIDNEY
Christopher Keele*, Arthur Caire, Benjamin Woodson, Benjamin Lee, New Orleans, LA

V16-09 RIGHT LAPAROSCOPIC RADICAL NEPHRECTOMY: STEP-BY-STEP
René Sotelo*, Oswaldo Carmona, Robert De Andrade, Frederic Birkhauser, Caracas, Venezuela, Flavio Santinelli, Buenos Aires, Argentina, Arvind Ganpule, Nadiad, India, Martin Piana, Santa Fe, Argentina, Roberto Garza, Golema Fernandez, Juan Castro, Cesar Ignacio, Roberto Cisneros, Caracas, Venezuela, David Canes, Burlington, MA, Ralph Clayman, Irvine, CA

V16-10 LEFT LAPAROSCOPIC RADICAL NEPHRECTOMY: STEP-BY-STEP
René Sotelo*, Oswaldo Carmona, Robert De Andrade, Caracas, Venezuela, Flavio Santinelli, Buenos Aires, Argentina, David Subira, Madrid, Spain, Cesar Ignacio, Golema Fernandez, Roberto Garza, Juan Castro, Frederic Birkhauser, Roberto Cisneros, Caracas, Venezuela, Ralph Clayman, Irvine, CA

V17-01 IMMEDIATE ROBOTIC ASSISTED DISTAL URETEROURETEROSTOMY WITH OMental INTERPOSITION Graft AFTER IATROGENIC INJURY
Blake W Moore*, Ziho Lee, Adam Reese, Jack Mydlo, Daniel D Eun, Philadelphia, PA

V17-02 ZERO ISCHEMIA, SELECTIVE ISCHEMIA, AND TOTAL ISCHEMIA FOR THREE MASSES IN A SOLITARY KIDNEY: THE VERSATILITY OF ROBOTIC PARTIAL NEPHRECTOMY
Richard Knight*, Michael White, San Antonio, TX

V17-03 ROBOTIC ANATROPHIC NEPHROLITHOTOMY: INITIAL CASE
Sherita King*, Zachary Klaassen, Ray King, Rabii Madi, Augusta, GA

V17-04 ROBOTIC ANATROPHIC NEPHROLITHOTOMY WITH RENAL HYPOThERMIA FOR TREATING STAGHORN CALCULI
Khursheed Ghami*, Craig Rogers, Akshay Sood, Ramesh Kumar, Michael Ehler, Wooju Jeong, Detroit, MI, Arvind Ganpule, Nadiad, India, Mahendra Blandari, Detroit, MI, Mahesh Desai, Nadiad, India, Mani Menon, Detroit, MI

V17-05 ROBOTIC-ASSISTED RADICAL NEPHRECTOMY WITH INFERIOR VENA CAVA TUMOR THROMBECTOMY
Mark Ball*, Gautam Jayram, Mohamad Allaf, Baltimore, MD

V17-06 ROBOTIC ASSISTED PARTIAL NEPHRECTOMY IN A PELVIC KIDNEY
Aryeh Keehn*, Reza Ghatavamian, Bronx, NY

V17-07 COMPLEX PARTIAL NEPHRECTOMY FOLLOWING TUMOR DOWNSIZING WITH NEOADJUVANT THERAPY
Luis Felipe Branda*, Humberto Laplante, Riccardo Autorino, Ali Khalifeh, Dinesh Samarasekera, Emad Rizkala, Oliver Ka, Georges-Pascal Haber, Jihad Kaouk, Robert Stein, Cleveland, OH

V17-08 ROBOTIC CALYCEAL DIVERTICULECTOMY AND NEPHROLITHOTOMY
Christopher Keele*, Kush Patel, Benjamin Woodson, Benjamin Lee, New Orleans, LA

V17-09 ROBOTIC RADICAL NEPHRECTOMY AND INFRA-HEPATIC INFERIOR VENA CAVA THROMBECTOMY
Andre Berger*, Andre Luis de Castro Abreu, Dennis J. Lee, Sheauanei Tsai, Scott Leslie, Milhir M. Desai, Monish Aron, Inderbir S. Gill, Los Angeles, CA

V17-10 COMPLETELY INTRACORPOREAL ROBOTIC RENAL AUTOTRANSPLANTATION
Daniel Gilbert*, Jordan Angel, Romney Abaza, Dublin, OH
V17-11 ILEAL CONDUIT REVISION AND URETERAL STENOSIS REPAIR: ROBOT ASSISTED LAPAROSCOPIC TECHNIQUE
Idir Ouzaid*, Edward Diaz, Riccardo Autorino, Dinesh Samarasekera, Vishnuvardhan Ganesan, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

V17-12 ROBOTIC ANATROPHIC INCISION FOR NEPHRON SPARING SURGERY FOR COMPLETE INTRARENAL TUMOR IN THE RENAL SINUS
Rene´ Sotelo*, Oswaldo Carmona, Robert De Andrade, Carmen Rodriguez, Golena Fernandez, Rafael Clavijo, Roberto Garza, Caracas, Venezuela

Friday, October 25, 2013
Video Session V18 4:30 pm–6:00 pm

PEDIATRICS & OBSTRUCTION
Room Nottoway @ Sheraton New Orleans
Chair: Michael C. Ost
Faculty: Blake Palmer and Bulent Onal

*Presenting author

V18-01 ROBOTIC-ASSISTED LAPAROSCOPIC LEFT RETROPERITONEAL LYMPH NODE DISSECTION
Jacob Jorns*, Michael Erhard, Jacksonville, FL

V18-02 ENTIRELY MINIMALLY-INVASIVE MANAGEMENT OF AN INFECTED URACHAL CYST IN THE PEDIATRIC PATIENT
Christopher Jaeger*, Candace Granberg, Rochester, MN

V18-03 ROBOTIC-ASSISTED, LAPAROSCOPIC EXCISION OF BILATERAL HUTCH DIVERTICULI WITH BILATERAL EXTRAVESICAL URETERAL RE-IMPLANTATION
Carlos Villanueva*, Michael Belsante, Patricio Gargollo, Dallas, TX

V18-04 PEDIATRIC ROBOTIC PYELOPLASTY IN HORSESHOE KIDNEY
Candace Granberg, Rochester, MN, Daniel DaJusta, Louisville, KY, Patricia C. Gargollo*, Dallas, TX

V18-05 LAPAROSCOPIC EXCISION OF A LARGE PROSTATIC UTRICLE IN A SYMPTOMATIC 1 YEAR-OLD
Mark Currin*, Todd Parves, Andrew Stec, Charleston, SC

V18-06 MINILAPAROENDOSCOPIC SINGLE-SITE (MILESS) DISMEMBERED PYELOPLASTY: TECHNIQUE AND SURGICAL OUTCOMES
Francesco Greco*, Giovannalberto Pini, Paolo Fornara, Halle, Germany

V18-07 ROBOTIC SINGLE SITE PYELOPLASTY USING CROSSED ARTICULATING INSTRUMENTS AND 5MM FLARED CANNULAS
Maurilio Garcia-Gill, Jeffrey Gahum*, Jeffrey Caddedu, Dallas, TX

V18-08 LAPAROENDOSCOPIC SINGLE SITE (LESS) SURGERY FOR URACHAL REMNANT IN ADULTHOOD
Kyohei Kuorse*, Takamatsu, Japan

V18-09 LAPAROSCOPIC URETEROLYSIS IN RETROPERITONEAL FIBROSIS
Burhan Coskun, Onur Kaygisiz, Beren Aytaç, Hakan Kılıçarslan, Yukarı Kordan, Hakan Vuruskan*, Bursa, Turkey

V18-10 ROBOT ASSISTED RADICAL PROSTATECTOMY IN A PATIENT WITH EPSPADIAS
Samuel Eaton*, Robert Nadler, Kent Perry, Chicago, IL

V18-11 ROBOTIC URETERAL REIMPLANTATION UTILIZING A BOARI FLAP
John Cunniff*, Jeffery Redshaw, Salt Lake City, UT, Jeff Picciotti, Jay Bishoff, Murray, UT

V18-12 ROBOTIC ASSISTED EXCISION OF A GIANT SEMINAL VESICLE CYST AND ATRETIC URETER
Ramgopal Satyanarayana*, Devendar Katkoori, Ezekiel Young, Murugesan Manoharan, Miami, FL
MP1A BASIC RESEARCH: UPPER TRACT PHYSIOLOGY

MP1A-01 EVALUATION OF POTENTIAL PHARMACEUTICAL AGENTS FOR A DRUG ELUTING URETERIC STENT USING EX-VIVO INVESTIGATION INTO THE UROTHELIAL PERMEABILITY

Nicholas Williams, Chris Allender, Jenna Bowen, Marc Gumbleton, Cardif, United Kingdom, Tim Harrah, Jamie Li, Boston, MA, Hrishi Joshi*, Cardif, United Kingdom

INTRODUCTION AND OBJECTIVES: Oral administration of agents such as anticholinergics, NSAIDs and alpha blockers are used to address side effects of ureteric stents. The symptoms, do not respond adequately to oral therapy and future management may involve incorporation of suitable drug/s into the stent itself. Such a stent would allow continuous exposure of high concentrations of drug locally. Selection of a suitable drug must take into account the permeability of drug across the urothelium. We report the findings of an ex-vivo study investigating the transurothelial transport of oxybutinin, ketorolac and tamsulosin, potential candidates from different groups.

METHODS: Porcine bladder was mounted in Franz-type diffusion cells and drug applied to the urothelium. At pre-defined time points, tissue samples were excised and drug extracted from tissue prior to HPLC analysis. Transurothelial permeability coefficients (Kp) were calculated.

RESULTS: Using a robust ex-vivo porcine bladder model, the permeability of oxybutinin, ketorolac and tamsulosin has been determined. All drugs permeated the urothelium, however, they demonstrated different rates of transport. Kp values were calculated: 3.1 x 10^-06, 2.54 x 10^-06 and 8.4 x 10^-07 cm s^-1 for oxybutinin, ketorolac and tamsulosin respectively.

CONCLUSIONS: These studies reveal crucial information about the urothelium’s permeability to oxybutinin, ketorolac and tamsulosin. Calculated Kp values suggest oxybutinin and ketorolac to be better candidates for incorporation into a drug eluting stent. Our ex-vivo model and investigations into the urothelial permeability of drugs can provide valuable information when selecting a suitable candidate for incorporation into a drug eluting stent.

Source of Funding: Cardiff university and Boston Scientific corporation

MP1A-02 UNDERSTANDING STENT-INDUCED URETERAL APERISTALSIS

Claudia Janssen*, Wolfgang Jaeger, Dennis Solomon, Ladan Fazli, Ralph Buttyan, Ben H. Chew, Chun Y. Seow, Dirk Lange, Vancouver, Canada

INTRODUCTION AND OBJECTIVES: Indwelling double J (DJ) stents are known to interfere with coordinated ureteral peristalsis. The exact mechanisms for this are not well understood. During development, the Sonic Hedgehog signaling pathway (Shh) regulates the development of pacemaker cells throughout the urinary tract required for coordinated ureteral peristalsis. Defects in Shh signaling result in hydronephrosis and hydroureter due to a loss of ureteral peristalsis. In addition, these processes are activated during healing and the regeneration of epithelial layers in adults. Since stent movement in the bladder, ureter, and kidney results in urothelial irritation and inflammation, we hypothesize that stent-induced disruption of ureteral peristalsis may be the result of changes in Shh signaling in the urothelial tissue.

METHODS: To investigate effects of ureteral stenting the expression of Shh and its Gli effectors was analyzed via immunohistochemistry in upper ureteral segments of unilaterally stented Yorkshire pigs at 48 hrs, 1, 2, 4, 7 and 10 wks post stent-insertion (n=4/time point) and compared to the contralateral non-stented sides. Four un-stented animals served as controls. Furthermore, ureteral peristalsis was assessed macroscopically in vivo at 48 h (group 1) or 7 days (group 2) post stent placement. In addition, at each time point ureters were harvested bilaterally in each animal and the effects of stenting on smooth muscle (SM) contractility were assessed ex vivo using tissue baths.

RESULTS: The expression of the transcriptional activator Gli 1 was significantly decreased in ureteral SM 1 wk post stent insertion, which coincided with maximal inflammation. Interestingly, this decrease was paralleled by an increase in Gli 1 expression in the SM of the contralateral non-stented ureters. Following stent removal at 7 wks and decreased inflammation, Gli 1 expression increased back towards normal levels.

Aside from the effects on the Shh pathway, ureteral dilation due to stenting completely abolished peristalsis in vivo and significantly decreased ureteral SM contractility ex vivo compared to un-stented controls. No spontaneous or stimulated peristalsis was observed within 30 minutes following stent removal.

CONCLUSIONS: DJ stents induce significant ureteral dilation (as early as 48 hrs post-insertion) resulting in SM overexpansion, reduced contractility and overall aperistalsis. Furthermore, chronic ureteral inflammation 1 wk post stent insertion results in the loss of Gli 1 expression in the ureteral SM, potentially delaying healing and recovery of peristalsis.

Source of Funding: Canadian Urological Association-Astellas Research Grant, Urologic Care Foundation, Endourological Society, Friend’s of Joe

MP1A-03 ACOUSTIC BUBBLE REMOVAL TO ENHANCE THE EFFICACY OF SHOCK WAVE LITHOTRIPSY: AN IN-VITRO STUDY

Alexander P. Duryea*, William W. Roberts, Charles A. Cain, Hedieh A. Tamaddoni, Timothy L. Hall, Ann Arbor, MI

INTRODUCTION AND OBJECTIVES: Rate dependent efficacy has been extensively documented in shock wave lithotripsy (SWL) stone comminution, with shock waves (SWs) delivered at low rate producing more efficient fragmentation in comparison to those delivered at high rates. Cavitation is postulated to be the primary source underlying this rate phenomenon. Residual
INTRODUCTION AND OBJECTIVES: The use of various endourological techniques and lithotripters is increasing for the treatment of nephrolithiasis and ureterolithiasis. A novel lithotripsy method has been developed that differs in its principle of application from other methods in that it employs high voltage electrical pulses with nanosecond front and duration.

The purpose of this study is to evaluate the effectiveness of nanosecond electropulse lithotripsy (NEPL) in comparison with established Ho: Yag laser lithotripsy (LL).

METHODS: Four sizes of BegoStone phantoms of various densities were fabricated. The stones were placed on a grid with 2×2 mm cells immersed in the water. NEPL and LL devices were operated at comparable settings using varying probe/fiber sizes in order to achieve fragments less than 2 mm. The LL device was also tested at higher power settings in order to identify a mode where its efficiency can be comparable with NEPL. The number of pulses, cumulative energy and operation time were recorded. Cumulative energy was chosen as the criterion for comparing the effectiveness of the devices. A statistical analysis of the results was conducted.

RESULTS: Stone clearance was achieved in 100% for both lithotripters at all settings and probe/fiber sizes. The results demonstrated that NEPL in all cases requires less cumulative energy to destroy stones than LL and that the difference between them reaches nearly one order of magnitude. The specific volumetric energy needed for stone fragmentation was also evaluated. The results obtained indicate that different correlations exist between the lithotripters in the specific volumetric energy required to destroy the phantoms relative to probe diameter and stone density.

CONCLUSIONS: The NEPL device is more effective than the LL device because, in all cases, it needs significantly less energy for stone disintegration. The two compared lithotripters differ according to the mechanisms at work, which explains the different results that were obtained. The results for NEPL confirmed the correlation between pulse energy used for fragmentation and the properties of stones, to wit: the device always required less energy for the destruction of soft stones than hard stones while LL often required the same or even higher energy on soft stones than on hard stones.

At the same time, no correlation among factors of specific volumetric energy, stone density and fiber diameter was observed for LL. In the case of NEPL, these parameters were clearly correlated.

Source of Funding: None

MP1A-05 DETECTING MICRO-STONES IN URINE WITH QUANTITATIVE RAMAN SPECTROSCOPY AFTER ESWL

Yichun Chiu*, Po-An Chen, Huihua Chiang, Thomas Hsueh, Shing-Hwa Lu, Allen Chiu, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: With the improvement of the stone management, less stone fragments could be collected after treatment especially extracorporeal shock wave lithotripsy (ESWL). But stone analysis still highly involved the further metabolic study and stone management policy. We tried to develop the quantitative micro-raman spectroscopy (MRS) to detect the minute/micro stone in the urine after the ESWL.

METHODS: This study used calibration curves of known mixtures of synthetically prepared calcium oxalate monohydrate (COM), hydroxyapatite (HAP), calcium oxalate dehydrate (COD), dicalcium phosphate dehydrate (DCPD), and uric acid. A variety of samples of binary and ternary mixtures including
COM/HAP, COM/COD, COD/HAP, COM/uric acid, COD/uric acid, HAP/uric acid, HAP/DCPD, and COM/COD/HAP were prepared in various concentration ratios for use as the basis of the quantitative analysis. Intensities of the characteristic bands at 961 cm⁻¹ (I(HAP)), 986 cm⁻¹ (IDCPD), 1402 cm⁻¹ (I(Uric acid), 1462 cm⁻¹ (ICOM and COD), and 1477 cm⁻¹ (ICOD and COM) were used for the calculation. We also derived a set of quantitative analysis equations for the ternary composition COD/COM/HAP group by combining two binary equations from the groups COM/COD and the HAP/COM. Urine from 30 patients after ESWL were collected as one shot (within 1 hour) and 24 hours urine. Then we compared the result to the stone analysis from the subsequent expelled stones by FTIR.

RESULTS: This study extracted and measured 30 post-ESWL urine samples, including 12 single composition samples, 15 binary composition samples, and 3 ternary composition samples. Results with MRS disclosed 15 binary compositions and the intensity Raman spectra was used for quantitative analysis. There are six COM/COD samples, five HAP/COM samples, two HAP/DCPD samples, one HAP/COD samples and one Uric acid/COM samples. The figure revealed the raman spectra of the patients with 3 compositions (HAP/COM/COD) and percent composition could also be calculated by quantitative MRS-based method. The MRS based method detected more precise composition than the stone analysis by FTIR and also could do the quantitative analysis in minute/micro stones in urine. And the result showed the same between one shot urine and 24 hours urine.

CONCLUSIONS: This research successfully applied the quantitative MRS-based analysis technique from bench to bedside to measure the minute/micro stone components in urine after ESWL.

Source of Funding: none

MP1A-06 URINE AQUaporIN-1 AND PERILIPIN-2: CAN THESE MARKERS ASSIST IN THE EVALUATION OF SMALL RENAL MASSES?

Jonathan Mobley*, Jeremiah Morrissey, Sam Bhayani, Joseph Song, Joel Vetter, Evan Kharasch, Robert Figenshau, St. Louis, MO

INTRODUCTION AND OBJECTIVES: The use of abdominal imaging has resulted in the increased detection of small renal masses (SRMs). As the size of a renal mass decreases, the probability of a benign pathology increases. Currently, renal mass biopsy is one of the few techniques used to distinguish renal cell carcinoma (RCC) from benign lesions prior to surgical intervention. We retrospectively evaluate the ability of pre-operative urine Aquaporin-1 (AQPI) and Perilipin-2 (PLIN2) to distinguish between benign and malignant pathology in SRMs.

METHODS: Fifty-seven patients with renal masses less than 4 cm in size underwent preoperative urine AQPI and PLIN2 prior to tumor excision. Urine concentrations of AQPI and PLIN2 were measured using Western blot procedures normalized to the urinary creatinine excretion. We retrospectively reviewed the urine concentrations for various tumor pathologies.

RESULTS: The final pathology of the resected SRMs included 34 clear cell RCCs, 8 papillary RCCs, 2 chromophobe RCCs, 7 oncocytomas, and 6 angiomylolipomas (AML). The median AQPI for clear cell RCC was 26.5, for papillary RCC was 53.0, for chromophobe RCC was 3.5, for oncocytoma was 2.0, and for AML was 3.5 relative absorbance units/mg creatinine. The median PLIN2 for clear cell RCC was 23.0, for papillary RCC was 53.5, for chromophobe RCC was 6.5, for oncocytoma was 3.0, and for AML was 10.5 relative absorbance units/mg creatinine (Figure 1). The median urine AQPI and PLIN2 was significantly elevated in clear cell and papillary RCC when compared to chromophobe RCC, oncocytoma, and AML.

CONCLUSIONS: In this small retrospective study, urine AQPI and PLIN2 were significantly elevated in SRMs with clear cell and papillary RCC. These urine markers have the potential to distinguish benign lesions from clear cell and papillary RCC at the cost of false negative results for patients with chromophobe RCC. Use of these urinary markers may provide a noninvasive means to characterize SRMs without the need for a biopsy, and may reduce unnecessary excision of benign SRMs.

Source of Funding: Funding for the study comes from two grants: R01CA141521 and the Barnes Jewish Hospital Foundation.

MP1A-07 INTRA AND EXTRA-RENAL AUTONOMIC NERVOUS SYSTEM REDEFINED

Achim Lusch*, Emon Heidari, Ryan Leary, Zhamshid Okhunov, Jamie Wikenheiser, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: The role of the autonomic nervous supply to the kidneys is known to be involved in the development of several diseases, including hypertension. The neural distribution at the segmental vessels and intra-renal vasculature has not been well characterized. Herein, we evaluated the autonomic nerve distribution from the great vessels to the renal cortex in a cadaveric model.

METHODS: We performed a detailed anatomic nerve dissection from the inferior mesenteric artery to the renal operculum in two human cadaveric torsos. Autonomic nerve fibers were verified by dissecting the greater splanchnic, sympathetic trunk and ganglia. We then systematically cross-sectioned the kidneys in twelve 1 mm slices across a total 3.6 cm, and stained the slices for histopathologic analysis of neural tissue in relation to segmental arteries and other anatomic landmarks. An advanced reconstructive software (SolidWorks; Waltham, MA, USA) was used to create a three dimensional computer image of the nerves in relation to arteries, veins, and the collecting system.

RESULTS: On the main renal arteries and segmental arteries autonomic nerve fibers are located almost exclusively anteriorly with only rare fibers wrapping posteriorly. No nerve fibers ran
with veins. Once within the parenchyma, histopathology revealed that the intra-renal nerves continue to track with the arteries but were more circumferentially distributed around the arteries. As slides proceeded from medial to lateral, the distance from the nerves to the artery wall diminished. Specifically, the nerve to the lumen intima distance of the arteries decreased from 0.91 mm to 0.36 mm from the medial to lateral slides. While the nerve tissue did not run with the collecting system, the proximity of the collecting system put most nerves within a few millimeters. The mean distance of the nerves to the renal collecting system components was 7 mm [range 0.69–21.4 mm].

CONCLUSIONS: The autonomic nerves supplying the kidney maintain their distribution almost exclusively along the anterior surface of arteries as they pass from the aorta to the segmental arteries. Once inside the renal parenchyma, the nerves are circumferentially distributed around the renal arteries and are in close proximity to the renal collecting system.

Source of Funding: None

MP1A-08 SECRETED FACTORS FROM PERITUMOR ADIPOSE TISSUES OF CLEAR CELL RENAL CELL CARCINOMA INCREASED THE MOTILITY OF HUMAN ccRCC CELL LINE CAKI-2 VIA ENHANCEMENT OF WNT SIGNALING

Achim Lusch*, Christopher Blair, Molly Baker, Zhamshid Okhunov, Victor Huynh, Xiaolin Zi, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Perinephric adipose tissue (PAT) is metabolically active and manifests endocrine function. We evaluated the interaction between PAT and clear cell renal cell cancer (ccRCC) cells.

METHODS: PAT was collected from 49 patients (27 clear cell, 7 chromophobe, 1 papillary, 3 uncharacterized RCCs, and 11 benign pathology). PAT was harvested from patients undergoing renal surgery and cultured for 24 hours to generate conditioned media (CM). The effect of PAT CM on the proliferation and migration of ccRCC cell line Caki-2 was measured by MTT assay and Boyden chamber cell migration assay, respectively. In addition, Wnt/β-catenin activity in PAT CM was examined as induced levels of β-catenin. The proliferative and migratory responses are expressed as a stimulation index (SI) calculated by dividing the mean number of proliferative or migratory cells of PAT CM-stimulated wells by those of non-stimulated wells. Wnt response is similarly expressed as a ratio of mean Wnt activity of PAT CM-stimulated cells divided by that of non-stimulated cells.

RESULTS: PAT CMs from pT3 ccRCC patients resulted in a significant increase of Caki-2 cell migration (mean SI and standard deviation, 1.80±0.52, P<0.05) compared to those at pT1 ccRCC (1.36±0.71, P>0.05) and pT2 (1.60±1.22, P>0.05), respectively. Conversely, the mean proliferative SIs of PAT CMs from ccRCC patients decreased as clinical stage advanced (pT1 versus pT3, 1.28±0.37 vs. 0.83±0.08). PAT CMs from patients with benign pathology has no significant effect on proliferation and migration. PAT CMs from chromophobe RCC also significantly increased the migration of Caki-2 (migratory SI, 1.96±1.01) with no effect on proliferation (SI, 1.02±0.50). High Fuhrman Grade is associated with increased migration by PAT CMs. Increased tumor sizes were inversely associated with proliferative SIs (correlation coefficient, −0.45). The increased migration of Caki-2 cells is associated with enhanced Wnt activity in PAT CMs.

CONCLUSIONS: We demonstrate a novel interaction between PAT and RCC which may facilitate understanding of cancer cell migration and metastasis in RCC patients. Further analysis is in progress.

Source of Funding: None

MP1A-09 CAN REMOTE ISCHEMIC PRECONDITIONING CONFER PROTECTION AGAINST REPERFUSION INJURY FOLLOWING WARM ISCHEMIA IN A PORCINE SOLITARY-KIDNEY MODEL?

Jeffrey Gahant*, Jodi Antonelli, Bedir Selahattin, Yunbo Ma, Steve Faddelon, Payal Kapur, Jeffrey Cadeddu, Dallas, TX

INTRODUCTION AND OBJECTIVES: Ischemic preconditioning (IPC) has been proposed as a method to confer protective effects for renal tissue subjected to warm ischemia; however, the benefit of IPC remains controversial. Studies in small animal models have yielded promising results, whereas studies in large animal have demonstrated conflicting results and have focused on local IPC (L-IPC). Our study sought to demonstrate for the first time the effects of remote IPC (R-IPC) on renal function in a large animal (porcine) solitary-kidney model.

METHODS: Twelve pigs were assigned evenly to two groups: each underwent a right nephrectomy followed by a week of recovery. Group 1 underwent left renal hilar dissection followed by hilar clamping for 90 minutes. Group 2 underwent right and left iliac artery dissection and clamping for 10 minutes each (R-IPC), followed by a reperfusion period of 30 min and then left hilar clamping for 90 minutes. Serum creatinine was drawn for both groups prior to the second surgery (pre-op), then at 24 hours, 3 days and 7 days after. Kidneys were harvested for histologic analysis at 24 hours or 7 days. A pathologist, blinded to study design, quantified ischemic and inflammatory damage on a 1–5 scale for the two groups.

RESULTS: Paired serum creatinine values were analyzed between time points. For group 1, paired differences existed at 24 hours (p=0.044) but not at 3 days or 7 days. For group 2, paired differences existed at 24 hours (p=0.043) but not at 3 days or at 7 days. Mean serum creatinine was similar for both groups at pre-op (p>0.05). Mean change in serum creatinine from pre-op values was compared between Groups 1 and 2 at each time point and found not to be significantly different. Histologic analysis revealed rare evidence of ATN at 24 hours in the R-IPC group. At 7 days, neither group showed ATN and both showed 1–2+ evidence of lymphocytic infiltrates and lymphnode aggregates.

CONCLUSIONS: Remote ischemic pre-conditioning in a solitary-kidney porcine model does not confer renal protection after warm ischemia either on serum or histological analysis. The porcine kidney seems resilient to even prolonged warm ischemia times with only minor inflammatory damage or ATN detected at any point. Though a longer period of R-IPC may have an impact, this would likely become clinically impractical.

Source of Funding: None

MP1A-10 URINARY CYSTATIN C AND NGAL AS EARLY BIOMARKERS FOR ASSESSMENT OF RENAL ISCHEMIA- REPERFUSION INJURY: A SERUM MARKER TO REPLACE CREATININE?

Ben Woodson*, Liang Wang, Sree Mandava, Benjamin Lee, New Orleans, LA

CONCLUSIONS: We demonstrate a novel interaction between PAT and RCC which may facilitate understanding of cancer cell migration and metastasis in RCC patients. Further analysis is in progress.

Source of Funding: None
MP1A BASIC RESEARCH: UPPER TRACT PHYSIOLOGY

INTRODUCTION AND OBJECTIVES: Cystatin C is a nonglycosylated 13 kDa basic protein that is a member of the cystatin superfamily of cysteine protease inhibitors and is produced by all nucleated cells. Cystatin C is filtered by the glomerulus, then undergoes essentially complete tubular reabsorption and catabolism. Clinically, it may be measured in the urine or the serum when attempting to make determinations of acute kidney injury. Our objective was to assess use of cystatin C and NGAL as biomarkers for renal injury after renal hilar clamping using a rodent animal model. We also evaluated the use of Allopurinol as a renoprotective agent applying the same model.

METHODS: In 58 Sprague-Dawley rats, urinary cystatin C (n = 26) and NGAL (n = 32) was measured as a biomarker for renal ischemia injury. Half of the rats were pretreated with allopurinol, and the other cohort was used as control. The right renal hilum and ureter were ligated in all animals, thereby creating a solitary kidney model. After a 30 minute stabilization period, the left hilar vessels were then clamped for time periods of 15, 30, and 60 minutes. Urinary levels of cystatin C and NGAL were then measured at the following time points: preclamp (after the 30 minute stabilization period) and post clamp (30, 45, and 60 minute time periods after unclamping had occurred).

RESULTS: With a 15 minute clamp time, Cystatin C values increased 11.7 fold compared to controls. With a 30 minute clamp time, the ratio of Cystatin C increased 14.5, and appeared to peak at this length of warm ischemia. At a prolonged 60 minute clamp time, the Cystatin C levels dropped to a 10.5 ratio. The 30 minute period of ischemia consistently demonstrated the greatest increase compared to controls.

Findings with NGAL also demonstrated a peak level of damage at 30 minutes, with a 4.13 fold increase over controls. Allopurinol did appear to serve a renoprotective function in those animals undergoing 30 minute clamp times.

CONCLUSIONS: Cystatin C and NGAL both appear to be useful biomarkers of renal injury after surgically induced ischemia, with reproducible maximal levels of damage at 30 minutes. However, studies with larger numbers are still needed. Also, allopurinol does exhibit renoprotective effects against renal ischemia and reperfusion.

Source of Funding: Departmental

MP1A-11 Multiphoton microscopic characterization of renal cell carcinoma
Sara Best*, E. Jason Abel, Matthew Houlihan, Kevin Eliceiri, Madison, WI

INTRODUCTION AND OBJECTIVES: Optical biomarkers assessed via multiphoton microscopy (MPM) and Second Harmonic Generation Microscopy (SHG) have been linked to prognosis and outcomes in ovarian and breast cancer. These optical approaches can assay both H&E stained and non-stained samples to look at both labeled elements and intrinsic signals such as autofluorescence and SHG from collagen. We sought to characterize renal cell carcinoma (RCC) with MPM to assess for any changes in these intrinsic signals that correlated with pathologic assessment.

METHODS: An unstained tissue microarray was constructed using 0.6 mm cores of renal tissue specimens. Samples from 100 patients were analyzed with MPM, including RCCs grades 1-4 and benign tissue. A multiphoton workstation equipped with a Ti: Sapphire laser set to an excitation wavelength of 890 nm was used to analyze each specimen. This technique generated both second harmonic generation (SHG) and autofluorescence images that are separable by optical filters. The images were then compared.

RESULTS: Unstained renal tissue, both benign and malignant, generates excellent intrinsic signals, both SHG and autofluorescent, that were detected with MPM. Initial efforts to characterize differences among Fuhrman grades of RCC identified detectable differences in collagen patterning (Figure 1). These differences are also apparent on the small samples used in the microarray, which are similar to those that might be obtained from a renal tumor biopsy.

CONCLUSIONS: Multiphoton microscopy provides a flexible platform with which to analyze renal tumors and may provide additional information to characterize both whole specimens and biopsy cores. Further studies will aim to quantify renal cancer optical biomarkers such as collagen alignment and associate them with patient outcomes.

Source of Funding: none

MP1A-12 Addition of sodium bicarbonate to irrigation solution may assist in dissolution of uric acid fragments during ureteroscopy
Jessica E Paonessa*, Naeem Bhojani, James C Williams, Jr., James E Lingeman, Indianapolis, IN

INTRODUCTION AND OBJECTIVES: We hypothesized that addition of sodium bicarbonate (bicarb) to normal saline (NS) irrigation during ureteroscopy, in patients with uric acid (UA) nephrolithiasis, may assist in dissolving small stone fragments produced during laser lithotripsy. In vitro testing was performed to determine if dissolution of UA fragments could be accomplished in one hour or less.

METHODS: 100% UA renal calculi were fragmented, filtered and separated by size. Group 1 stones were < 0.5 mm. Group 2 stones were 0.5–1 mm. Similar amounts of stone material (0.0121±0.0183 g) were agitated in 200 ml of solution. Four solutions were tested (NS, NS + 1 ampule bicarb/liter, NS + 2, NS + 3). Both groups were filtered to remove solutions after fixed periods (1, 1/2, 1 hr). Filtered specimens were dried and weighed. Stone dissolution rates were calculated as percent removed per hour.

RESULTS: For group 1, the NS + 1 solution was not significantly different from any other solution. However, mean percent removed in NS (40.14%) was significantly lower than in NS + 2 (86.65%) and NS + 3 (85.56%)(p<0.02). For group 2, mean percent removed in NS (4.5%) was significantly lower than all NS + bicarb solutions (NS + 1 = 16.6%, NS + 2 = 21.45%, NS + 3 = 23.34%) (p<0.05 for each).

CONCLUSIONS: Addition of bicarb to saline more than doubles the dissolution rate of UA fragments, and fragments <0.5 mm can be completely dissolved in 1 hr. Addition of bicarb to NS may assist in dissolution of UA fragments during ureteroscopy, which may shorten operative times and reduce residual stone material in the kidney post-procedure.

Source of Funding: None
We report renal damage as a result of dietary-induced hyperoxaluria and calcium oxalate calculi in adult pigs (sows) fed hydroxyproline (HP). The purpose of this study was to grossly and histopathologically characterize intra-renal effects in this model.

INTRODUCTION AND OBJECTIVES: We previously reported hyperoxaluria and calcium oxalate calculi in adult pigs (sows) fed hydroxyproline (HP). The purpose of this study was to grossly and histopathologically characterize intra-renal effects in this model.

METHODS: In the swine facility at our campus, we maintained 21 gestating sows, of which 15 received daily treatment (10% HP mixed with dry feed) and 6 received no treatment (controls). Nine were sacrificed at 21 d (3 control, 6 HP). All kidneys were extracted and examined grossly and for radiographic evidence of stones (GE CT scanner, 80 kV, 400 MA, 1 sec rotation, 0.625 mm slices). Papillary and cortical samples were processed for histologic analysis.

RESULTS: Kidneys from treated sows showed significant calculi distributed within renal papilla on CT, appeared mottled in the renal cortex and papillary areas, and had less distinct corticomedullary borders. Tiny crystals and mucinous debris lined the papillary tips, calyces, and pelvis in kidneys from 4 of 6 treated sows, and multiple stones were noted at the papillary tips. H&E revealed crystals in collecting tubules and papillary tips in treated kidneys and none in controls (Fig 1). Yasue staining confirmed crystals in collecting tubules and papillary tips in treated kidneys and none in controls (Fig 1). Yasue staining confirmed crystals in proximal peri-glomerular tubules of treated but not control animals. Tubular dilation, and inflammatory/fibrotic changes were identified in kidneys from treated animals (Fig 2); none of these changes were evident in control kidneys.

CONCLUSIONS: We report renal damage as a result of dietary-induced hyperoxaluria in adult sows. Specifically, we found crystalluria in proximal peri-glomerular tubules and collecting ducts, with tubular damage at all segments.

Source of Funding: none

FIG. 1. papillary tips at 21 days, 4X magnification. H&E stain: (A) no crystals in CD kidney, and (B) crystals in TD kidney (arrows); Yasue stain: (C) no crystals in CD kidney & (D) crystals in TD kidney (arrows)

FIG. 2. Cortical section, 21 days, H&E 20x. (A) normal glomerulus in control kidney; (B) peri-glomerular inflammation and fibrotic changes (white arrow), with crystal in proximal tubule (black arrow), (C) tubules surrounded by multinucleated giant cells (arrows), (D) 10X magnification, radiating regions in renal cortex with widening of interstitium with extracellular matrix (arrows) interpreted as fibrotic changes.

MP1A-13 DIETARY HYDROXYPROLINE INDUCED CALCIUM OXALATE LITHIASIS AND ASSOCIATED RENAL INJURY IN THE PORCINE MODEL

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INTRODUCTION AND OBJECTIVES: We previously reported hyperoxaluria and calcium oxalate calculi in adult pigs (sows) fed hydroxyproline (HP). The purpose of this study was to grossly and histopathologically characterize intra-renal effects in this model.

METHODS: In the swine facility at our campus, we maintained 21 gestating sows, of which 15 received daily treatment (10% HP mixed with dry feed) and 6 received no treatment (controls). Nine were sacrificed at 21 d (3 control, 6 HP). All kidneys were extracted and examined grossly and for radiographic evidence of stones (GE CT scanner, 80 kV, 400 MA, 1 sec rotation, 0.625 mm slices). Papillary and cortical samples were processed for histologic analysis.

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CONCLUSIONS: We report renal damage as a result of dietary-induced hyperoxaluria in adult sows. Specifically, we found crystalluria in proximal peri-glomerular tubules and collecting ducts, with tubular damage at all segments.

Source of Funding: none

MP1A-14 THE RECOVERY OF URETERAL PERI- STALSIS AFTER TRANSIENT OBSTRUCTION IN A NOVEL MURINE MODEL

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INTRODUCTION AND OBJECTIVES: Ureteral obstruction in stone disease is the most common cause for disrupted ureteral peristalsis. While the impact of unilateral ureteral obstruction (UUO) on renal function has been addressed, information regarding how UOO affects ureteral function is limited.

Furthermore, erythropoietin (EPO), an endogenous hormone of the kidney, has been suggested to play protective roles against injury and damage in various organs. As such it may also be protective against the negative effects induced by UOO.

This study introduces a novel murine model of transient UOO that allows for the investigation of how the duration of UOO impacts the recovery of peristalsis, as well as whether EPO has protective effects on ureteral patency and function following UOO.

METHODS: Abdominal laparotomy and UUO was performed in CD-1 mice for 24 h (group 1; n = 6), 48 h (group 2; n = 6) and 72 h (group 3; n = 6) using a non-traumatic micro clamp. To test the protective effects of EPO as has been reported in the literature, n = 5 animals at each time point were given 200 IU EPO intra-peritoneally on four consecutive days prior to obstruction. Ureteral peristalsis was tracked bilaterally via video microscopy prior- and post-removal of the obstruction. The degree of hydronephrosis was assessed daily using ultrasound imaging.

RESULTS: The model’s technical success rate was 94%. The natural variation in bilateral peristaltic activity in each animal prior to UUO was not significant (15%, P = 0.19) to affect overall results. Hydronephrosis and aperistalsis were observed in all animals 24 h post-UUO. Following resolution of hydronephrosis, ureteral peristalsis was restored at 2 d (group 1), 6 d (group 2) and 8 d (group 3) post-obstruction removal. Despite the return of peristalsis, the activity in the previously obstructed ureters was significantly decreased in all groups. Overall, the period to resolution of hydronephrosis and recovery of ureteral peristalsis following UUO in all groups was significantly shorter in the EPO treated animals compared to un-treated groups.

CONCLUSIONS: Transient UUO significantly disrupts ureteral peristalsis, with the duration of obstruction being the major determining factor for the length to full recovery. EPO, when administered prior to UUO has protective effects on the ureters and significantly shortens the recovery period. The next steps will involve testing the protective functions of EPO when administered during and following UUO to determine whether this type of intervention could be used therapeutically.

Source of Funding: None

MP1A-15 RAMAN SPECTROSCOPIC COMPOSITION ANALYSIS OF URINARY CALCULI

Matthias Eder*, Elena Feditsch, Reinhold Zimmermann, Maurizio Musso, Guenther Redhammer, Paolo Sereni, Salzburg, Austria

INTRODUCTION AND OBJECTIVES: With accurate knowledge of urinary calculi composition followed by appropriate metaphylaxis, the recurrence rate can be reduced from 50 to 15%. Therefore, various guidelines routinely recommend calculus composition analysis by infrared spectroscopic or X-ray diffraction analysis after sample pulverization. Only few studies dealt with
non-destructive analysis of calculi by means of Raman spectroscopy, a technique complementary to infrared spectroscopy. Aim of this study is to evaluate the accordance accuracy of Raman spectroscopic methods with standard methods for urinary calculi composition analysis.

METHODS: Raman spectra of urinary calculi of 30 patient (stone size 2 mm–3 cm, removed from ureter and bladder in one case) were recorded using a Bruker FT-Raman spectrometer. Laser excitation at 1064 nm ensured low fluorescence disturbance for Raman spectra. A BioRad Raman database and own reference spectra were used to identify calculi composition. Raman spectroscopy requires no specific sample preparation, delivering spectral information from within the laser spot (0.1 mm diameter); infrared spectroscopy, on the other side, usually requires sample pre-treatment by pulverization, averaging information from the whole sample.

RESULTS: The results obtained by Raman spectroscopic composition analysis of the 30 cases were compared with those independently obtained by infrared spectroscopy, and in 5 cases with those additionally obtained by x-ray diffraction. Overall excellent accordance was obtained: neat calcium oxalate in 20 cases = 66%, neat uric acid in 2 cases = 6% and neat hydroxyapatite in 1 case = 3%. 6 of the remaining 7 cases dealt with mixtures of two or three components, some secondary calculi components not being detected by Raman spectroscopy. The 5 x-ray diffraction results are in very good accordance with the Raman results, 4 of them with corresponding infrared results, a disagreement being found for a third component of a mixture.

CONCLUSIONS: Raman spectroscopy proves to be a reliable method to identify compositions of urinary calculi. In contrast to established calculi analysis by infrared spectroscopy or x-ray diffraction, Raman spectroscopy doesn’t require specific sample preparation, but implies the risk of missing secondary components, if averaging over the whole sample is not performed. Future studies on whole calculi and their powders by Raman spectroscopic mixture analysis might provide information on the heterogeneities within given samples, and improve the metaphylaxis of urolithiasis.

Source of Funding: none.

INTRODUCTION AND OBJECTIVES: The metabolism that results in the formation of oxalate, an important component of most kidney stones, has not yet been resolved. Glyoxylate is the main precursor of oxalate. Hydroxyproline (Hyp) is a major source of glyoxylate as its breakdown produces an equimolar amount of glyoxylate which may be converted to glycolate, glycine or oxalate. This study was designed to examine the metabolism of Hyp using a primed, intravenous infusion of (13C515N)-Hyp.

METHODS: Five normal subjects were infused with 750 nmoles of (13C515N)-Hyp/kg/hr for 6 hrs in the fasted state after a priming dose equivalent to the amount to be infused in 2 hrs. Blood samples were obtained every 30 min and urine samples every hour. (13C515N)-Hyp was measured in plasma by GC/MS, 13C-glycolate in plasma by IC/MS, and 13C2-oxalate and 13C2-glycolate in urine by IC/MS.

RESULTS: Enrichment of plasma with (13C515N)-Hyp was constant from 4–6 hrs when it reached 19.0 ± 4.3%. Urinary oxalate was enriched by 2.4 ± 1.2% and glycolate by 11.9 ± 1.6%, indicating that the mean contribution of Hyp metabolism to total urinary oxalate excretion was 13.0 ± 5.5% and to urinary glycolate excretion was 63.4 ± 3.7%. There was an 18.5 ± 6.8% increase in the enrichment of urinary glycolate compared to the enrichment in plasma glycolate, suggesting that renal metabolism of Hyp contributed directly to the urinary glycolate pool. The total body flux of Hyp was calculated to be 3.93 ± 0.08 μmoles/kg/hr or 840 mg/day for a 70 kg individual.

CONCLUSIONS: These results suggest that Hyp metabolism is a major source of urinary glycolate and a minor source of urinary oxalate in normal subjects. As much as half of the urinary oxalate may have been obtained from the diet, Hyp metabolism may contribute at least 25% to the urinary oxalate derived from endogenous synthesis. The inability of subjects with Primary Hyperoxaluria to efficiently metabolize glyoxylate produced from Hyp breakdown may be a major source of endogenous oxalate production in this disease. Assuming that collagen is 14% Hyp and all of the body flux of Hyp is derived from the breakdown of endogenous collagen, total body flux of collagen is approximately twice that previously estimated.

Source of Funding: This research was supported by NIH grants R01DK83527 and U54DK83908.
INTRODUCTION AND OBJECTIVES: With the Uro Dyna-CT (Siemens Healthcare, Erlangen, Germany) you can perform interventional 3D- and cross-sectional imaging in the endourological operation. Radiopaque stone visibility with the Uro Dyna-CT depends on contrast agent dilution. Furthermore accuracy of stone measurement is essential for clinical decision making. The aim of our ex vivo study is to investigate the visibility and the accuracy of size measurement of renal stones of different compositions in specific contrast agent dilutions.

METHODS: We used 5 renal stones of different compositions: A (3.4 mm): 60% calcium-monohydrate + 40% calcium-dihydrate, B (5.9 mm): 60% carbonate-apatite + 40% magnesium-ammonium-phosphate, C (4.6 mm): 10% carbonate-apatite + 20% calcium-monohydrate + 70% calcium-dihydrate, D (5.4 mm): 40% calcium-monohydrate + 60% calcium-dihydrate, E (5 mm): uric acid. We first measured the maximum diameter of each stone with a caliper. Afterwards the stones were put into small plastic jars filled with contrast agent dilutions ranged from 10% to 100%. They were scanned in the Uro Dyna-CT with two specific stone protocols (“Urology stone”,”Urology stone low dose”). The images were evaluated regarding stone visibility and the largest diameters of the stones were measured at the workstation. The size of the stone measured with the caliper was compared to the size measured with the Uro Dyna-CT in the different contrast agent dilutions (CAD).

RESULTS: Stone visibility and accuracy of size measurement showed the best results with a CAD of 20% for stone A-D with both stone protocols, whereas stone A and D showed the best visibility at 10% and 40% with the Urology stone low dose and Urology stone protocol respectively. For stone E 30%-50% showed to be the best CAD. There is almost no difference between the two stone protocols regarding accuracy in size measurement of the different stones. (Table: Results).

CONCLUSIONS: In our ex vivo setting a contrast agent dilution of 20%-30% allows imaging and highly accurate measurement of different radiopaque and radiolucent stones independent. This seems to be the ideal contrast agent dilution for interventional 3D- and cross-sectional imaging with the Uro Dyna-CT.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: To investigate the mechanical property and *In vitro* Degradation of a polycaprolactone (PCL)/poly (lactic acid - glycolic acid)(PLGA) degradable ureteral stent.

METHODS: The PCL/PLGA ureteral stent was fabricated by electrospinning. The structure and properties of the stents were investigated by the mechanical property testing, scanning electron microscopy (SEM), degradability test in vitro.

RESULTS: The inner diameter of the tubular scaffold in our study was 1.0 mm and the outer diameter was 2.5 mm. The SEM results show that the scaffold has the nano-structure. The diameters of the fibers of different ratio of PCL/PLGA stents have no differences. The tension test showed that the mechanical property was enhanced with the increase in the proportion of the PCL. The degradation curves of different ratio of PCL/PLGA stent were close to a straight line. The 5% PCL/PLGA stent could collapse within 28 d, and the 15% PCL/PLGA and 25% PCL/PLGA could collapse within 42 d and 56 d, respectively.

CONCLUSIONS: The PCL/PLGA biodegradable ureteral stent has a good mechanical property and the degradation time can fully satisfy the demand of a ureteral stent.

Source of Funding: Supported by the National Natural Science Foundation of China (no. 50973043).

**MP1A-22 **BIOMECHANICAL PROPERTIES OF THE URETER: PRELIMINARY RESULTS

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INTRODUCTION AND OBJECTIVES: Ureteral injuries such as perforation and avulsion are directly related to mechanical damage of the ureter. Understanding the biomechanical properties of this tissue may assist in engineering efficient devices for urological applications, a better comprehension of pathological events in the ureter and prevention of iatrogenic injuries. While few studies looking on the mechanical properties of the animal ureter were reported, specific data on the tensile strength and elastic properties of the human ureter is unavailable. The purpose of this work was to study the biomechanical properties of the human ureter.

METHODS: After obtaining IRB approval, we harvested 6 human proximal ureters (4 male and 2 female) from patients who had nephrectomy for either renal cell carcinoma or nonfunctional kidney from August, 2012 to February, 2013. The ureters were immediately placed in saline at 4°C and tested within 48 hrs. The ureter was then cut into multiple circumferentially- and longitudinally-oriented tissue specimens for tensile testing. Initial dimensions of each tissue specimen were measured and then mounted and stretched to failure after ten cycles of preconditioning in a uniaxial tensile testing machine. The corresponding force and displacement was recorded and stress-strain curve was plotted. Finally, stress at failure was noted as the tensile strength of the sample. Circumferential tensile strength was also compared in the proximal and distal regions of the specimens.

RESULTS: The age of the patients studied was 66.5 ± 10.8 (mean ± SEM) years and BMI was 24.5 ± 1.8. The tensile strength of the ureter in circumferential and longitudinal orientations were found to be 538 ± 50 MPa and 1059 ± 197 MPa, respectively (p < 0.03). The circumferential strength in the proximal portion of the ureter was 501 ± 41 MPa in comparison to 575 ± 94 MPa in the distal portion (p = 0.15).

CONCLUSIONS: The circumferential tensile strength of the ureter was found to be significantly lower than the longitudinal. Additionally, the circumferential tensile strength of proximal segments of the ureter is lower than its distal segments, likely indicating the proximal portion of ureter is more prone to be damaged than the distal portion.

Source of Funding: none
MP1A-23 SPECTROSCOPIC TISSUE ANALYSIS OF RENAL ISCHEMIA AND RECOVERY DURING SEGMENTAL RENAL ARTERY VS MAIN RENAL ARTERY CLAMPING

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INTRODUCTION AND OBJECTIVES: Spectroscopic tissue analysis has been used to monitor changes in tissue vascular hemoglobin oxygen saturation during periods of tissue ischemia. Our goals were to utilize spectroscopic tissue analysis to quantify renal ischemia during hilar clamping and to compare tissue vascular hemoglobin oxygen saturation levels while clamping the main renal artery versus clamping segmental renal arteries using a laparoscopic porcine model.

METHODS: Institutional Animal Care and Use Committee approval was obtained. Spectroscopic renal ischemia was measured before, during and after laparoscopic hilar clamping of 8 Yorkshire swine renal units. Spectroscopic renal measurements (n = 257) were obtained at baseline (prior to selective renal hilar clamping), every 30 seconds during warm ischemia (5 min trials) and for 10 minutes after unclamping. Times to 10% of max hemoglobin saturation after clamping were recorded as ischemic times, while times to 90% of max hemoglobin saturation after unclamping were recorded as reperfusion times. Trials clamping the main renal artery were compared to clamping a segmental renal artery.

RESULTS: When the main renal artery was clamped, the drop in tissue ischemia occurred faster than compared to segmental artery clamping (22.3 vs 45.5 sec). In addition, during segmental artery clamping, tissue spectrometry levels remained higher when the probe was placed in regions not perfused by the clamped segmental artery. Upon reperfusion, mean renal spectrometry saturation levels returned to baseline slower when the main renal artery was clamped compared to when only a segmental renal artery was clamped (53.8 vs 45.5 sec).

CONCLUSIONS: Tissue spectrometry demonstrated a reproducible measurement of the drop in tissue oxygen saturation during periods of renal ischemia in a porcine model. Spectrometric tissue analysis during main renal arterial clamping demonstrated more significant drops in tissue oxygen saturation and slower recovery of tissue ischemia when compared to clamping a segmental renal artery alone. Further studies correlating tissue spectrometry to renal function recovery following hilar clamping are underway.

Source of Funding: none

MP1A-24 NOVEL BIOMARKERS TO MEASURE CHANGES IN KIDNEY FUNCTION IN THE ADULT HUMAN

Sree Harsha Mandava*, Benjamin Woodson, Liang Wang, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Acute kidney injury (AKI) can occur spontaneously or iatrogenically, and rates of AKI continue to rise over the last two decades despite improvements in clinical care and development of preventive strategies. Serum creatinine (sCr) is the current gold standard for measuring changes in kidney function and identifying AKI. Detection of AKI by sCr, however, is delayed. Biomarkers may represent an earlier assessment of changes in kidney function.

METHODS: A systematic review of the current literature was performed, looking at urinary biomarkers and evaluate their ability to measure change in kidney function. Specifically, neutrophil gelatinase-associated lipocalin (NGAL), N-acetyl-beta-D-glucosaminidase (NAG), Interleukin-18 (IL-18), kidney injury molecule-1 (KIM-1), liver fatty-acid-binding protein (L-FABP), and cystatin-C were examined due to the ability to readily test human urine/serum with their respective kits.

RESULTS: Analysis of these biomarkers reveals that they individually have unique strengths and weaknesses that can provide different types of information about patients. Several urinary biomarkers, have shown an ability to predict AKI days before an elevation in sCr, and a few even seem to predict AKI-related morbidity and mortality better than sCr alone. Urinary excretion of NGAL increased gradually from baseline levels of 9.6 ± 2.8 to a maximal value of 271.9 ± 34.3 ng/min (P < 0.05), 4 h after the induction of the renal injury. A similar trend in urinary excretion of KIM-1 was seen with a gradual increase in urinary KIM-1 from baseline levels of 2.71 ± 0.67 to maximal levels of 182.6 ± 77.08 ng/min (P < 0.05), 3 h after renal insult.

CONCLUSIONS: Currently, NGAL is the urine biomarker with the most promise as an individual marker. However, combining multiple markers to form a ‘biomarker panel’ along with sCr is an improvement over current clinical risk prediction models alone, and may be able to provide more individualized detail about the type and location of renal injury.

Source of Funding: none

MP1A-25 INCIDENCE OF HYBRID TUMORS FOUND IN EXCISED RENAL MASSES: A MULTI-INSTITUTIONAL ANALYSIS

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INTRODUCTION AND OBJECTIVES: The use of renal biopsy has gained popularity in recent times as an adjunct in the work up
of renal masses, particularly small renal masses (\(<4\) cm) suspicious for renal cell carcinoma (RCC). Our present study attempts to quantify the prevalence of tumors that contain more than one histology as a means of determining the potential accuracy of renal biopsy.

METHODS: In this IRB-approved, multi-institutional study, a retrospective review of renal masses excised between the years of 1999–2012 was performed. Patients and masses were included in the study if information pertaining to demographics and pathologic stage, mass size, and histology were present, respectively. Tumors were considered to be hybrid tumors if more than one distinct histology was reported in the final pathology. Granular cell RCC was considered a variant of clear cell RCC and, therefore, these masses were considered non-hybrid tumors. Statistical analyses were completed with paired T-tests and Chi Squared analysis, where appropriate. All analyses were completed using Microsoft Excel.

RESULTS: A total of 203 tumors were included in the analysis. Table 1 summarizes the patient demographics and results of the study. Of the entire cohort, 21 tumors (10%) displayed more than one distinct histology. The differences in mass size and age of patients between the two sub-groups were not statistically significant. There was a greater proportion of pT1a lesions in the hybrid tumor group compared to the single histology group (\(p=0.03\)).

The breakdown of each hybrid tumor with its described histology is listed in table 1. A majority of the hybrid tumors were pT1a and were a combination of clear cell and papillary cell RCC. Thirteen of the hybrid tumors were smaller than 4 cm in size and three of these showed a combination of a malignant and benign histology.

CONCLUSIONS: A majority (62%) of the hybrid tumors reviewed in this analysis were pT1a. Approximately 30% of these tumors contained a benign component mixed with a malignant component. This finding should be taken into consideration when interpreting a benign renal biopsy for a small renal mass. A larger analysis with more masses needs to be completed to validate the above findings.

Source of Funding: none

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MP1B BASIC RESEARCH: UROLITHIASIS

MP1B-01 A URETEROSCOPIC LITHOTRITE: IN VITRO ASSESSMENT OF A NOVEL FLEXIBLE PROBE ULTRASONIC INTRACORPOREAL DEVICE

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INTRODUCTION AND OBJECTIVES: Recently, a flexible ultrasonic lithotrite probe has been developed (UreTron, MedSonic Corp., Erie, PA) for use with a flexible ureteroscope. This novel device has potential application in the treatment of stones where probe deflection may be an advantage. We conducted in vitro testing of the UreTron flexible probe to assess the effect of ureteroscope deflection on stone comminution.

METHODS: A hands-free in vitro test system was designed to objectively assess the efficiency of stone penetration by the UreTron US-flex-probe. The US-flex-probe was passed through the working channel of a Wolf Cobra flexible ureteroscope. The Cobra was mounted upright with the probe extending into a water-filled, optically clear test chamber. Deflection angle was set at 0, 15 or 30 degrees. The US-flex-probe was advanced 5 mm past the end of the Cobra and a gypsum artificial stone was centered on the probe tip with a counter weight atop the stone to provide constant force. Irrigant flow through the US-flex-probe was set at 15 ml/min. The UreTron was operated on the hard-stone setting and time for stone penetration was measured.

RESULTS: All six UreTron probes tested were able to penetrate the test stone material at an average rate of 2.25 mm/min. However, the probes did differ significantly in penetration rate, with average times ranging from a slowest value of 2.02 +/− 0.14 mm/min to the fastest of 2.50 +/− 0.16 mm/min (\(P<0.0001\) by multi-factor ANOVA). Deflecting the tip of the ureteroscope by 30 degrees reduced the stone penetration rate by an average of 3.4% compared with no deflection (\(P=0.02\)). The probes performed well long after the manufacturer’s stated life-time of 7 minutes, with a fall-off of penetration rate of only 5.3% on average after 30 minutes of use.

CONCLUSIONS: The ability of the UreTron flexible ultrasonic probe to fragment stones is quite novel. Assessment using our hands-free in vitro test system, in which stone penetration time is not affected by operator bias, shows that increased angle of deflection affects the performance of the probe. Further in vitro and in vivo testing is warranted.

Source of Funding: Supported by NIH DK43881

MP1B-02 ACTIVITY LEVELS AND STONE DISEASE: A POPULATION BASED ANALYSIS USING THE NATIONAL HEALTH AND NUTRITION EXAMINATION DATABASE

Shubha De*, Jiangbo Li, Fabio Torricelli, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: A recent analysis of the Women’s Health Initiative Study found an inverse relationship between kidney stone risk and the amount of activity in post-menopausal women. Our objective was to see if this association held true when using representative national survey data (NHANES 2009–2010).

METHODS: National Health and Nutrition Examination Survey data was used from 2009–2010. Data from patients answering the question, “Have you ever had a kidney stone?” were analyzed. We then compared the responses from the Physical Activity Survey, including 5 questions on recreational and work-related measures of moderate to vigorous activity. We then compared stone formers and non-stone formers in relation to HDL levels. Chi-square and student’s t-tests were used using SASv9 (significance level \(p<0.05\)).
RESULTS: When asked ‘Have you ever had a kidney stone?’ 642 subjects answered yes (292 male, 250 female), and 5659 answered no (between 20–80 y/o). The relative risks in respect to kidney stones, favored those who: participate in moderate activity for at least 10 minutes continuously (RR=0.889, p<0.001); participate in vigorous physical activity (RR 0.624, p<0.001); walk or bicycle as a form of transportation (RR=0.661, p<0.001). Those who were involved with moderate activity at work, showed no difference in stone risk (p = 0.341). HDL levels were also found to be significantly lower in those with stones, as compared to those without (49.4 vs. 52.9, p<0.001).

CONCLUSIONS: Using the NHANES database, subjects who were more active, had lower RR in respect to kidney stones. Using HDL as a surrogate for activity levels also illustrated non-stone formers have more favorable profiles.

Source of Funding: none.

MP1B-03 THE VALUE OF REPEATING A TEST: METABOLIC PROFILES

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INTRODUCTION AND OBJECTIVES: Most dedicated stone units will use 24 hour urine collection as part of their metabolic profile for stone formers, and this may be used as the basis for recommending dietary changes or commencing medications such as diuretic therapy. However, the value of such a ‘snapshot’ assessment is unclear, and we aim to review the variability of these assessments.

METHODS: We reviewed all patients that underwent a 24 urine collection in our metabolic unit, for those with a history of recurrent stone formation. We compared the serum and urinary biochemistry, and aimed to review the variability of diagnosis of altered urinary calcium, oxalate, urate and phosphate in such patients, with the test repeated at different intervals.

RESULTS: From a total of 140 patients, there were 46% who underwent repeated 24 hour urine profiles at some stage. Of these 23 patients had 3 or more 24 hour urine collections performed, without any change in medication between studies. There was persistent hypercalciuria in 3, hyperoxaluria in 1 patient, and none with persistent hyperuricosuria in repeat samples. The picking up rate of abnormalities showed little difference between samples 2 and 3.

CONCLUSIONS: We found no significant difference in variability of 24 urine collections after 2 samples at discrete times, suggesting that while there may be benefit in repeating the sample, there may be little benefit in undertaking this more than twice before instuting medical therapy; nevertheless, there was a degree of variability after the first test to warrant a repeat sample.

Source of Funding: None

MP1B-04 CHANGING TRENDS IN AMERICAN DIET AND THE RISING PREVALENCE OF KIDNEY STONES

Fabio Torricelli*, Shubha De, Xlaobo Liu, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: It has been postulated that changing dietary habits may play a role in the prevalence of nephrolithiasis. The United States Department of Agriculture (USDA) annually accounts for all food available for human consumption (adjusting for export, spoilage, waste, etc). Our objective was to evaluate changing trends in the American diet from 1974–2010 and to identify whether caloric intake and the consumption of lithogenic foods has been rising.

METHODS: Prevalence values from NHANES survey data, were compared to USDA data on food distribution during the same period (1974–2010). Three data points for prevalence spanning 38 years were used from the literature to create two linear models, interpolating the yearly increase in stone prevalence. Changes in lithogenic foods were then correlated with increasing stone prevalence.

Spearman correlations were performed (p<0.05), using SAS 9.2.

RESULTS: Increased total daily calories (Rho 0.96, CI 0.86–1.00, p<0.001), fat grams (Rho 0.79, CI 0.55–1.00, p<0.001), protein ounces (Rho 0.85, CI 0.67–1.00, p<0.001), and fruit/vegetable (Rho 0.73, CI 0.49–0.97, p<0.001) correlated strongly with the annual increase in stone prevalence. Specific foods also showed strong correlations with stone prevalence, including dark green vegetables, flour/cereal products, fish/shellfish, corn products (including high fructose corn syrup) and added sugars. Citrus juice was negatively correlated to stone disease (Rho −0.18, CI −0.52–0.17, p=0.31) though not significant.

CONCLUSIONS: Several lithogenic components correlate temporally with the simultaneous increase in stones. Whether these correlations are incidental or causal is difficult to determine. The American diet has clearly changed over the last four decades and further investigation is required to better evaluate how this may impact the national prevalence of nephrolithiasis.

Source of Funding: none

MP1B-05 HOW MUCH FORCE TO DISLODGE A STONE FROM RANDALL’S PLAQUE? INTRAOPERATIVE DISTRACTION FORCES

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INTRODUCTION AND OBJECTIVES: Attachment forces of adherent stones have implications for defining the physiologic or applied forces required for stone detachment. As such, in situ distraction forces were measured to characterize stone distraction forces.

METHODS: With IRB approval patients were consented. A Flexiforce hand-held digital force transducer was modified and affixed to a Halo endoscopic basket (Sacred Heart Medical, MN) to measure the maximal distraction force at which a stone was detached for the renal papilla.

RESULTS: One patient (33 yo female, BMI 23) undergoing flexible ureteroscopy was found to have 9 stones (3–5 mm) adherent to
the papillae. Stone composition was mixed (CHP 40%, CaP 40%, MAP 20%). Distraction forces ranged from 0.06–0.318 lb, with an average force 0.16 ± 0.099 lb.

**CONCLUSIONS:** The clinical importance of distraction forces is applicable to ureteroscopy and novel non-invasive techniques (i.e. ultrasound repositioning, magnetizing microparticles, etc.) for stone manipulation. Defining the distraction forces will help in the design and implementation of these new modalities. Further study is needed to define the impact of stone specific characteristics (size, composition, location) on distraction forces.

**Source of Funding:** none

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**MP1B-06 UPPER CALYCEAL PERCUTANEOUS NEPHROLITHOTOMY (PCNL) UNDER SPINAL ANESTHESIA: A PROSPECTIVE STUDY**

Haresh Thummar*, R Ganatra, Rajkot, India

**INTRODUCTION AND OBJECTIVES:** Spinal anesthesia has been used for lower limb surgery with a stable cardiovascular state and a short recovery unit stay. We sought to test the suitability of low-dose bupivacaine spinal anesthesia for percutaneous nephrolithotomy, a procedure hitherto performed under general anesthesia. Aim of our study is to compare Spinal Anesthesia with General anesthesia in patients undergoing PCNL for upper calyceal puncture.

**METHODS:** We performed prospective study of 32 patients in each group of patients undergoing PCNL at our institute Group A; PCNL under spinal anesthesia and group B under General anesthesia and studied various parameters. We use spinal anesthesia drug bupivacaine 5 mg/ml alone or with the addition of 10 μg of fentanyl. Drugs were given at the L_2–L_3 interspace in the patient in the sitting position. The Patients remained in this position for 10 min, after which the sensory and motor blocks were assessed.

**RESULTS:** The sensory and motor blocks after intrathecal bupivacaine and bupivacaine-fentanyl were similar. Sensory block, reached the fifth dermatomes, deep motor block occurred all patients. The patients in the bupivacaine-Spinal anesthesia group required less intra-operative and post-operative analgesics, and both patients and endoscopists were better satisfied. Both groups were matched in age, stone burden, gender. There was no significant difference in both the groups for parameters like operative time, intraoperative complications, pelviccalyceal access, bleeding, stone free rate or post operative complications. But cost was significantly less (10 time s at our hospital, 150 Rs. VS 1600 Rs.) with group A apart from quick recovery from anesthesia, safe in high risk patients. Two patients required supplementation with sedation or ketamine as these patient required little longer time for stone free. Post operative pain was significantly less in group A. All patients were comfortable except mild pain in chest during PCNL when they were post operative period. Post operative analgesic effect and respiration was significantly better in spinal group. PCNL underSpinal anesthesia demand more technical skill for access.

**CONCLUSIONS:** This study demonstrates Spinal anesthesia is safe, reliable and as effectiveas GA but superior analgesia, at very low cost without affecting outcome for patients subjected to percutaneous nephrolithotomy, with stable haemodynamics, good post-operative analgesia and acceptable to patient and endoscopist satisfaction.

**Source of Funding:** none

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**MP1B-07 DEVELOPMENT OF A NOVEL ACCESS SHEATH THAT ALLOWS SIMULTANEOUS SHEATH PLACEMENT AND SAFETY WIRE ACCESS**

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**INTRODUCTION AND OBJECTIVES:** Ureteral access sheaths (UAS) have been shown to facilitate repeated access to the ureter and intrarenal collecting system, reduce intrarenal pressures, decrease operative times, and improve visibility. It remains a general dictum to have a safety guidewire when using access sheaths. In order to harness the advantages of both UAS and safety guidewire access, we are helping with the development of a novel prototype with Cook Medical (Bloomington, IN) that establishes safety wire access and sheath placement simultaneously.

**METHODS:** Three possible Flexor Parallel Ureteral Access Sheath (FPUAS) (Cook Medical, Bloomington, IN) prototypes; a narrow slit, a wide slit and a spiral slit, were evaluated with 3 types of 0.035” access wires; a standard guidewire, a super-stiff guidewire, and a glide wire, in a porcine kidney/ureter/bladder model (Sierra Medical Sciences Inc, Whittier, CA). Both FPUAS control sheath were engaged and advanced to target in a coaxial manner, the force required to advance was quantified using a digital pressure sensor (Percsys, Palo Alto, CA). Ability of the prototype to stay on the access wire, ease of deployment and ureteroscopy of collecting system were assessed.

**RESULTS:** Altogether 20 trials were performed. It was found that only the narrow slit with a super stiff wire was 100% successful in all attempts at insertion of the flexor parallel access sheath. There were no cases of wire slippage when this configuration was used. The spiral prototype was the most challenging as it would catch the wire and drag it along in the ureter leading to failure of sheath advancement. The wide slit had the lowest advancement force (0.71 lbs) but any advantage was negated by failed insertions as the access sheath slipped off the wire in 100% of the trials. Advancement forces for the narrow slit prototype were found to be about 5 times higher than with a standard access sheath but not clinically significant (2.59 lbs vs 0.51 lbs). Flexible ureteroscopy in all cases did not reveal any significant trauma to the porcine ureters.

**RESULTS:**

1. **Step 1**: The wire is inserted into the access sheath.
2. **Step 2**: The wire is advanced through the sheath.
3. **Step 3**: The wire is positioned at the target site.
4. **Step 4**: The wire is secured using a safety wire.
5. **Step 5**: The sheath is removed, leaving the wire in place.
CONCLUSIONS: The narrow slit prototype was the most successful prototype. FPUAS facilitates safe simultaneous placement of ureteral access sheath and a safety wire. Further evaluations will have to be carried out to determine its effectiveness in humans.

Source of Funding: none

MP1B-08 DISSOLUTION KINETICS OF URIC ACID STONES IN RELATION TO URIC ACID SOLUTION CONCENTRATION. AN IN VITRO STUDY

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INTRODUCTION AND OBJECTIVES: Dissolution by oral medications is the treatment of choice for non-obstructing renal uric acid (UA) stones. The major goal is urine alkalization, preferably to pH 6.5–7.0. Data on the effect of lowering the urinary uric acid concentration on the chemolitholysis rate of uric acid stones are sparse. According to current practice, allopurinol is indicated for hyperuricosuria and its impact in the common uric acid stones former, who have a normal-range uric acid concentration, is unknown. The aim of this in vitro study was to evaluate the dissolution kinetics of pure uric acid stones in several alkaline solutions (pH 6.8) with various concentrations of uric acid.

METHODS: Whole and fragmented stones were obtained during percutaneous nephrolithotomy – PCNL and examined for crystalline structure by X-ray diffraction. Time-Resolved UV-Visible spectroscopy (wavelength 290 nm) was used to measure the dissolution kinetics of the uric acid stones, which are proportional to the rate of change in uric acid concentration in the solution. Solutions containing zero, normal-physiologic, and high concentrations of uric acid were tested (0, 50, 80, and 130 mg/dl).

RESULTS: Figure 1 shows that as the concentration of uric acid decreases, the dissolution rate of the uric acid stones increases. This effect was more significant for the lower range of concentrations. The most dramatic change was observed at uric acid concentrations of 0 to 50 mg/dl, which were associated with a tripling of the dissolution rate.

CONCLUSIONS: Lowering the urine uric acid concentration, even within the normal range (31–91 mg/dl), greatly enhances uric acid stone dissolution in vitro. This finding may suggest a benefit for allopurinol also in patients with normal uric acid levels. Further clinical trials are needed to confirm these findings.

Source of Funding: none

MP1B-09 EFFECT OF HYDROPHILIC EXTRACT OF ALHAGI MAURORUM ON ETHYLENE GLYCOL-INDUCED RENAL STONE IN MALE WISTAR RATS

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INTRODUCTION AND OBJECTIVES: Alhagi maurorum is one of the herbal medicine that routinely use for passage of urinary stones. Aim of this study is defining the effect of hydrophilic extract of Alhagi maurorum on ethylene glycol-induced renal stone in male wistar rats.

METHODS: In this experimental study 40 male Wistar rat randomly allocated in four groups and studied during 30 days. Two groups of healthy and prophylactic control received usual water and 1% ethylene glycol in water respectively during study. Prophylactic groups of low dose and high dose extract in addition to 1% ethylene glycol in water daily gavaged with 500 mg/kg and 1000 mg/kg extract respectively. All rats was hold in metabolic cages in days 0,15 and 30 and 24 hours urine sample was taken. After 30th day rats anesthetized with ether and after taking serum sample from them for measurement of calcium, uric acid and creatinine they killed and their kidneys removed and send for pathology and were examined for presence and volume of calcium oxalate crystals.

RESULTS: There was no significant difference between complexes of oxalate calcium crystals between studied groups. also comparison of urinary oxalate in 30th day was showed that urinary oxalate concentration in preventive and negative control groups were significantly more than positive control group (p < 0.05). urinary oxalate concentration in preventive groups were less than negative control that was significant (p <0.05).measurement of biochemical factors in 30th day was showed significant rising of serum creatinine in negative control group in comparison to positive control (p<0.05), but there was no significant difference between preventives groups with positive control.

CONCLUSIONS: Hydrophilic extract of Alhagi maurorum with regard to reduction in urinary oxalate concentration may be effective in prevention of urinary calcium oxalate stones in rat as a suitable model for human stones, although it has no significant effect in rate of calcium oxalate crystal formation.

Source of Funding: Medicinal Plant Research Center, Yasuj University of Medical Sciences

Histologic view of Calcium oxalate crystal in rat renal tubules: H × E stain Zoom 10 × 40

MP1B-10 COMPARISON OF THE IMPACT OF NANO-SECOND ELECTROPULSE AND ELECTROHYDRAULIC LITHOTRIPTERS ON URINARY TRACT TISSUE

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INTRODUCTION AND OBJECTIVES: Endoscopic techniques and lithotripsy procedures have become the leading methods for nephrolithiasis and ureterolithiasis treatment in recent years. This study aims to compare the safety of two principal electrical
discharge lithotripsy methods — electrohydraulic lithotripsy (EHL) and novel nanosecond electropulse lithotripsy (NEPL). While they appear similar, they employ different principles of stone fragmentation that affect their safety and efficacy.

**METHODS:** Safety tests were conducted in this study on human ex-vivo tissue samples harvested after nephrectomy, ureterectomy and cystectomy procedures. A fragment of the sampled material was first placed in a tray filled with saline solution and a lithotripter discharge was then applied. The time between taking of the samples and application of pulse energy did not exceed 2 min. The closest energy settings and probe sizes were used for each pair of probes in the comparison. Representative samples from the urinary tract (renal calyx, pelvis, ureter and bladder) were selected. Probe positions were chosen as follows: distance from sample – 0, 1 and 3 mm; angle between probe and sample surface – 0°, 45° and 90°. The criterion used for terminating the experiment was observed tissue perforation. Histological analyses of the samples were also performed.

**RESULTS:** Perforations and damages to kidney parenchyma were observed following EHL treatment of calyx paries under minimal energy parameters. In contrast, no visible damage was observed with NEPL. An increase of EHL pulse energy to maximum level, 45° angle and contact distance caused a complete rupture of the pelvis walls while minor visual color change of the mucous was observed for NEPL only when in direct contact with tissue and at probe angles of 45° and 90°. Similar wall perforation was observed using EHL in the ureter and bladder. Under the same parameters NEPL produces only slight damage to mucosal tissue.

**CONCLUSIONS:** From these results, we can conclude that under test conditions EHL causes significant tissue damage. On the other hand, while NEPL may sometimes cause damage at the microscopic level, such damage does not have irreversible consequences. These findings demonstrate that NEPL is safer and behaves quite differently from EHL. These results can be explained by the different energy transfer mechanisms in the compared lithotripters: while energy in NEPL is transferred to the stone by direct discharge penetration into a solid, the energy of the EHL is transferred through liquid medium creating a damaging shock wave.

**Source of Funding:** None

**MP1B-11 STUDY OF THE DIFFERENCES BETWEEN NANOSECOND ELECTROPOLE AND ELECTROHYDRAULIC METHODS OF LITHOTRIPSY**

Alexey Martov, Moscow, Russian Federation, Alexander Gudkov*, Tomsk, Russian Federation, Valery Diamant, Gennady Chepovetsky, Katrin, Israel, Marat Lerner, Tomsk, Russian Federation

**INTRODUCTION AND OBJECTIVES:** Endoscopic fragmentation of calculus can be achieved with various lithotripsy methods. To overcome the shortcomings of lithotripters now in use, a novel nanosecond electropulse lithotripter has been developed that employs electric pulses with nanosecond rise time and duration.

The purpose of this study is to compare nanosecond electropulse lithotripsy (NEPL) and electrohydraulic lithotripsy (EHL) in order to demonstrate the differences between these stone fragmentation methods. While apparently similar since they are both based on electrical discharge, these methods differ according to the principles of fragmentation that they employ.

**METHODS:** Two types of BegeStone phantom were used in order to simulate hard and soft uroliths. The stones were placed on a grid with 2 x 2 mm cells immersed in saline. The experiment was terminated when the objective of clearing the fragmented stone through the grid mesh was achieved. The number of pulses required to fragment the stones was recorded per probe size and energy setting. Comparable energy settings and probe sizes were used in each method. The results were statistically evaluated.

**RESULTS:** In the testing, NEPL cleared 100% of the stones while EHL had a success rate of 92%. The criterion chosen for comparing the efficiency of each method was cumulative energy. Cumulative energy and the number of pulses required for fragmentation of stones were found to increase with stone density and pulse energy. The data demonstrated that NEPL requires much less energy to clear stones than EHL. The specific volumetric energy needed by the devices for fragmenting stones demonstrated various dependent relationships between the energy for clearing phantoms and both stones density and probes diameter. The average total specific energy required for stones fragmentation using NEPL was 4 times lower than that for EHL.

**CONCLUSIONS:** Various dependences of the received results as functions from stones density and probe sizes have been ascertained. The findings demonstrate that NEPL is more effective and requires fewer pulses and correspondingly less time for stones fragmentation than EHL. These results are explained by the different energy transfer mechanisms at work in stone destruction in the compared lithotripters: while energy in NEPL is transferred to the stone due by direct discharge penetration into a solid state, energy in the electrohydraulic mechanism is transferred through the liquid medium, which also creates a damaging shock wave.

**Source of Funding:** None

**MP1B-12 COMBINATION OF RIGID URETEROSCOPY WITH FLEXIBLE URETEROSCOPY DOES NOT HAVE ANY NEGATIVE IMPACT ON THE OUTCOMES**

Erdal Alkan, Mirac Turan, Oguz Ozkanli, Egemen Avçý, Mehmet Murad Basar, Yusuf Oguz Acar, Derya Balbay*, Istanbul, Turkey

**INTRODUCTION AND OBJECTIVES:** To compare the effectiveness and complication rates of rigid ureteroscopy combined with flexible ureteroscopy to rigid ureteroscopy alone.

**METHODS:** A comparison between patients underwent RIRS following rigid ureteroscopy (group I, n = 35) simultaneously and a matched control group of patients undergoing rigid ureteroscopy alone (group II, n = 35) was done. Patient with symptomatic renal stones were excluded. Stone free rates (SFRs) were defined as the absence of stone fragments or asymptomatic insignificant residual fragments < 4 mm. In cases of multiple stones, the total stone burden was calculated as the sum of each stone size.

**RESULTS:** Mean ureteral stone size was 7.4 ± 0.44 mm (3–16) and 10.5 ± 1.03 mm (4–21) in groups I and II, respectively (p = 0.007). Mean renal stone size was 13.3 ± 1.45 mm (2–15), and SFR for intrarenal stones was 94.3%. Residual stone fragments larger than 5 mm remained in 2 patients who had multiple (4 stones) and heavy stone burden (total stones dimension was 25 mm). Mean operative time was 55.4 ± 3.28 minutes (30–95) and 28.4 ± 2.66 minutes (10–90) in groups I and II, respectively (p < 0.001). RIRS for asymptomatic renal stones increased the mean operative time for 27.0 ± 0.62 minutes. DJIs were left in 30 and 17 patients in groups I and II, respectively (p = 0.001). Hospital stay and complications rates were similar in both groups.
**CONCLUSIONS:** Simultaneous endoscopic treatment of the ureteral and ipsilateral asymptomatic renal stones significantly prolongs duration of surgery, increases use of DJS, and elevates SFRs. It does not affect hospitalization and complication rates.

**Source of Funding:** none

**MP1B-13 SIZE-MEASUREMENT OF RENAL STONES WITH THE URO DYNAC-CT**

Benjamin Meister*, Marie-Claire Rassweiler, Christel Weiß, Maurice-Stephan Michel, Axel Haecker, Manuel Ritter, Mannheim, Germany

**INTRODUCTION AND OBJECTIVES:** Residual stone fragments after percutaneous stone removal (PCNL) are a common issue. The size of the residual fragments is the main criterion if further interventions such as URS, ESWL or second look PCNL need to be done or not. Respecting recent literature clinical significant stone fragments are ≥ 4 mm. The most sensitive tool for stone detection, especially of small size is computed tomography. Since the implementation of the Uro Dyna-CT in the endourological operation room in Mannheim (Germany) we have the possibility of 3D- and cross-sectional imaging already during the intervention with excellent image quality and low radiation dose especially for hard contrast depiction. In our study we investigated the accuracy of imaging and measurement of stone fragments with the Uro Dyna-CT.

**METHODS:** We measured 27 artificial stones (plaster of Paris) using a digital caliper. Afterwards the stones were embedded in small plastic jars filled with plasticine and scanned with the Uro Dyna-CT in a randomized order. Cross-sectional and 3D-images were reconstructed. The major diameter of each stone was measured blinded at the workstation. The difference between the measurements was statistically evaluated using the paired t-test, calculating an 95% reference area for the differences between the measurements, calculating an intraclass correlation coefficient (in order to see if there is a relation between the two measuring methods) and doing a Bland-Altman-Analysis to check if the abbreviations depend on the measuring area.

**RESULTS:** Range of stone sizes was 3 to 5 mm. Mean size of the calculi measured with Uro Dyna-CT was 4.21 mm ± 0.64, mean size of the calculi measured with caliper 4.10 mm ± 0.61. Mean difference in the statistical analysis of the diameter differences between caliper and Uro Dyna-CT was 0.12 mm ± 0.66. Intraclass correlation coefficient was 0.44647 (p = 0.0088), which shows that there is a significant correlation between the two measuring methods. Furthermore there were no significant differences in the size of the stones measured in the Uro Dyna-CT and measured with caliper (p = 0.3597).

**CONCLUSIONS:** Radiopaque artificial stone fragments can be measured highly accurate with the Uro Dyna-CT. In the future further studies need to prove, how residual stones can be detected and measured with the Uro Dyna-CT in vivo.

**Source of Funding:** none

**MP1B-14 IS LYMPHOCYTOPENIA A NEW MARKER FOR PYONEPHROTIC OBSTRUCTED KIDNEYS (POK) SECONDARY TO URINARY STONE DISEASE?**

Ahmed Ali*, Liam Farrell, Bhaskar Somani, Southampton, United Kingdom

**INTRODUCTION AND OBJECTIVES:** Leucocyte abnormalities are seen in severe urinary infections. Lymphocytopenia has been used as a marker for infections and trauma. We wanted to see if it has significance in Pyonephrotic obstructed kidneys (POK) secondary to urinary stone disease.

**METHODS:** Between Aug 2009-Aug 2012, patients with POK requiring percutaneous nephrostomy (PCN) were reviewed. Clinical presentation, radiological findings, microbiological culture, renal function and final treatment outcome were recorded. Leukocyte, neutrophil, lymphocyte counts and CRP were extracted from the daily complete blood count (CBC). Lymphocytopenia was defined as lymphocyte count < 1.5.

**RESULTS:** Thirty-nine patients with a mean age of 55 years (range:22–92) had PCN for POK. Lymphocytopenia was seen in 25/39 (64%) patients with a mean lymphocyte count of 1.3 (range: 0.1–3.8). Following PCN, it improved in majority of cases (87%) with severe lymphocytopenia (count < 1) associated with a significant rise in CRP in all cases. Lymphocytopenia was also associated with positive urine/blood culture in nearly two-third of patients. The mean leucocyte count, neutrophil count and CRP were 14.3 (1.8–34.6), 11.6 (1.4–31.6) and 205 (4–483) respectively. Renal dysfunction was seen in 15 patients (60%) with lymphocytopenia and 6 patients (42%) with normal lymphocyte count. The mean stone size was 14 mm (4–50 mm) with half stones in the PUJ (n = 13) or upper ureter (n = 7).

**CONCLUSIONS:** Lymphocytopenia seems to be associated with the severity of infection and could be a surrogate marker for initial diagnosis and monitoring response to treatment in patients with pyonephrotic obstructed kidneys.

**Source of Funding:** Nil

**MP1B-15 AN IN VITRO COMPARISON OF THE USE OF ABDOMINAL AND BONE WINDOWS ON COMPUTED TOMOGRAPHY MEASUREMENTS OF HOUNSFIELD UNITS AND SIZE OF STONES**

Paul Erotocritou*, Miles Walkden, Daron Smith, London, United Kingdom

**INTRODUCTION AND OBJECTIVES:** Unenhanced computed tomography (CT) is the investigation of choice in stone...
management, with CT providing the ability to size stones and plan subsequent management. More recently the measurement of the Hounsfield Unit (HU) of a stone has been eluded to give indirect evidence to stone composition/hardness which in turn adds another preoperative factor to consider in stone management. Furthermore, the accuracy to which stones may be sized has been suggested to vary according to the windows used on CT to analyse the images.

The objective of this study was to determine in vitro the effects on size and HU readings depending on the window used for analysis.

METHODS: Fragments of stone retrieved during percutaneous nephrolithotomy (PCNL) were suspended in gelatin within a specimen pot. These set stone samples were then scanned using standard low dose CT, using a 16 row CT scanner, data was reconstructed into sequential 3 mm axial and 2 mm coronal slices with 0.5 mm overlap. Images obtained were analysed using OsiriX with each slice of the CT containing stone been selected as a region of interest (ROI) to assign a mean HU value and a cubic stone size, this was done using both abdominal and bone windows. Once images were gained the stone fragments were sent for biochemical assessment for their composition.

RESULTS: In total 31 stone fragments were analysed, of these 13 had a crystalline structure of greater then 95% of a single component (6 calcium phosphate, 3 calcium oxalate, 3 urate, 1 cystine). The remaining 18 stones were of mixed composition with more than 50% of the composition been calcium based in 12 stones, magnesium ammonium phosphate (MAP) in 3 stones and urate in 3 stones. HU values given on analysis were in keeping with what is published in the literature, but with HU value been greater for a stone when analysed with bone windows. For the stones of pure composition the values were: urate 284.54 on abdominal windows (AW), 321.206 on bone windows (BW), calcium phosphate 871.122 AW, 894.867 BW, calcium oxalate 607.23 AW, 895.21 BW and cystine 473.25 AW, 573.56 BW. Furthermore when size of stone was analysed, the mean volume on abdominal windows was greater than that calculated on bone windows.

CONCLUSIONS: CT has a central role in stone management been able to elude to stone composition in both pure component stones and mixed component stones. Furthermore, the use of bone windows may enhance the accuracy with which stone composition can be suggested in addition to more accurate size estimation.

Source of Funding: none

MP1B-16 EFFECTIVENESS OF FLEXIBLE URETERORENOSCOPY FOR MULTIPLE UNILATERAL INTRARENAL STONES SMALLER THAN 2 CM
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INTRODUCTION AND OBJECTIVES: The objective of this study was to evaluate the safety and efficacy of RIRS for the treatment of multiple unilateral intrarenal stones smaller than 20 mm.

METHODS: Between March 2007 and April 2013, patients with multiple intrarenal stones smaller than 20 mm were treated with RIRS and evaluated retrospectively. SFRs were defined as a complete absence or residual stones < 4 mm in the kidney. Each patient was evaluated for stone number, stone burden (cumulative stone length), operative time, SFRs, and complications.

RESULTS: 173 intrarenal stones in 48 patients were included. Mean age, mean number of stones per patient, mean stone burden, and mean operative time were 40.2±10.88 years (23–63), 3.6±2.96 (2–18), 22.2±8.44 mm (12–45), and 60.3±21.99 minutes (30–130), respectively. The overall SFR was 91.7%. SFRs for patients with a stone burden less and greater than 20 mm were 100% (23/23) and 84% (21/25), respectively (p < 0.001). Complications occurred in six (12.5% - 6/48) patients, including urinary tract infection or high grade fever > 38.5°C in three, prolonged hematuria in two, and ureteral perforation in one, all of whom were treated conservatively. No major complications occurred.

CONCLUSIONS: RIRS is an effective treatment option in patients with multiple unilateral intrarenal stones especially when the total stone burden is less than 20 mm. Therefore RIRS should be considered as the first line treatment for multiple small intrarenal stones.

Source of Funding: none
cohort. Expected urinary [Ca] was also significantly lower using the WGUV as compared to a 2 L goal (p < 0.0001). Median measured 24-hour urine volume was 1.66 L (0.356–5.05 L) whereas median WGUV was 2.46 L (1.29–5.30).

CONCLUSIONS: Evaluation of the WGUV model in a larger external data set demonstrates a slightly larger expected improvement in mean calcium concentration for WGUV relative to a 2 L goal urine volume than in the original cohort. This study appears to support the validity of the original model as well as the concept of adjusting goal urine volume for weight.

Source of Funding: none

MP1B-18 THE ANIMAL MODEL IN STONE DISEASE: A TRIBUTE

Michael Moran*, Tucson, AZ

INTRODUCTION AND OBJECTIVES: A “model” is an imitation or stand-in for something else; hence, an animal model removes the human as the research source. Claude Bernard (1813–1878) is considered the father of experimental medicine and physiology. Stone disease was already known to be a complex condition even prior to his monumental accomplishments. This represents a review of the animal models and physiologists who contributed to our modern understanding of stone disease.

METHODS: This is a comprehensive historical overview of the animal models that resulted in the modern understanding or urolithiasis. Animal models that resulted in the formation of urolithiasis were specifically targeted for this historical review.

RESULTS: M. Morand was the first to note that the Black rat formed kidney stones. “He informs us that it is much more frequent in males than females; and that almost all Rats, when they become old, have stones in their urinary passages.” Oskar Minkowski developed an animal model to induce uric acid stone by feeding large doses of adenine to dogs in 1898. Wilhelm Ebstein published over 237 papers in his prolific career including a strong interest in urolithiasis developing several animal models including calcium oxalate stone formation. Animal research and urolithiasis came to the New World and Helen Baldwin wrote an article in Journal of Experimental Medicine on animal models and stones in 1900.

CONCLUSIONS: Fuller Albright, Alexander Randall, Charles Higgins, and Linwood Keyser all represented the future of stone physiology in America at the beginning of the 20th century. Miley Wesson was President of the AUA in 1935 stated “We have great hopes of the answer to our problem [urolithiasis] coming from the work being done at four centers of research.” The spirit of accomplishment had reached new heights by the beginning of the World War era in the world and a creeping optimism that the complexities of stone formation were finally being solved had developed thanks to the animal models of stone formation. “Men of science learn every day from experience; by experience they constantly correct their scientific ideas, their theories; rectify them, bring them into harmony with more and more facts, and so come nearer and nearer to the truth.”

Source of Funding: None

MP1B-19 EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY (ESWL) FOR RENAL AND URETERAL STONES IN SOETOMO HOSPITAL FROM 2011 TO 2012

Muhammad Ridha, M Ayodhia Soebadi*, Doddy M Soebadi, Surabaya, Indonesia

INTRODUCTION AND OBJECTIVES: To report patient characteristics and results of Huikang HK-V extracorporeal shock-wave lithotripsy (ESWL) machine for renal and ureteral stones.

METHODS: We retrospectively analyzed medical records of all patients treated with ESWL using HK-V device at Department of Urology Soetomo Hospital from May 2011 to February 2012.

RESULTS: There were 241 patients, consisted of 148 men (61.4%) and 93 women (38.6%). Mean age was 47.8 years (range 7 to 87). ESWL was conducted for 130 single stones and 111 multiple stones, using fluoroscopic guidance for 166 patients, ultrasound only for 31 patients (12.9%) and both for 44 (18.3%) patients. Stone location was 109 (41%) in lower pole, 69 (26%) in middle pole, 28 (11%) in upper pole, 41 (16%) in proximal ureter, 14 (5%) at renal pelvis, 1 (0.3%) at distal ureter and 2 (0.7%) staghorn stones. There were 130 patients with stones less than 10 mm (53.9%), 102 (42.3%) with stone 10 to 20 mm, and 9 (3.7%) more than 20 mm. There were slightly more left-sided treatments (141 patients/58.5%). Of 181 (75%) patients with hydronephrosis, 104 (43.2%) had DJ stent inserted. Overall, we found 158 (65.5%) patients were stone free after treatment, 49 (20.3%) patients with residual stones less than 4 mm and 34 (14.1%) patients had more than 4 mm residuals.

CONCLUSIONS: ESWL is the treatment of choice for simple renal and ureteral stones less than 20 mm (opaque and non-opaque).

Source of Funding: None

MP1B-20 FACILITY SITUATION OF STONE TREATMENT 2013 IN GERMANY: RESULTS FROM A NATION-WIDE HOSPITAL SURVEY

Wolfgang Brummeisl*, Christian Chaussy, Regensburg, Germany, Jens Rassweiler, Heilbronn, Germany, Thomas Knoll, Sindelfingen, Germany, Andreas Gross, Hamburg, Germany, Kai Koehrmann, Mannheim, Germany, Wolf Wieland, Hans-Martin Fritsche, Regensburg, Germany

INTRODUCTION AND OBJECTIVES: 33 years ago, in 1980, German doctors and engineers established the non-invasive method of stone-lithotripsy. The aim of the present survey was to acquire the facility situation of stone treatment within German urology departments, with particular focus on extracorporeal shock wave lithotripsy (ESWL), and further, to postulate the trend for the future role of ESWL in stone therapy.

METHODS: A survey was sent to 306 urologic departments in Germany under the auspices of the German Society for Shock Wave Lithotripsy (DGSWL). The questionnaire contained 25 questions on the type, size, and technical facilities of stone-therapy.

RESULTS: When the study was concluded, 99 centers (33%) had answered the questionnaire, including 25 university hospitals.

On average, about 600 patients with urolithiasis are treated per year, ranging from 80 to 2100 cases. 27% of the patients are treated conservatively. ESWL is the preferred method for stone treatment for only 22% of the departments (vs. endourologic measures), however, only 2% do not perform ESWL.

Sorted by manufacturer, the following devices are used: 31% Siemens, 20% Dornier, 17% Wolf, 11% Storz, Phillips 8%, EDAP 5%, AST 3%, 5% others. The average age of the lithotripsy devices is 9 years.

68% believe that ESWL will retain its importance in stone-therapy, 27% believe that it will diminish in relevance, while 5% expect that ESWL will gain importance for stone treatment.

CONCLUSIONS: The present survey shows the current state and equipment of German urology departments with regards to
the treatment of urolithiasis. 33 years after its invention, ESWL is available in nearly all urologic departments in Germany. ESWL is an important option in the current armamentarium for stone treatment. Based on the present results, we conclude ESWL will retain its important status in years to come, despite evolving endourologic measures.

**Source of Funding:** A survey was sent to 306 urologic departments in Germany under the auspices of the German Society for Shock Wave Lithotripsy (DGSWL).

**MP1B-21** STONE RADIODENSITY ON NON-CONTRAST COMPUTED TOMOGRAPHY IS A PARAMETER FOR PREDICTING OUTCOME OF EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY FOR RENAL STONE

Heshmatollah sofi majidpour*, hooshmand sofi majidpour, sanandaj, Iran

**INTRODUCTION AND OBJECTIVES:** We evaluated the usefulness of measuring of renal calci attenuation values on un-enhanced computed tomography images as a predictor of the outcome of treatment by extracorporeal shockwave lithotripsy. The success rate of ESWL treatment depends on multiple factors. Unfavorable stone composition is considered a major cause of failure.

**METHODS:** 151 patients with renal stone 7–21 mm in size underwent non-contrast computed tomography, then ESWL. patients were excluded due to elevated creatinine levels (more than 2 mg/dL), single kidney or obstructed kidney. Successful treatment of renal stones was defined as those patients who were stone free or had asymptomatic, clinically insignificant residual fragments < or = 4 mm in diameter, as measured by KUB X-ray and ultrasonography, 3 months after a ESWL treatment.

The patients were further analyzed by dividing them into 6 groups according to stone density, stone size.

Group 1: 42 patients with attenuation value 500–700 HU, size 7–14 mm.
Group 2: 21 patients with attenuation value 700–900 HU, size 7–14 mm.
Group 3: 19 patients with attenuation value 900–1200 HU, size 7–14 mm.
Group 4: 37 patients with attenuation value 500–700 HU, size 15–21 mm.
Group 5: 21 patients with attenuation value 700–900 HU, size 15–21 mm.
Group 6: 11 patients with attenuation value 900–1200 HU, size 15–21 mm.

The relationship among the HU, size and the characteristics of the patients were analyzed. All ESWLs were undertaken by a STORZ SLK Lithotripter with fragmentation performed under fluoroscopic guidance.

**RESULTS:** The patients were further analyzed by dividing them into 6 groups according to stone density and stone size. The “low density group” comprised all patients with stone densities of less than 700 HU, the “medium density group” comprised all patients with stone densities of 700–900, while, the “high density group” comprised all patients with stone densities of more than 900.

The “low diameter group”: stone diameters of 7–14 mms, while, the “high diameter group”:15–21 mms. ESWL treatment outcomes:

Group 1: 95.2%(40 from 42)
Group 2: 90.4%(19 from 21)
Group 3: 84.2%(16 from 19)
Group 4: 94.5%(35 from 37)
Group 5: 85.7%(18 from 21)
Group 6: 72.72%(8 from 11)

Analysis showing higher success rate in low density group 1&4.

**CONCLUSIONS:** The knowledge of stone density on pretreatment non-contrast computed tomography can predict stone fragility and stone free rate. These findings suggest that this information may be beneficial for selecting the preferred treatment option for patients with urinary calculi.

**Source of Funding:** none

**MP1B-22** PROSPECTIVE COMPARISON BETWEEN TAMSULOSIN AND RENALIT COMBI COLIC AS A TREATMENT OF RENO-URETERAL CALCULI EXPULSION AFTER EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL)

Alessio Zordani, Marco Rosa*, Alessandro Mofferdin, Maria Chiara Sighinolfi, Eugenio Martorana, Salvatore Micali, Giampaolo Bianchi, Modena, Italy

**INTRODUCTION AND OBJECTIVES:** In this preliminary prospective study we evaluate the effectiveness of colic expulsive therapy with tamsulosin 0.4 mg compared to an association of Dimetossi-Dihydroxy-Aporfina 250 mcg, 60 mg Arbutin and umbelliferone after ESWL treatment. Aporfina is already known for its alpha-lytic action. Recently it has been combined with the Arbutin (anti-inflammatory due to the inhibition of phospholipase A2), Asparagine (diuretic) and Herniaria (anti-adhesive action).

**METHODS:** From January 2013 we prospectively followed 51 patients who underwent ESWL treatment for reno-ureteral calculi (mean age: 54 +/- 14.8; 35 men, 16 women). ESWL was conducted by Dornier Lithotripter S XXP, using the pointing both ultrasound and fluoroscopy. Right after the ESWL treatment, patients were randomized to receive expulsive therapy using: a) Aporfina (Renalit Colic Combi) for 12 days b) Tamsulosin 0.4 mg for 20 days (control group). Follow-up, 30 days after ESWL treatment, was done by ultrasonography and, in selected cases, abdomen x-ray. We considered the following variables: size and location of the calculi; apparent fragmentation of the calculi during ESWL treatment; expulsion of fragments or size reduction of the calculi. The data obtained were inserted into a specific database and analyzed using SPSS for Windows 12, through the use of parametric and non-parametric test (chi square).

**RESULTS:** After ESWL, 24 patients have undergone therapy with Aporfina (A) and 27 patients with Tamsulosin (B). The average size of the stones in the two groups was equal to 8.3 mm and 9.5 mm, respectively (p=0.058). The location was pyelic and ureteral in both groups (21/24 patients in group A, 23/27 patients in group B, p=0.8). Six patients were excluded from the analysis due to lack of significant fragmentation in the course of treatment. Follow-up after 30 days showed expulsion of fragments or a marked reduction in the size of the stone in 90.4% (19/21) of patients treated with Aporfina and 91.6% (22/24) of the patients treated with Tamsulosin (p=0.64). There was no evidence of fragments expulsion in the remaining patients. Side effects after ESWL or medical therapy were not present in both groups.
CONCLUSIONS: In terms of expulsion of the fragments, the use of Renalit Combi Colic in this preliminary experience seems to show comparable efficacy to the traditional Tamsulosin’s therapy. This formula also helps overcome the difficulties that are often encountered in prescribing an off label drug in certain categories of patients, such as women and children.

Source of Funding: none

MP1B-23 RADIATION EXPOSURE IS 2.6 FOLD HIGHER AT ENDOSCOPIC LITHOTRIPSY VERSUS SWL
Yoram I. Siegel, Shmuel Roizman*, sigalit Haruz-Waschitz, Zerifin, Israel, Avi Ben-Shlomo, yavne, Israel, David Yudelevich, Amir Cooper, Yaniv Shilo, Amnon Zisman, Zerifin, Israel

INTRODUCTION AND OBJECTIVES: All common stone therapies are performed under fluoroscopy guidance. On one hand there is a trend towards radiation-less endoscopic lithotripsy and on the other a call to increase SWL effectiveness by increase the frequency of focus repositioning during the procedure. The purpose of this study is to assess and compares the extent of radiation exposure of patients during endoscopic lithotripsy and SWL.

METHODS: Measurements of dose-area product (DAP) were performed in 47 (44%) patient who underwent endoscopic lithotripsy and 59 (56%) who underwent SWL. For SWL an exterior DAP-meter was assembled to the C-arm whereas for endoscopic lithotripsy the C-arm includes a built in DAP meter. A baseline Coefficient factor was determined for devices coordination. Demographic and clinical data were collected including age, sex, body mass index (BMI) as well as size and location of stone.

RESULTS: (see table)

CONCLUSIONS: The crude average radiation exposure is significantly higher during one session of endoscopic lithotripsy compared with SWL. Further effectiveness studies are warranted taking into consideration additional factors such as success rate and frequency of redo and ancillary procedures. More accurate information on the risk of radiation exposure may gain access to clinical decision making for these particular procedures.

Source of Funding: none

MP1B-24 AGE PREDICTS SUCCESS OF ELECTROMAGNETIC SHOCK WAVE LITHOTRIPSY FOR URETERAL STONES
Sameer Deshmukh*, Brian Eisner, Boston, MA

INTRODUCTION AND OBJECTIVES: To evaluate the efficacy of shock wave lithotripsy (SWL) using an electromagnetic lithotripter for the treatment of ureteral stones.

METHODS: A retrospective review was performed of patients who underwent shock wave lithotripsy for the treatment of ureteral stones. Procedures were performed on the Dornier Compact Delta II, an electromagnetic lithotripter (Dorner MedTech). All patients were treated on the following protocol: total of 2500 shocks; rate of 80/minute for the first 300 shocks and 100 per minute for the remaining 2200 shocks; power setting of 2 for the first 300 shocks, power setting of 3 for shocks 300–800, and power setting of 4 for the remaining 1700 shocks. F/u imaging was obtained by plain abdominal radiography if stones were visible on plain radiography prior to SWL or computed tomography (CT) if they were not.

RESULTS: Forty-eight (48) patients were included in the study, with 40 patients being male gender (83%). Mean age was 52.3 years (SD 16.1) and mean BMI was 26.7 kg/m² (SD 3.7). Mean stone size was 6.2 mm (SD 2.4) and stone composition was available for 20 stones, 18 of which were > 50% calcium oxalate. Stone location was proximal ureter for 19 patients (39.5%) and distal ureter for 29 patients (60.5%). Stone free rate was 39.6% after a single SWL session (19/29 patients). Five patients underwent a second treatment of which 1 was rendered stone free. When evaluating SWL success, those who were stone-free were significantly younger than those who were not (45.6 years versus 56.7 years, p = 0.02). There were no differences in stone-free versus not stone-free based on BMI (26.6 versus 26.8), stone size (5.6 mm versus 6.6 mm), anterior stone to skin distance (115.0 mm versus 118.8 mm), posterior stone-to-skin distance (109 mm versus 119.6 mm), gender (42.9% females stone-free versus 40.0% of males stone free), or ureteral location (38.9% stone free proximal ureter versus 41.4% stone-free distal ureter).

CONCLUSIONS: SWL of ureteral stones using electromagnetic lithotripsy has success rates of nearly 40% independent of ureteral location. It appears that success rates may be improved in younger patients.

Source of Funding: none

MP1B-25 EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR RENAL CALCULI: A REVIEW OF 4041 CONSECUTIVE CASES DONE OVER 20 YEARS
Jitendra Jagtap*, Ragarum Ganesamoni, Jigish Vyas, Shashikant Mishra, Arvind Ganpule, Ravindra Sabnis, Mahesh Desai, Nadiad, India

INTRODUCTION AND OBJECTIVES: Extracorporeal shockwave lithotripsy (ESWL) remains a commonly utilized treatment modality for renal calculi. We reviewed the data of 4041 consecutive patients undergoing ESWL for renal calculi at our centre.

METHODS: We retrospectively reviewed clinical data for patients who had undergone ESWL for treatment of renal calculi from 1989 to 2012 at our tertiary referral centre in Western India. We analysed patient age, gender, stone size, location, co-morbidities, postoperative complications, additional interventions and anatomical parameters of these patients.

RESULTS: The average age was 39.40 ± 14.32 years. The Male: Female ratio was 2.64:1. Average Stone size was 1.34 ± 0.55 cm

CONCLUSIONS: The success rate of ESWL is significantly higher in one session at a single institution. Stone size, location, and age are factors that may affect the success rate.

Source of Funding: none

<table>
<thead>
<tr>
<th>Size of Stone</th>
<th>Number of patients</th>
<th>Number of Shocks</th>
<th>Number of patients cleared</th>
<th>Clearance rate</th>
</tr>
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<tbody>
<tr>
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<td>98</td>
<td>1365</td>
<td>82</td>
<td>83.7%</td>
</tr>
<tr>
<td>6-10mm</td>
<td>1418</td>
<td>1974</td>
<td>1191</td>
<td>84.0%</td>
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<tr>
<td>11-20mm</td>
<td>2175</td>
<td>2174</td>
<td>2000</td>
<td>92.0%</td>
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<td>3588</td>
<td>286</td>
<td>81.7%</td>
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<tr>
<td>Total</td>
<td>4041</td>
<td>2537</td>
<td>1559</td>
<td>88.0%</td>
</tr>
</tbody>
</table>

STONE CLEARANCE BY SIZE
with the left: right side ratio being 0.96:1.00. The average Hounsfield unit on CT scan was 1159.65 ± 315.90 HU. 11.71% patients had comorbidities. The average number of shocks received were 2537 and the mean fluoroscopy time in our study was 240.86 ± 146.10 sec. A total of 136 patients (3.36%) had complications ranging from fever to perinephric hematoma. 165 patients (4.0%) required an auxiliary procedure. The overall success rate was 88.0%.

**CONCLUSIONS:** Our long-term review of ESWL for renal calculi demonstrates that it is a safe, feasible treatment with good success rates in appropriately selected patients.

**Source of Funding:** none

**MP2A BASIC RESEARCH: LOWER TRACT PHYSIOLOGY**

**MP2A-01 ALDH1 EXPRESSION AS TUMOR STEM CELLS MARKER AND ITS RELATIONSHIP TO CLINICOPATHOLOGIC PARAMETERS AND PROGNOSIS IN INVASIVE BLADDER CANCER**

Hai Ming Wang, Hai Tao Zhang, Ning Xu*, Changchun, China, People’s Republic of

**INTRODUCTION AND OBJECTIVES:** The purpose of our experiments is to investigate the effect of aldehyde dehydrogenase 1 (ALDH1) as tumor stem cells marker on the biological behavior of invasive bladder cancer.

**METHODS:** 109 cases of primary invasive carcinomas specimens and 26 cases of 37 cases pelvic lymph node dissection were assembled as experimental group while 20 cases of normal bladder tissue surrounding cancer were collected as control group. Analysis: The expression of ALDH1 protein were detected by immunohistochemistry in experimental group and control group.

**RESULTS:** In 109 cases of invasive bladder cancer, the rate of ALDH1 positive expression was 33.94%. In 20 cases of normal bladder tissue, the rate of ALDH1 positive expression was 5.00%. The expression was significantly different between the two groups (P < 0.01). There were 37 cases of local lymph nodes of invasive bladder cancer. In 6 metastatic lymph nodes, the rate of ALDH1 positive expression was 50.00%. No expression in 20 cases of normal local lymph nodes. The expression was significantly different between the two groups (P < 0.01). The positive rate of ALDH1 expression in low-grade group and high-grade group bladder cancer was 13.04% (3/23) and 39.53% (34/86) respectively, and the difference was statistically significant (P < 0.05). The positive rate of ALDH1 expression in non-muscle invasive group and muscle invasive group bladder cancer was 19.05% and 43.28%, respectively. The difference was statistically significant (P < 0.05). There were 6 cases of lymphatic metastasis in 37 cases of pelvic removal of regional lymph nodes. The positive rate of ALDH1 expression in bladder cancer of lymphatic metastasis group and without lymphatic metastasis group was 50.00% and 12.90%, respectively. The difference was statistically significant (P < 0.05). Statistics show that ALDH1 expression in bladder cancer is not correlated with patients gender and age and tumor size and tumor maiden or recurrence.

**CONCLUSIONS:** ALDH1 may be correlated with the occurrence of bladder cancer. It may be used as an index of grade, stage and prognosis of bladder cancer.

**Source of Funding:** none

**MP2A-02 THE CLINICAL SIGNIFICANCE OF SERUM AMYLOID PROTEIN A IN PROSTATE CANCER PATIENTS**

Zhong Shuai Cao, Hong Li Shan*, Changchun, China, People’s Republic of

**INTRODUCTION AND OBJECTIVES:** To screen and identify serum amyloid A (SAA) in patients with prostate cancer with mass spectrum technique.

**METHODS:** The serum samples of 50 prostate cancer patients and 30 healthy volunteers were tested. SELDI technology was used to detect the changes in protein expression. SAA was screened and separated and then identified by peptide mass fingerprint (PMF) based on matrix-assisted laser desorption/ ionization time of flight mass spectrometry (MALDI-TOF-MS) and database searching.

**RESULTS:** The analysis showed that a mass cluster in the ranges of 11.1–11.9 KD in M/Z value in the serum of prostate cancer

<table>
<thead>
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<th>No of Sittings</th>
<th>Number of patients</th>
<th>Percentage of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2891</td>
<td>71.5%</td>
</tr>
<tr>
<td>2</td>
<td>642</td>
<td>15.9%</td>
</tr>
<tr>
<td>3</td>
<td>268</td>
<td>6.6%</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>240</td>
<td>5.9%</td>
</tr>
<tr>
<td>Total</td>
<td>4041</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSIONS:** Our long-term review of ESWL for renal calculi demonstrates that it is a safe, feasible treatment with good success rates in appropriately selected patients.

**Source of Funding:** none
patients was much higher than that in the control group. Meanwhile, this protein peak was closely correlated with clinical stages of prostate cancer. The level of the protein peak was increased as the illness got serious. Through MALDI technology combined with HPLC, the mass cluster in the range of 11.1–11.9 KD in M/Z value on the chip was identified as SAA. And it was also verified through ELISA method.

CONCLUSIONS: Mass spectrum technology is an effective method to detect the biological markers in prostate cancer patients. This method is convenient, highly sensitive and with good reproducibility. The SAA can be used as a marker in the diagnosis of prostate cancer. These indices are also meaningful in screening and identifying signal proteins from the serum of prostate cancer patients.

Source of Funding: none

MP2A-03 ALDH1 EXPRESSION AS TUMOR STEM CELLS MARKER AND CLINICAL SIGNIFICANCE IN NON-INVASIVE BLADDER CANCER
Hai Ming Wang, Ming Ming Shao, Ning Xu*, Changchun, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: The purpose of our experiments is to evaluate ALDH1 expression in noninvasive bladder cancer and to analyze the relations between ALDH1 and tumor clinicopathologic features and prognosis.

METHODS: 118 cases of noninvasive bladder carcinomas specimens and 30 cases of normal bladder tissue surrounding cancer were detected. The expression of Aldehyde dehydrogenase 1(ALDH1) protein was detected by immunohistochemistry.

RESULTS: In 118 cases of noninvasive bladder cancer, the rate of ALDH1 positive expression was 25.58%. In 30 cases of adjacent normal bladder tissue, the rate of ALDH1 positive expression was 6.67%. The expression was significantly different between the two groups (P < 0.05). The positive rate of ALDH1 expression in low-grade group and high-grade group noninvasive bladder cancer was 18.18% and 36.59% respectively. The difference was statistically significant (P < 0.05). The positive rate of ALDH1 expression in Ta group and T1 group noninvasive bladder cancer was 16.92% and 33.96% respectively. The difference was statistically significant (P < 0.05). The positive rate of ALDH1 expression in primary group and recurrence group noninvasive bladder cancer was 19.77% and 37.50% respectively. The difference was statistically significant (P < 0.05). Statistics show that ALDH1 expression in noninvasive bladder cancer is not correlated with patients gender and age and tumor size. Followed up for 4–52 months, the cumulative disease-free survival rate of ALDH1-positive group and ALDH1-negative group are 55.17% and 61.80%, respectively. Kaplan-Meier analysis and the log-rank test showed that the cumulative disease-free survival rate was statistically different between the ALDH1-positive group and the ALDH1-negative group (P < 0.05).

CONCLUSIONS: The ALDH1 may be important for the early diagnosis of noninvasive bladder cancer. ALDH1 expression in noninvasive bladder cancer is not correlated with gender, age and tumor size, and was positive correlated with primary tumors and recurrence. The cumulative disease-free survival rate of ALDH1-positive group is lower than of ALDH1-negative group. ALDH1 may be one of the useful indexes of noninvasive bladder cancer prognosis.

Source of Funding: none

MP2A-04 EFFECTIVENESS OF TAMUSULOSIN IN PREVENTION OF POST-OPERATIVE URINARY RETENTION: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED STUDY
Ali Hamidi Madani*, Hamidreza Baghani Aval, Gholamreza Mokhtari, Hamidreza Nasbes, Samaneh Esmaeili, Rasht, Iran, Maryam Shakiba, Tehran, Iran, Reza Shahrorkhi Damavand, Seyed Mohamad Seyed Saadat, Rasht, Iran

INTRODUCTION AND OBJECTIVES: Urinary retention is one of the most common complications contributing to surgical procedures. Recent studies have shown the benefits of alpha-adrenergic blockers in preventing post-operative urinary retention (POUR). The aim of this prospective study was to compare the prophylactic effect of tamsulosin with placebo on post-operative urinary retention.

METHODS: In this randomized placebo controlled, clinical trial, 232 male patients aged 18 to 50 years old admitted to Razi university Hospital for varicocelectomy, inguinal herniorrhaphy, and scrotal surgery were randomly assigned to receive either three doses of 0.4 mg tamsulosin (n = 118) or placebo (n = 114), 14 and 2 hours before, and 10 hours after surgery. Patients were closely monitored for the development of urinary retention 24 hours after surgical intervention. The primary endpoint was to investigate the effect of tamsulosin in prevention of post-operative urinary retention during the first 24 hours after surgical intervention.

RESULTS: One hundred and eighteen patients were included in tamsulosin arm and 114 in placebo arm. POUR in patients who received tamsulosin was significantly lower than placebo, as 5.1% of the patients treated with tamsulosin and 21.1% placebo group, reported urinary retention following surgery. No serious adverse effects were seen in two groups.

CONCLUSIONS: This study suggests that short perioperative treatment with tamsulosin can reduce the incidence of urinary retention and the need for catheterization after varicocelectomy, inguinal herniorrhaphy, and scrotal surgery.

Source of Funding: none

MP2A-05 NON OBSTRUCTIVE URINARY TRACT DILATATION: LONG TERM FOLLOW UP OF A SINGLE CASE
Aditi Kumar*, Aniruddha Chakravarti, Anthony D’Sa, Birmingham, United Kingdom

INTRODUCTION AND OBJECTIVES: Following ultrasound scanning for minor renal trauma, a 13 year old boy, known to have congenital nephrogenic diabetes insipidus, was found to have bilateral hydrourereteronphrosis, with marked cortical loss and a urinoma. We subsequently documented the patients entire renal history to see how this patient had been managed.

METHODS: The patient’s entire urological/nephrological history was documented. All sources were reviewed including clinical notes, blood tests, imaging and urodynamics.

RESULTS: Diabetes insipidus had originally been diagnosed when the patient was 9 months. Having been lost to follow up, initial work up showed the patient had a residual bladder volume of 200–400 mls, cystoscopy showed a trabeculated bladder, and a MAG 3 showed unequal reduction of kidney function. eGFR slowly declined over a 4 year period from 90 to 82. We review the different complications these patients are prone to such as UTI, valve bladder syndrome, bladder dysfunction and hydronephrosis, Different management options are discussed including
CONCLUSIONS: To date there are no sets of data that agree on how diabetes insipidus should be managed. By reviewing the literature and the above we have proposed a management strategy involving principally urologists and nephrologists, for the follow up of these patients. 

Source of Funding: None

MP2A-06 URINE CONCENTRATIONS OF AQUAPORIN-1 AND PERILIPIN-2 NORMALIZE IN PATIENTS WITH RENAL CELL CARCINOMA FOLLOWING EXCISION OF TUMORS

Jonathan Mobley*, Jeremiah Morrissey, Sam Bhayani, Joseph Song, Joel Vetter, Evan Kharasch, Robert Figenshau, St. Louis, MO

INTRODUCTION AND OBJECTIVES: The purpose of this investigation is to evaluate the screening properties of Aquaporin-1 (AQP1) and Perilipin-2 (PLIN2) in patients with clear cell and papillary renal cell carcinoma (RCC).

METHODS: Western blot procedures determined the pre-operative urine AQP1 and PLIN2 levels of 61 patients undergoing either a partial or a radical nephrectomy for clear cell or papillary RCC. Concentrations of these markers were compared with 43 controls of equivalent age, sex, weight, smoking history, and estimated glomerular filtration rate. Post-operative urine concentration of both markers were obtained from RCC patients following tumor excision and compared to pre-operative samples and controls.

RESULTS: The median urine AQP1 for RCC and controls was 53 and 1.5 absorbance units/mg creatinine (p < 0.001). The median urine PLIN2 for RCC and controls was 59 and 6 absorbance units/mg creatinine (p < 0.001). The sensitivity and specificity for AQP1 was both 100%, and for PLIN2 was 92% and 100%. Figure 1 shows the trends in AQP1 and PLIN2 following either partial or radical nephrectomy. Post-operative AQP1 and PLIN2 levels in the RCC group was similar to the pre-operative concentrations in the controls.

CONCLUSIONS: Urine AQP1 and PLIN2 displayed both excellent sensitivity and specificity to distinguish RCC patients from controls in this retrospective, cohort study. The normalization of marker concentrations following tumor excision further supports the concept that RCC causes elevations in urine AQP1 and PLIN2.

Source of Funding: Funding is from two grants R01CA141521 and the Barnes Jewish Hospital Foundation.

FIG. 1. Pre- and post-nephrectomy urine levels of AQP1 and PLIN2 in 47 patients with clear cell or papillary renal cell carcinoma.

MP2A-07 THE BIOCOMPATIBILITY OF POLY (LACTIC ACID - GLYCOLIC ACID)/POLYCAPROLACTONE BIODEGRADABLE NANO-STRUCTURE URETERAL STENT FABRICATED BY ELECTROSPINNING

Xiao Qing Wang, Hong Li Shan, Yu Chuan Hou, Jing Hai Hu, Yuan Yuan Hao, Chun Xi Wang*, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To investigate the biocompatibility of a poly (lactic acid - glycolic acid)/poly-caprolactone degradable ureteral stent.

METHODS: The Hela cell and MTT method were used to evaluate the cytotoxicity in vitro. The scaffold was cut into small pieces and embedded in the back muscle of rabbits to evaluate the histocompatibility. The rabbits were sacrificed after 1 week, 4 weeks and 12 weeks.

RESULTS: The OD492 of negative control group and each concentration of extracts were more than 0.5, while the positive control of phenol was less than 0.1. The differences between negative control group and various concentrations of extracts was not significant (P > 0.05), but all of them were significantly higher than the positive control group (P < 0.05). All of the concentrations of extracts can be considered non-toxic. The light microscopy examination showed that there are a large number of inflammatory cells at the junction of materials and muscles after 1 weeks, and the inflammatory cells were significantly reduced after 4 weeks. The fibrosis appeared in the same time. The inflammatory cells were almost disappeared after 12 weeks, and the thickness of fiber did not increase compared to 4 weeks. In the control group, the histological features after 1 week and 4 weeks were similar to the experimental group, but the thickness of fiber at 12 weeks was higher than that of experimental group.

CONCLUSIONS: The poly (lactic acid - glycolic acid)/poly-caprolactone biodegradable urethral stent has no cytotoxicity and has a good histocompatibility. It can fully satisfy the demand of a ureteral stent.

Source of Funding: Supported by the National Natural Science Foundation of China (no. 50973043).

MP2A-08 ASSOCIATION OF HYPERTENSION WITH SYMPTOMS OF BENIGN PROSTATIC HYPERPLASIA

Xin Jiang, Shi Ying Li*, Jilin, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: This study was design to determine whether the benign prostatic hyperplasia (BPH) symptoms has the relationship with hypertension.

METHODS: The clinical baseline data of a large sample of men seeking treatment for BPH symptoms were analyzed retrospectively. BPH symptom intensity (assessed by the International Prostatic Symptom Score [I-PSS] or urinary flow rate [Qmax]) and blood pressure were determined in 1,238 patients with BPH. Normotension was defined as a diastolic blood pressure of 90 mm Hg or less, the absence of the diagnosis hypertension and the lack of antihypertensive medication. Hypertension was defined as a diastolic blood pressure of greater than 90 mm Hg, being diagnosed with hypertension or the current prescription of anti-hypertensive drugs.

RESULTS: When age and presence of hypertension were used as the independent explanatory variables, each year of age contributed 0.19 points and measured hypertension 1.70 points to I-PSS as the dependent response variable. Similar results were obtained with Qmax as the dependent response variable. In a
CONCLUSIONS: We conclude that a significant, age independent association exists between BPH symptoms and hypertension.

Source of Funding: none

MP2A-09 IMPACT OF RHO-KINASE INHIBITOR HYDROXYFASIDIL IN PROTAMINE SULPHATE INDUCED CYSTITIS IN RATS
Yigit Akin*, Aliseydi Bozkurt, Erzincan, Turkey
Huseyin Serkan Erol, Mesut Halici, Fikret Celebi, Kubra Asena Kapakin Terim, Erzurum, Turkey
Hakan Gulmez, Ankara, Turkey, Mutlu Ates, Afyonkarahisar, Turkey
Taha Abdulkadir Coban, Baris Nuhoglu, Erzincan, Turkey

INTRODUCTION AND OBJECTIVES: Interstitial cystitis (IC) is defined as unpleasant sensations, such as pain, pressure and discomfort, perceived in relation to the bladder and lower urinary tract, with symptoms lasting for six weeks or longer in the absence of infection or any other confirmed causes. The aim of this study was to investigate the prevention of detrusor overactivity and also bladder tissue damage with hydroxyfasudil in proteamine sulfate (PS) induced cystitis rat model in vivo and in vitro.

METHODS: Animals were divided into four groups. IC model was created by administrating PS intravesical for three days. At the end of the third day, Rhokinase (ROCK) inhibitor hydroxyfasudil or a corresponding volume of saline was administrated intraperitoneally. There were eight animals in each group. Group 1: PS and hydroxyfasudil were administrated. Group 2: PS and saline were administrated. Group 3: hydroxyfasudil was administrated intraperitoneal. Group 4 was the control group, PS and hydroxyfasudil were not administrated. Invitro micturition behaviors were recorded. Invitro contractions of bladder tissue strips were measured in tissue-bath by administering acetylcholine (Ach) and potassium chloride (KCl). Concentration response curves were obtained. Biochemical analyses were performed for oxidative stress and pathological evaluations were investigated.

RESULTS: The mean weight of animal experiments was 280.2 g (±30.1). There was significantly higher frequency of micturition, lower volume and total urine output after PS administration in groups 1 and 2. Invitro contraction responses of bladder strips to KCl and Ach were statistically higher in Group 2 than other groups. Additionally, lower contraction response to KCl and Ach were statistically higher in Group 2 than other groups. Invitro contraction responses of bladder strips to KCl and Ach were statistically higher in Group 2 than other groups. Biochemical analyses were performed for oxidative stress and pathological evaluations were investigated.

CONCLUSIONS: Hydroxyfasudil decreased invitro responses to contractions of bladder smooth muscle strips. Moreover, significant reduction of inflammation by affecting the anti-oxidant defence systems was provided with hydroxyfasudil which can be a potential new therapeutic option for OAB and inflammation in IC.

Source of Funding: None

MP2A-10 THE RECLASSIFICATION OF PREOPERATIVE HIGH RISK PROSTATE CANCER PATIENTS AFTER ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY
Vladimir Mouraviev*, Matt Kardjian, Po Lam, Angelo Rosalio, Eln Salzhauer, Harvey Sauer, Syracuse, NY, Matvey Tsvian, Durham, NC, Christopher Pieczonka, Jeffrey Sekula, Ilija Aleksic, David Albala, Syracuse, NY

INTRODUCTION AND OBJECTIVES: The most commonly used definition criteria for prostate cancer risk-stratification (D’Amico and Epstein) do not necessarily reflect the complexity and biological behavior of this disease. They include tissue diagnosis data (biopsy results) along with clinical (clinical stage) and biochemical parameters (PSA level). The aim of this study was to compare histologic high risk features preoperatively with final pathological results.

METHODS: 30 (5.5%) patients from 550 consecutive RALP cases performed from 2009 to 2011 had a high-risk features based on D’Amico-Epstein definition based mostly on biopsy histology data (Gleason Score ≥8, pT3 or positive lymphatic nodes). These pathological results were compared with final pathological results after RALP.

RESULTS: Of 30 patients who had high Gleason grade on biopsy (≥8), 15 (50%) were reclassified to lower risk based on final pathology (Gleason <8, organ-confined disease and negative lymph nodes). Patients with lower biopsy Gleason score were more likely to be down-staged (67% for Gleason 8, 17% >8, organ-confined disease and negative lymph nodes). These pathological results were compared with final pathological results after RALP.

CONCLUSIONS: 50% of men with preoperatively high-risk prostate cancer were reclassified to a lower risk category upon final pathological results. Histopathologic features alone may guide clinicians away from definitive treatment such RALP. In the future, we believe more comprehensive pre-procedural
staging including advanced imaging as well as molecular and genetic testing to better correlate risk of recurrence.

Source of Funding: none

MP2A-11 ANASTOMOTIC STRICTURES IN A LARGE COHORT OF 2800 PATIENTS AFTER LAPAROSCOPIC AND ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY

Marcel Hruza*, Ali Goeven, Heilbronn, Germany, Justo Lorenzo Bermejo, Heidelberg, Germany, Michael Schulze, Jan Klein, Jens Rassweiler, Heilbronn, Germany

INTRODUCTION AND OBJECTIVES: The formation of strictures of the vesicourethral anastomosis is described in most series of laparoscopic and robotic assisted laparoscopic radical prostatectomy (LRP and RALP). The aim of this study is to analyze when anastomotic strictures appear within the long-term follow-up and to identify parameters with significant influence on stricture formation.

METHODS: The first 2800 consecutive patients operated at our institution between 1999 and 2011 were included in this study. The median follow-up time was 92 months (interquartile range 62–121 months, range 15–171 months). 2521 patients (90%) underwent LRP, 279 (10%) underwent RALP. Univariate and multiple logistic regression models were used to investigate the relationship between patient and clinical characteristics and stricture formation.

RESULTS: Anastomotic strictures occurred in 117 of 2800 patients (4.2%). The incidence of strictures declined from 7.7% within the first 700 cases to 0.9% within the last 700. 52% of all strictures were seen within the first 6 months after surgery, 75% appeared within the first 15 months, 92% within the first 36 months. However, 4.3% of the strictures arose later than 5 years after LRP/RALP. All anastomotic strictures were treated with urethrotomy using the Holmium-YAG-laser. Recurrent strictures were seen in 32 of the 117 cases (27.4%): 12 of those patients (10.3%) needed more 2 urethrotomies (3–5 procedures). None of the patients had to undergo other surgical treatments for the anastomotic stricture. A multivariate analysis showed body mass index, pathological tumor stage, degree of incontinence early after removal of the foley catheter, surgeon and use of the robot as independent predictors of stricture formation.

CONCLUSIONS: Most strictures of the vesicourethral anastomosis occur early after LRP, the rate of late strictures (>5 years after LRP) is low. We could demonstrate a significant decrease in the rates of anastomotic strictures after LRP/RALP within our series. The experience of the surgeon and the use of the robot showed significant influence on stricture formation in multivariate analysis, whereas other operative parameters as the technique of suturing the vesicourethral anastomosis, bladder neck sparing, nerve sparing, or the Rocco stitch did not reach significance in multivariate analysis.

Source of Funding: none

MP2A-12 ROBOT ASSISTED RADICAL PROSTATECTOMY (RALP): “TRIFECTA” RESULTS IN MORE THAN FIVE YEARS OF ACTIVITY

Giampaolo Bianchi, Modena, Italy, Ahmed Ghaith*, Tanta, Egypt, Cosimo De Carne, Francesco Fidanza, Stefano Puliafiti, Eugenio Martorana, Salvatore Micali, Modena, Italy

INTRODUCTION AND OBJECTIVES: This research shows the “trifecta” results, obtained in the Urology Department of Policlinico of Modena. “Trifecta” comes from the horse racing field: it stands for the right choice of the three horses that gain the first, the second and the third place of the arrival ranking, in order to win the bet. This word has been used for the cumulative evaluation of the radical prostatectomy and it is relation to the concurrent presence of: tumour eradication, urinary continence and sexual potency.

METHODS: Data concerning 319 patients operated with the robot from 2007. Data have been collected and ordered in a prospective study in order to obtain complete information about: Personal Data and Pre-Surgical Staging, Recovery, Functional Results of Urinary Continence, Functional Results of Potency, Oncologic Results.

RESULTS: The total rate of positive surgical margins is up to 16.3%. Within stage pT2, the 11.1% has positive margins and the percentage goes up to 41.8% if the pT3 have to be considered. As far as the oncologic follow-up is concerned, 263 patients, among those having undergone the operation at least one year earlier, have been included. PSA had been reset in 251 patients, the 95.4%. 43 out of the 263 patients had positive margins. Among them, two had been treated with hormone therapy, which has then been stopped 24 months later, 31 had undergone radiotherapy, while 12 had been strictly monitored, showing a constant PSA. By now, all the patients treated with radiotherapy and hormone therapy have seen their PSA reset.

12 months after surgery, the 94.7% of the patients had recovered Continence.

Sexuality has been evaluated in the patients with IIEF 1–5 and 15 higher than 16 in the pre-surgical evaluation, not having received adjuvant therapy and that have done the intervention by more that one year. The sum of 51.7% has recovered sexual potency, either through phD-Inhibitors or spontaneously. The 14.5% has recovered it using PGE.

Of the above mentioned 263 patients that have undergone the operation at least one year earlier, 172 are the ones with IIEF 1–5; 15 > 16. Considering these 172 patients the triple result of the PSA reset, continence and potency has been obtained in 81 of the 172 patients, the 47.09%.

CONCLUSIONS: Data deriving from our experience confirm what shown by literature about the use of RALP, which offers great functional and oncologic results. The spread of this surgical method is limited due to the high costs and the lack of randomized studies. Nevertheless, the robotic will be the future of the surgery.

Source of Funding: none

MP2A-13 PERIOPERATIVE OUTCOMES OF OPEN RADICAL PROSTATECTOMY VERSUS ROBOT ASSISTED LAPAROSCOPIC PROSTATECTOMY IN FILIPINO MEN: EXPERIENCE IN A SINGLE INSTITUTION

Joel Estanislao*,Jose Benito Abraham,Josefino Castillo, Michael Chua, Quezon, Philippines

INTRODUCTION AND OBJECTIVES: To compare our experience of open radical retropubic prostatectomy (ORRP) from robot assisted laparoscopic prostatectomy (RALP) with regard to intraoperative and short-term postoperative outcomes.

METHODS: A retrospective analysis was performed on patients who underwent ORRP from January 2006 to September 2010 and LARP from November 2010 to September 2012. Intraoperative outcomes included operative time, estimated blood loss (EBL)
and transfusion rate. Postoperative outcomes included length of hospital stay (LOS) and complications. Independent T-test was used for comparison of means for operative time, blood loss, and hospital stay. Fisher’s Exact test was used for comparison of morbidities and positive surgical margin.

RESULTS: A total of 48 patients were included in the ORRP and 45 patients for the RALP. The mean age was 62.80 ± 6.50 years (43—75) for ORRP and 62.80 ± 7.30 years (43—76) for RALP and were not significantly different. Mean operative time was 269 ± 56.36 (180—520) minutes for ORRP versus 288.82 ± 120.63 (127—720) minutes for RALP, respectively which were significantly different. EBL was 647.08 ± 295.18 mL (300—1500) versus 154.88 ± 118.92 [50—700] mL and LOS was 6.7 ± 2.16 days (4—17) versus 4.02 ± 1.35 (2—9) between ORRP and RALP, respectively which were significantly different. Positive margins occurred in 9 (18%) specimens for the ORRP and 7 (15%) for RALP which was not significantly different.

CONCLUSIONS: Our experience showed that ORRP and LARP is safe and effective for localized prostate cancer. LARP has the advantage of shorter hospital stay and lower blood loss and transfusion rate. A longer follow-up is needed to determine durable oncological results.

Source of Funding: None

MP2A-14 UROLOGIC LAPAROSCOPE SURGERIES IN ELDERLY: ANALYSIS OF PRE-OPERATIVE RISK FACTORS AND POSTOPERATIVE COMPLICATIONS
Sompol Permpongkosol*, Bangkok, Thailand

INTRODUCTION AND OBJECTIVES: The aging of the population leads to increases in the prevalence of symptomatic urologic diseases. The aim of this study is the analysis of pre-operative risk factors and postoperative complications in patients over the age of 60 years undergoing elective laparoscopic urologic surgery.

METHODS: A retrospective study was conducted of 113 patients 60 years of age or older who underwent urologic laparoscopic surgery by a single surgeon. The pre-operative physical status and systemic complications, operation time, postoperative complications, postoperative hospital stay and other clinical features of the patients were reviewed. Complications were classified according to the recently revised Clavien classification system. Statistical analysis was done using the Fisher Exact test and Relative risk.

RESULTS: Laparoscopic urologic surgery was performed on 113 patients 60 years-old and over, with an average age of 69.6 years. Associated diseases were found in 92% of them. Pelvic surgery (65, 57.5%) was the main reason for surgery. There were 5 (4.4%) conversions to open surgery and 0% mortality. The overall complication rate was 10 patients (8.8%). Among 9 (7.96%) patients with post-operative complications; Grade I, II, IIIa, IIIb and V complications were observed in 1.77%, 12.8%, 3.53%, 0.88% and 0.88% of cases, respectively. Complications correlated with male, operative time >250 and cancer with high risk ratio (2.76, 2.11 and 3.02, respectively); however the correlations of all of preoperative risk factors and postoperative complications showed no statistically significant differences.

CONCLUSIONS: Laparoscopic surgical treatment of urologic disease in elderly patients performed is feasible and well tolerated, with low perioperative morbidity and a good overall survival rate.

Source of Funding: None

MP2A-15 POSITIVE SURGICAL MARGINS LOCATION IN ROBOTIC PROSTATECTOMY: ARE TRENDS CHANGING IN THE PT3 POPULATION?

Table 1. Summary of Patient Characteristics

<table>
<thead>
<tr>
<th></th>
<th>OPEN</th>
<th>RALP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Mean ± SD [Range]</td>
<td>Mean ± SD [Range]</td>
</tr>
<tr>
<td></td>
<td>62.10 ± 6.50 [43–75]</td>
<td>62.80 ± 7.30 [43–76]</td>
</tr>
<tr>
<td><strong>Operative Time (mins)</strong></td>
<td>269.83 ± 56.36 [180–520]</td>
<td>288.82 ± 120.63 [127–720]</td>
</tr>
<tr>
<td><strong>Estimated Blood Loss (mL)</strong></td>
<td>647.08 ± 295.18 [300–1500]</td>
<td>154.88 ± 118.92 [50–700]</td>
</tr>
<tr>
<td><strong>Hospital Stay (LOS)</strong></td>
<td>6.75 ± 2.16 [4–17]</td>
<td>4.02 ± 1.35 [2–9]</td>
</tr>
</tbody>
</table>

Table 2. Incidence of complications

<table>
<thead>
<tr>
<th>Complications</th>
<th>OPEN</th>
<th>Management</th>
<th>RALP</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectal Injury</td>
<td>3 (6)</td>
<td>Two layer suture for 2 patients, diverting colostomy</td>
<td>1 (2)</td>
<td>Two layer suture</td>
</tr>
<tr>
<td>Urethrovaginal Stenosis</td>
<td>5 (9)</td>
<td>Endoscopic bladder neck incision</td>
<td>3 (4)</td>
<td>Endoscopic bladder neck incision</td>
</tr>
<tr>
<td>Urinary Leakage</td>
<td>1 (2)</td>
<td>Prolonged bladder drainage</td>
<td>2 (4)</td>
<td>Prolonged bladder drainage</td>
</tr>
<tr>
<td>Urethra</td>
<td>0</td>
<td>N/A</td>
<td>1 (2)</td>
<td>Prolonged bladder drainage with suprapubic catheter insertion</td>
</tr>
<tr>
<td>Transfusion</td>
<td>30 (62)</td>
<td>N/A</td>
<td>3 (6)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 3. Summary of histopathological data

<table>
<thead>
<tr>
<th>Criterion</th>
<th>OPEN</th>
<th>N (%)</th>
<th>RALP</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gleason Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>14 (29)</td>
<td>14 (15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>21 (44)</td>
<td>22 (41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3 (6)</td>
<td>4 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5 (10)</td>
<td>4 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2 (4)</td>
<td>1 (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Positive Margin Rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apex</td>
<td>4 (8%)</td>
<td>1 (14%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td>2 (4%)</td>
<td>2 (14%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anterior</td>
<td>1 (2%)</td>
<td>2 (14%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multifocal</td>
<td>2 (4%)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distal urethra</td>
<td>0</td>
<td>2 (28%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximal &amp; Distal urethra</td>
<td>0</td>
<td>1 (14%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INTRODUCTION AND OBJECTIVES: The most common site of a positive surgical margin (PSM) during open or robotic prostatectomy is the apex. As such, surgeons are cognizant of improving apical positive surgical margin rates, however, it has been suggested that other PSM locations are more likely to result in biochemical recurrence (BCR). We analyzed the trends of PSM locations from 2005 to 2011 in 587 subjects that had T3 pathological stage disease at RARP. We aimed to describe our changing incidence of positive surgical margins at the apex and elsewhere in the only series to date.

METHODS: A single-institution, single-surgeon retrospective review was done of 587 patients who underwent RARP with T3 pathological stage disease from 2005 to 2011. The PSM incidence and rates were stratified by location. PSM location categories were: Posterior, Anterior, Lateral, Base, Apex, Bladder Neck, and Seminal Vesicles. The PSM rates per location were trended.

RESULTS: From 2005 to 2011, the overall PSM rate for our study population of T3 patients has been decreasing at 4.23% per year, with the most recent overall PSM rate at 32.99%. However, during this time, the posterior PSM rates in T3 patients increased by 4.05% per year. The posterior PSM rate peaked at 56.25% in the most recent year, compared to a 26.32% PSM rate in 2005. Apical PSM decreased 5.37% per year, with the lowest rate at 10.42% most recently. Bladder neck margin rates have increased at 3.08% per year with the highest PSM rate in the most recent year at 16.67%. There were no major changes in other PSM locations in the T3 population over the study period.

CONCLUSIONS: Many methodological studies have helped surgeons achieve a safe and successful apical dissection during RARP, but has this come at the expense of increasing PSM elsewhere? This study is the first to examine this question in the T3 RARP population. Our data describes an increased posterior and decreased apical PSM in this group of patients. It is important for surgeons to be aware of their trends in PSM location, especially when considering that PSM locations other than the apex may be more correlated with BCR.

Source of Funding: none

TRENDS OF PSM LOCATIONS FROM 2005 TO 2011 IN pT3 PATIENTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Posterior, n(%)</th>
<th>Anterior, n(%)</th>
<th>Lateral, n(%)</th>
<th>Base, n(%)</th>
<th>Apex, n(%)</th>
<th>Seminal Vesicles, n(%)</th>
<th>Bladder Neck, n(%)</th>
<th>Total pT3 Pts with PSM</th>
<th>Overall pT3 PSM Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>(21.0%)</td>
<td>(15.36%)</td>
<td>(15.36%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
</tr>
<tr>
<td>2006</td>
<td>(14.30%)</td>
<td>(14.30%)</td>
<td>(14.30%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
</tr>
<tr>
<td>2007</td>
<td>(17.48%)</td>
<td>(17.48%)</td>
<td>(17.48%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
</tr>
<tr>
<td>2008</td>
<td>(17.48%)</td>
<td>(17.48%)</td>
<td>(17.48%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
</tr>
<tr>
<td>2009</td>
<td>(20.00%)</td>
<td>(20.00%)</td>
<td>(20.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
<td>(0.00%)</td>
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</table>

MP2A-16 REMOVAL OF PELVIC SCHWANNOMA USING A HAND-ASSISTED TRANSPERITONEOSCOPIC APPROACH: DESCRIPTION OF AN EFFECTIVE NOVEL TECHNIQUE

Thomas Y. Hsuhen*, Allen W. Chiu, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: A 67 years old female presented to our clinic with the chief complaint of right low abdominal discomfort with dull pain for more than 3 months. Physical examination revealed one palpable mass at right lower quadrant of abdomen. Serum biochemistry and blood routine showed negative results. Abdominal computed tomography showed one 8 x 10 cm heterogenous retroperitoneal mass surrounded by external iliac and internal iliac artery.

METHODS: The patient was put in supine position. One 7 cm incision was made at periumbilical area for hand-assisted device application. Two trocars measuring 10 mm and 12 mm were inserted under laparoscopic guidance. The tumor was surrounded by external iliac artery and vein, and was excised with the aid of bipolar electrocautery.

RESULTS: Total operative time was 75 minutes and the estimated blood loss was 50 ml. Postoperative analgesics use was 15 mg morphine sulfate equivalents. The pathology report showed retroperitoneal schwannoma. Convalescence was uneventful and she was discharged 7 days after operation. There was no tumor recurrence at 9-month followup.

CONCLUSIONS: Retroperitoneal schwannoma was a rare disease accounting for 1–3% of all schwannoma. Preoperative diagnosis is very difficult to make due to lack of typical symptoms and typical image features. Surgical excision is the treatment of choice for retroperitoneal schwannoma and the possibility of local recurrence and malignant change was ever reported in previous literatures. There were only a few reports evaluating the availability of laparoscopic resection of retroperitoneal schwannoma. It was reported the average size of the tumor and the mean operative time were 45 mm and 174 minutes, respectively. In this patient, we use hand-assisted laparoscopic approach for tumor removal. This modified technique warrants efficient minimal-invasive operation and rapid post-operative recovery.

Source of Funding: none

MP2A-17 PREDICTING MIDDLE-TERM SURVIVAL IN INTERMEDIATE RISK PROSTATE CANCER IN PATIENTS SUBMITTED TO ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP) AND LAPAROSCOPIC RADICAL PROSTATECTOMY (LRP) WITH AND WITHOUT PLND

Guilherme de Almeida Prado Costa*, Ana Maria Autran-Gomez, Francois Audenet, Rafael Sanchez-Sulas, Dominique Prapotnich, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: Over the last decades, the role of pelvic lymph node dissection (PLND) in the treatment of prostate cancer (PCa) has been a highly debated topic, even more in intermediate risk patients.

Objectives. The objective of the present study was to determine the potential independent predictive factors for biochemical recurrence [BCR]-free-survival in patients with intermediate risk PCa submitted to RARP and LRP with and without PLND.

METHODS: A prospectively maintained data base was used to evaluate 2293 consecutive patients at intermediate risk (D’Amico Classification) who were treated with RARP or LRP at our institution between 1998 and 2012. The risk factors for BCR-free survival, were explored using Cox regression models.

RESULTS: Table 1 shows the clinical and pathological characteristics of study population. A total of 630 (27%) patients had PLND, where 173 (27%) were submitted to RARP and 457 (73%) to LRP. The median lymph node yield was 10 (range 1–24) in RARP and 7 (1–16) in LRP (p = 0.004), 6 (3%) of RARP patients and 15 (3%) in LRP reported pN+ . 1663 (73%) not received PLND, 505
Table 1. Clinical and pathological characteristics of patients with and without PLND

<table>
<thead>
<tr>
<th></th>
<th>RALP</th>
<th>LRP</th>
<th>p-value</th>
<th>RALP</th>
<th>LRP</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ageyr</td>
<td>73</td>
<td>87</td>
<td>0.054</td>
<td>86</td>
<td>118</td>
<td>0.198</td>
</tr>
<tr>
<td>BMI kg/m²</td>
<td>28.8±3.2</td>
<td>28.9±3.6</td>
<td>0.108</td>
<td>28.7±3.1</td>
<td>29.3±3.5</td>
<td>0.097</td>
</tr>
<tr>
<td>PSA</td>
<td>7</td>
<td>11</td>
<td>0.047</td>
<td>6</td>
<td>10</td>
<td>0.03</td>
</tr>
<tr>
<td>T-stage</td>
<td>1</td>
<td>2</td>
<td>0.103</td>
<td>1</td>
<td>2.7</td>
<td>0.097</td>
</tr>
<tr>
<td>N-stage</td>
<td>1</td>
<td>2</td>
<td>0.047</td>
<td>1</td>
<td>2.7</td>
<td>0.03</td>
</tr>
<tr>
<td>Gleason score</td>
<td>6.6±2.4</td>
<td>6.5±2.4</td>
<td>0.99</td>
<td>6.5±2.4</td>
<td>6.5±2.4</td>
<td>0.99</td>
</tr>
</tbody>
</table>

CONCLUSIONS: The benefits of PLND in patients at intermediate risk PCa, remains unclear. Long term follow-up in RARP and LRP are need to evaluate the therapeutic benefit of PLND.

Source of Funding: None

MP2A-18 STAGE MIGRATION OF PROSTATE CANCER FOLLOWING A NATIONAL DISASTER – ANALYSIS OF THE SURVEILLANCE EPIDEMIOLOGY END RESULTS DATABASE

Sree Harsha Mandava*, Greg Mitchell, Larry Webber, Oliver Sartor, Raju Thomas, Benjmin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Stage and grade migration of prostate cancer following Hurricane Katrina was assessed at an academic medical center in New Orleans and compared to the national Surveillance Epidemiology End Results (SEER) database. We hypothesized a potential increase in grade and stage as a result of decreased access to the healthcare infrastructure after the disaster. We then examined the association between physician density and prostate cancer demographics.

METHODS: Between 1999 and 2009, 703 patients were treated for prostate cancer at a single institution. From records which were available for analysis, Pre-Hurricane Katrina (PreK), patients who underwent radical prostatectomy (RP) were compared to patients who underwent prostate cancer surgery post-Hurricane Katrina (PostK). In addition, 14,370 patients with prostate cancer between 2000 and 2010 were prospectively enrolled. A matched pair analysis was used for the extirpative part of the procedure; then a 9 cm incision was performed for specimen extraction and urinary diversion. Patients were matched 1:1 with others undergoing open RC in the same years by the same surgeon. Peri and postoperative variables were compared by Wilcoxon Rank sum or χ²-test, as appropriate. Kaplan-Meier curves and univariate Cox regressions were performed to analyze the influence of the surgical approach on recurrence-free survival. Continence was assessed during follow up in patients with orthotopic neobladder.

RESULTS: 54 patients undergoing laparoscopic RC were enrolled and matched. No statistically significant difference in age, sex, BMI, smoking status, neoadjuvant therapy, pT, pN and lymphovascular invasion was present between the two groups. EBL was significantly reduced in the laparoscopic group (750 vs 1500 cc, p <0.0001). Clavien 1 complications, particularly postoperative ileus, was significantly more frequent in the open group (30 vs 13%, p=0.03). No significant difference was observed for complications Clavien >II. 81% (25/31) of patients in the laparoscopic group with orthotopic neobladder were continent at 1 year. Mean oncologic follow up was 47±34 mo in the laparoscopic and 21±18 mo in the open cohort. No statistically significant difference in pT2c, pT3a, pT3b from PreK to PostK. The mean age and standard deviation (SD) PreK was 59.5 and PostK 60.0 years of age compared to SEER age of 77.4 years of age.

CONCLUSIONS: Hurricane Katrina brought significant disruption to the residents and healthcare system of the Gulf Coast. TNM staging revealed a significant disparity between Louisiana residents compared to the national registry which revealed further upward migration PostK. These results possibly reflect the effects of lack of access to healthcare following a natural disaster.

Source of Funding: Departmental funds

MP2A-19 LONG TERM EVALUATION OF ONCOLOGIC AND FUNCTIONAL OUTCOMES AFTER LAPAROSCOPIC OPEN-ASSISTED RADICAL CYSTECTOMY: A MATCHED PAIR ANALYSIS


INTRODUCTION AND OBJECTIVES: Enthusiasm for the application of a minimally invasive approach to radical cystectomy (RC) is increasing; however, long term oncologic data is still insufficient. Aim of the study was to evaluate morbidity and long term oncologic and functional results of our laparoscopic open-assisted RC technique, comparing it with our open approach.

METHODS: Patients undergoing laparoscopic RC for urothelial cancer between 2000 and 2010 were prospectively enrolled. A laparoscopic approach was used for the extirpative part of the procedure; then a 9 cm incision was performed for specimen extraction and urinary diversion. Patients were matched 1:1 with others undergoing open RC in the same years by the same surgical team. Peri and postoperative variables were compared by Wilcoxon Rank sum or χ²-test, as appropriate. Kaplan Meier curves and univariate Cox regressions were performed to analyze the influence of the surgical approach on recurrence-free survival. Continence was assessed during follow up in patients with orthotopic neobladder.

RESULTS: 54 patients undergoing laparoscopic RC were enrolled and matched. No statistically significant difference in age, sex, BMI, smoking status, neoadjuvant therapy, pT, pN and lymphovascular invasion was present between the two groups. EBL was significantly reduced in the laparoscopic group (750 vs 1500 cc, p <0.0001). Clavien 1 complications, particularly postoperative ileus, was significantly more frequent in the open group (30 vs 13%, p=0.03). No significant difference was observed for complications Clavien >II. 81% (25/31) of patients in the laparoscopic group with orthotopic neobladder were continent at 1 year. Mean oncologic follow up was 47±34 mo in the laparoscopic and 21±18 mo in the open cohort. No statistically significant difference in pT2c, pT3a, pT3b from PreK to PostK. The mean age and standard deviation (SD) PreK was 59.5 and PostK 60.0 years of age compared to SEER age of 77.4 years of age.

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Source of Funding: Departmental funds

FIG. 1. Recurrence free survival according to surgical approach
significant difference in recurrence free survival was found across the two groups ($p = 0.677$) (fig 1). The univariate cox regression confirmed the non-significant association (HR for open surgery: 1.12; 0.58–2.16 $p = 0.74$).

CONCLUSIONS: Laparoscopic RC may determine lower EBL and less ileus. Our results suggest that laparoscopy is safe and may determine non-inferior cancer control compared to open surgery on the long term, with excellent functional outcomes. However, these results must be validated by larger studies.

Source of Funding: none

MP2A-20 PERIOPERATIVE, PATHOLOGIC AND LONG TERM ONCOLOGIC RESULTS OF LAPAROSCOPIC RADICAL CYSTECTOMY IN EIGHT EXCELLENCE CENTERS ACROSS EUROPE: A MULTICENTER PROSPECTIVE EUROPEAN COHORT

Simone Albisinni*, Renaud Bollens, Bruxelles, Belgium, Jens Rassweiler, Dogu Teber, Heilbronn, Germany, Jens-Uwe Stolzenburg, Leipzig, Germany, Piotr Chlosta, Krakow, Poland, Franco Gaboardi, Milan, Belgium, Claude Abbou, Alexandre De la taille, Creteil, France, Peter Rimington, Eastbourne, United Kingdom, Roland Van Velthoven, Bruxelles, Belgium

INTRODUCTION AND OBJECTIVES: Laparoscopic radical cystectomy (LRC) is gaining acceptance in many European centers. However, to date its results have been extrapolated mainly from small series, lacking long term follow up. Aim of this study is to explore perioperative, pathologic and long term oncologic outcomes in a large cohort of patients treated by LRC in 8 centers across Europe.

METHODS: Patients undergoing LRC were prospectively en-rolled between 2000 and 2013. In all centers the extirpative part of the procedure was performed via a laparoscopic approach, while for urinary diversion either a mini laparotomy or an intracorporeal technique was used. OR time, estimated blood loss (EBL), transfusion rate, lymph node (LN) retrieval, margin status, length of stay and complications were recorded. Local, urethral and distant recurrences were reported. Subanalyses were performed to describe variables not available for the entire cohort. Kaplan Meier curves and cox regressions were constructed to explore predictors of recurrence and recurrence free survival rates.

RESULTS: 433 patients undergoing LRC were enrolled. Demographic, pathologic, peri- and postoperative outcomes are shown in table 1. Of note, median EBL was 510 ml (300–1000) and LN retrieval was 14 (9–19). Overall positive margin rate was 11%, decreasing to 6% when excluding patients with pT4 cancers. Follow up was available for 359 patients, with a mean follow up of 30 + 29 mo: of these 99 experienced recurrences. On multivariate analysis, pT and pN were significant predictors of recurrence (HR for pT: 1.70;1.33–2.19 $p < 0.0001$; HR for pN: 1.59;1.19–2.12 $p = 0.002$). Overall recurrence free survival rates were 70% at 1 year, 60% at 2 and 49% at 5 year follow-up (figure 1).

CONCLUSIONS: In experienced hands LRC is safe and its long term outcomes are comparable to those of the open procedure, with excellent perioperative results. Further long term follow up data is needed before elevating LRC to the same position of the open technique.

Source of Funding: none

MP2A-21 ROBOTIC-ASSISTED LAPAROSCOPIC REPAIR OF COMPLEX VESICOVAGINAL FISTULAS AT A SINGLE ACADEMIC INSTITUTION

Thomas Tieu*, Sohail Siddique, Alex Gorbonos, Springfield, IL

INTRODUCTION AND OBJECTIVES: We report on our series of complicated robotic-assisted laparoscopic vesicovaginal fistula (VVF) repairs and the results.
MP2A BASIC RESEARCH: LOWER TRACT PHYSIOLOGY

MP2A-22  PURE-LAPAROSCOPIC ORTHOTOPIC ILEAL NEobladder and ILEAL CONDUIT DURING RADICAL CYSTECTOMY
Changjun Yin*, Pengfei Shao, Chao Qin, Nanjing, China, People's Republic of

INTRODUCTION AND OBJECTIVES: Most urinary diversion during laparoscopic radical cystectomy are performed extracorporeal. With development of laparoscopic techniques, intracorporeal urinary reconstruction may provide smaller incision and comparable surgical outcomes. The present study was to investigate the feasibility and efficiency of pure-laparoscopic orthotopic ileal neobladder and ileal conduit (Bricker operation) during radical cystectomy.

METHODS: From March 2011 to March 2013, 70 patients (56 male and 14 female) with bladder cancer received laparoscopic radical cystectomy with intracorporeal orthotopic ileal neobladder or ileal conduit. The pelvic lymphadenectomy was firstly done followed by total cystectomy. In the orthotopic ileal neobladder group, a length of 40 cm ileum was chosen for urinary reservoir. Anastomosis stapes was applied for harvesting ileal segment and recovery of ileal continuity. The lowest position of ileal segment was anastomosed with posterior urethra. Then antimesenteric ileal wall was incised with proximal 10 cm ileum saved for anastomosis with bilateral ureters. Small bowel loops was rearranged in a U shape and ileal plate was sutured to the antimesenteric ileal wall was incised with proximal 10 cm ileum saved for anastomosis with bilateral ureters. Small bowel loops was rearranged in a U shape and ileal plate was sutured to the

RESULTS: All procedures were performed successfully without open conversion and major intra/post-operative complications. Mean total operative time was 290 min. Mean intraoperative blood loss was 450 ml and 11 case received blood transfusion. Mean bowel movement occurred on 3 day and all patients have fluid diet on 5 day. In orthotopic ileal neobladder group, ureteric stent was kept for 14 days and catheter was removed on the 21 day and all patients got continence on discharge.

CONCLUSIONS: Pure-laparoscopic orthotopic ileal neobladder and ileal conduit during radical cystectomy is safe and feasible with the premise of laparoscopic skills.

Source of Funding: none

MP2A-23  LAPAROSCOPIC EXTENDED PELVIC LYMPH NODE DISSECTION DURING RADICAL CYSTECTOMY
Pengfei Shao*, Changjun Yin, Chao Qin, Nanjing, China, People's Republic of

INTRODUCTION AND OBJECTIVES: To study the surgical techniques and clinical results of laparoscopic extended pelvic lymph node dissection during radical cystectomy.

METHODS: From July 2007 to February 2013, 150 patients with bladder carcinoma received laparoscopic radical cystectomy with extended pelvic lymphadenectomy and urinary diversion. Pelvic lymph node dissection (PLND) was first performed within extended template. The lower part of aorta and vena cava were isolated from the bifurcation of common iliac artery to the level of the inferior mesenteric artery. The standard template PLND was continued along the external iliac vessels, internal iliac vessels and obturator nerve. The bladder was then removed laparoscopically and urinary diversion was performed.

RESULTS: All procedures were performed successfully and no open conversion occurred. The duration of the procedure for extended PLND was 50°C185 min (mean 85 min) and total duration was 190°C470 min (mean 256 min). Intra-operative blood loss was 150°C1500 mL (mean 315 mL). The pathologic analysis revealed 143 urothelial carcinoma, 5 adenocarcinoma, 2 squamous cell carcinoma. A range of 15°C53 lymph nodes were dissected in the patients with a mean of 28.3. Positive nodes were confirmed in 26 cases. Postoperative complications included 4 cases of bowel obstruction, 2 cases of mild urine leakage and 24 cases of lymphatic leakage.

CONCLUSIONS: Laparoscopic radical cystectomy with extended pelvic lymphadenectomy is indicated in selected patients with bladder cancer. It is safe, minimally invasive and more lymph nodes can be retrieved with a higher success rate by extended pelvic lymphadenectomy.

Source of Funding: None

MP2A-24  COMPARISON OF OPEN, LAPAROSCOPIC AND ROBOTIC-ASSISTED RADICAL CYSTECTOMY: A SINGLE-TEAM EXPERIENCE
Yang Cheng-Kuang*, Ou Yen-Chuan, Taichung, Taiwan

INTRODUCTION AND OBJECTIVES: The gold standard for non-metastatic muscle invasive bladder cancer remains open radical cystectomy with bilateral pelvic lymph node dissection. Laparoscopic and robotic-assisted radical cystectomy has been demonstrated the technical feasibility and safety of this procedure. We compared open, laparoscopic, and robotic-assisted radical cystectomy in our experience.

METHODS: Retrospective comparison of 31 patients from 2006 to August 2012 undergoing open radical cystectomy (ORC) (n=8), laparoscopic radical cystectomy (LRC) (n=15), and...
robotic-assisted radical cystectomy (RARC) (n = 8) performed by a team of two surgeons in Taichung Veterans General Hospital. We report perioperative data, complication rates, length of hospital stay, and initial oncological outcomes of our series.

RESULTS: The mean operative time was 415.6, 306.3, and 281.6 minutes in ORC, LRC and RARC groups. The mean blood loss was 878.3, 223.3, and 496.3 ml in ORC, LRC and RARC groups. Transfusion rate was 87.5%, 20%, 37.5%. No major complications occurred during or after the operation. The mean dissected lymph node number was 29.1, 27.6, and 28 in ORC, LRC and RARC groups.

CONCLUSIONS: Our experience showed that the laparoscopic and robotic radical cystectomy is a safe and feasible surgical technique. The blood loss and hospital days seem lower than open radical cystectomy. The total number of dissected lymph nodes is adequate by laparoscopic approach or robotic approach. Long-time follow-up and large case number are necessary to determine the oncologic outcome.

Source of Funding: none

MP2A-25 SINGLE SURGEON EXPERIENCE OF ROBOTIC VERSUS OPEN RADICAL CYSTECTOMY: COMPARISON OF QUALITY OF LYMPH NODE DISSECTION AND PERIOPERATIVE COMPLICATIONS

Hoon Ah Jang*, Sung Gu Kang, Seok Ho Kang, Jun Choen, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: To compare the LND quality and complications of robot-assisted radical cystectomy (RARC) versus open radical cystectomy (ORC).

METHODS: LND and 90-day complications using the Clavien classification system were compared in 44 RARC and 21 ORC which were performed from August 2007 to December 2012 by single surgeon.

RESULTS: Characteristics of patients were reported at table 1. Estimated blood loss was significantly decreased in RARC compared with ORC (p = 0.00), while total operation time, hospital stay, time to flatus or oral intake were similar between two groups. Ratio of standard LND/extended LND was similar between two groups. The mean number of LNs harvested was 24 in RARC and 18 in ORC (p = 0.01). Overall, minor and major complication rates were similar between two groups, albeit decreasing numerical tendency in RARC. Potential study limitations include inclusion of initial experience of RARC during learning curve and potential selection bias of patients.

CONCLUSIONS: RARC showed high quality of LND and comparable complication rate when compared with ORC.

Source of Funding: none

TABLE 1. PATIENT CHARACTERISTICS AND PERIOPERATIVE OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>RARC (n = 44)</th>
<th>ORC (n = 21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years old)</td>
<td>63 (53.0-69.2)</td>
<td>65 (48-81)</td>
<td>0.30</td>
</tr>
<tr>
<td>Male:Female</td>
<td>40:4</td>
<td>18:3</td>
<td>0.67</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>24.6 (21.7-27.1)</td>
<td>23.8 (19.5-31.3)</td>
<td>0.70</td>
</tr>
<tr>
<td>ASA score (1-2/3/4)</td>
<td>7/26/10/1</td>
<td>7/16/2/1</td>
<td>0.44</td>
</tr>
<tr>
<td>Necadjuvant chemotherapy</td>
<td>3 (6.9%)</td>
<td>4 (19.0%)</td>
<td>0.21</td>
</tr>
<tr>
<td>Prior pelvic radiotherapy</td>
<td>2 (4.5%)</td>
<td>5 (23.6%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Prior abdominal and/or pelvic surgery</td>
<td>9 (20.5%)</td>
<td>5 (23.6%)</td>
<td>0.75</td>
</tr>
<tr>
<td>Type of diversion</td>
<td>ileal conduit</td>
<td>25 (59.1%)</td>
<td>19 (90.5%)</td>
</tr>
<tr>
<td>orthotopicneobladder</td>
<td>17 (38.6%)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>ureterocutaneostomy</td>
<td>1 (2.3%)</td>
<td>2 (9.5%)</td>
<td></td>
</tr>
<tr>
<td>Total operative time (min)</td>
<td>403 (310-696)</td>
<td>472.5 (350-585)</td>
<td>0.91</td>
</tr>
<tr>
<td>Estimated blood loss (ml)</td>
<td>415 (150-850)</td>
<td>725 (350-2000)</td>
<td>0.00</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>17.5 (10-30)</td>
<td>19 (12-35)</td>
<td>0.55</td>
</tr>
<tr>
<td>Time to flatus (days)</td>
<td>3 (1-4)</td>
<td>3 (1-7)</td>
<td>0.59</td>
</tr>
<tr>
<td>Time to oral intake (days)</td>
<td>4 (2-14)</td>
<td>4 (2-14)</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Median (range)
ASA; American Society of Anesthesiologists classification

TABLE 2. PATHOLOGIC OUTCOMES AND LYMPH NODE DISSECTION

<table>
<thead>
<tr>
<th></th>
<th>RARC (n = 44)</th>
<th>ORC (n = 21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathological stage</td>
<td>34 (77.1%)</td>
<td>11 (81.9%)</td>
<td>0.24</td>
</tr>
<tr>
<td>T2 or less</td>
<td>10 (22.7%)</td>
<td>8 (38.1%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Margin positivity</td>
<td>0 (0%)</td>
<td>1 (4.5%)</td>
<td>1.0</td>
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Type of LND

<table>
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<tr>
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<th>RARC (n = 44)</th>
<th>ORC (n = 21)</th>
<th>p-value</th>
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<tr>
<td>None</td>
<td>2 (4.5%)</td>
<td>1 (4.5%)</td>
<td>0.67</td>
</tr>
<tr>
<td>Standard LND</td>
<td>14 (31.8%)</td>
<td>9 (42.9%)</td>
<td>0.67</td>
</tr>
<tr>
<td>Extended LND</td>
<td>28 (61.4%)</td>
<td>11 (52.4%)</td>
<td>0.67</td>
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</table>

LN yield

<table>
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<tr>
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<th>RARC (n = 44)</th>
<th>ORC (n = 21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>24 (54.5%)</td>
<td>18 (85.7%)</td>
<td>0.02</td>
</tr>
<tr>
<td>Standard PLND</td>
<td>14.5 (33.2%)</td>
<td>8 (38.1%)</td>
<td>0.43</td>
</tr>
<tr>
<td>Extended PLND</td>
<td>40 (9)</td>
<td>20 (90.9%)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

LN positivity

<table>
<thead>
<tr>
<th></th>
<th>RARC (n = 44)</th>
<th>ORC (n = 21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor (Clavien 1-2)</td>
<td>8 (18.2%)</td>
<td>3 (14.2%)</td>
<td>0.71</td>
</tr>
<tr>
<td>Major (Clavien 3-5)</td>
<td>12 (27.3%)</td>
<td>5 (23.8%)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

INTRODUCTION AND OBJECTIVES: To compare the LND quality and complications of robot-assisted radical cystectomy (RARC) versus open radical cystectomy (ORC).

METHODS: LND and 90-day complications using the Clavien classification system were compared in 44 RARC and 21 ORC which were performed from August 2007 to December 2012 by single surgeon.

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CONCLUSIONS: RARC showed high quality of LND and comparable complication rate when compared with ORC.

Source of Funding: none
MP2B BASIC RESEARCH: LAPAROSCOPY/ROBOTICS/LESS

MP2B-01 EVALUATION OF THE IMPACT OF THREE-DIMENSIONAL VISION ON LAPAROSCOPIC PERFORMANCE

Philip Bucur*, Achim Lusch, Ashleigh Menbadji, Michael A Liss, Zhamshid Okhunov, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Recent technological advancements have led to the introduction of new 3-dimensional (3D) cameras in laparoscopic surgery. These novel optical systems may yield improved depth perception, spatial location, and precision when compared to conventional 2-dimensional (2D) laparoscopic equipment. We compared 3D vs. 2D performance using six standardized surgical tasks and stratified by level of laparoscopic experience.

METHODS: We performed a prospective, randomized educational study comparing a 0° 3D camera with a conventional 0° 2D camera using a high definition monitor (Karl Storz, Tuttingen, Germany). All participants completed six standardized basic skills tasks utilizing laparoscopic tools. Quality testing scores were measured by dropped equipment, grasping attempts, and precision of needle entry and exiting. Additionally resolution, color distribution, depth of field and distortion were measured using optical test targets. After adjusting for level of training, 2D vs. 3D measurements were statistically analyzed using SPSS 10 (SPSS, IBM Corporation, Armonk, New York) and a p-value < 0.05 was considered as statistically significant.

RESULTS: 10 medical students, 7 residents and 7 expert surgeons were evaluated. There was a significant difference between levels of training and performance on all six skill tasks and quality scores, except for cut the line quality score and peg transfer quality score. After adjusting for training level, there was a significant difference in performance between 2D vs. 3D environment in the number of rings left after completion of the ring transfer (p = 0.041), number of rings threaded (p = 0.0004), peg transfer completion time (p = 0.047), and number of pegs left after completion of peg transfer (p = 0.012). It also showed a significant difference for ring transfer quality score (p = 0.046), thread the rings quality score (p = 0.0002), knot tying quality score (p = 0.004), and for peg transfer quality score (p = 0.001). The three dimensional system also showed less distortion (p = 0.0008), a higher depth of field (p = 0.0004).

CONCLUSIONS: 3D laparoscopic equipment results in a significant improvement in depth perception, spatial location, and precision compared to the conventional 2D equipment. With this improved quality of vision even expert laparoscopic surgeons may benefit from 3D imaging. Clinical correlation is in progress.

Source of Funding: None

MP2B-02 LAPAROSCOPIC WIRELESS PALPATION DEVICE: PRELIMINARY ASSESSMENT OF TISSUE STIFFNESS MEASUREMENTS ON ELASTIC MODULI


INTRODUCTION AND OBJECTIVES: Renal ultrasonography (RUS) in minimally-invasive partial nephrectomy is limited by lack of multiple dimensions, loss of real-time images once the probe is removed, need for laparoscopic port space and cabling to external monitors for use, and lack of organ surface mapping. Considering these disadvantages, we have developed a laparoscopic wireless palpation device (WPD) to measure differences in sub-surface tissue density (similar to digital palpation).

METHODS: The WPD, which utilizes an external magnetic field source, can be used to palpate the target with a laparoscopic grasper. The WPD is cylindrical with a 12.7 mm diameter and a 60 mm length, (compatible with a 12 mm laparoscopic port). Indentation pressure is obtained by a tactile sensor embedded in the tip. WPD relative position is obtained in real-time by magnetic field sensors. Tissue indentation depth is obtained, integrating the WPD position as indentation pressure is detected. A wireless microcontroller transmits the measurements acquired by the magnetic field sensors and the tactile element. The WPD was assessed against a standard indenter to measure the stiffness of different PVC samples (Liquid Plastic, M-F Manuf.). The WPD was used to palpate the samples in a laparoscopic trainer model using a standard 5-mm grasper. The same samples were then indented with a standard material characterization system for comparison.

RESULTS: Elastic moduli stiffness obtained by interpolating the stress-strain data with the least square fitting for the standard indenter and for the WPD were respectively E(=STANDARD)= 219.97 kPa (R2 = 0.993) and E(WPD)= 218.70 kPa (R2 = 0.995) for the stiffer sample, and E(=STANDARD)= 45.17 kPa (R2 = 0.993) and E(WPD)= 41.48 (R2 = 0.995) for the softer sample. The average relative error was 4.37%. Indentation depth reached 1.22 mm with an indentation force equal to 1.2 N, which shows how the WPD is able to detect the stiffness of a soft material.

CONCLUSIONS: The WPD dimensions will allow completely intracorporeal use, eliminating the need for laparoscopic port space. The WPD was able to detect variations in tissue stiffness with accurate and repeatable measurements. From a urology perspective, detecting and mapping changes in tissue stiffness could further improve the accuracy of renal mass excision, especially the primarily endophytic masses. From a practical standpoint, technology that was limited by size and wired connections has been re-invented in a small, wireless form suited for laparoscopy.

Source of Funding: None

MP2B-03 LAPAROSCOPIC WIRELESS PALPATION DEVICE: PRELIMINARY ASSESSMENT OF SIMULATED TUMOR DETECTION IN AN ELASTIC MODULUS


INTRODUCTION AND OBJECTIVES: Renal ultrasonography (RUS) in minimally-invasive partial nephrectomy is limited by lack of multiple dimensions, loss of real-time images once the probe is removed, need for port space and cabling to external monitors for use, and lack of organ surface mapping. Considering these disadvantages, we have developed a laparoscopic wireless palpation device (WPD) to measure differences in sub-surface tissue densities (similar to digital palpation) and provide a 3-dimensional map for localization.

GRAPHIC IS A LIMITATION OF LACK OF MULTIPLE DIMENSIONS, LOSS OF REAL-TIME IMAGES WITHOUT THE PROBE, NEED FOR PORT SPACE AND CABLE TO EXTERNAL MONITORS FOR USE, AND LACK OF ORGAN SURFACE MAPPING. CONSIDER THE DISADVANTAGES, WE HAVE DEVELOPED A LAPAROSCOPIC WIRELESS PALPATION DEVICE (WPD) TO MEASURE DIFFERENCES IN SUB-SURFACE TISSUE DENSITIES (SIMILAR TO DIGITAL PALPATION) AND PROVIDE A 3-DIMENSIONAL MAP FOR LOCALIZATION.
METHODS: The WPD, which utilizes an external magnetic field source, can be used to palpate the target with a laparoscopic grasper. The WPD is cylindrical (12.7 mm diameter and a 60 mm length) and compatible with a 12 mm laparoscopic port. Indentation pressure is obtained by a tactile sensor embedded in the tip. WPD relative position is obtained in real-time by magnetic field sensors. A wireless microcontroller transmits the measurements acquired by the magnetic field sensors and the tactile element. The WPD was used to palpate a elastic modulus with simulated tumors embedded at a 2 mm depth. Using a real-time 3-dimensional mapping interface, the tumors and relative locations were assessed on the map.

RESULTS: Tumor locations were detected with an error in x, y and z components not greater than 5 mm (± 4.5 mm). The pseudo-stiffness achieved for the simulated tumors is 4.1 kPa/mm (± 0.6 kPa/mm), and 1.2 kPa/mm (± 0.5 kPa/mm) for the surrounding softer tissue sample. The percentage variation in the tumor pseudo-stiffness compared to the surrounding tissue was 342%. The real time 3-dimensional stiffness map obtained displays the three simulated tumors position (see Figure 1(A)) and associated pseudo-stiffness measurements (see Figure 1(B)).

CONCLUSIONS: The WPD measured the difference between soft tissue stiffness and tumor pseudo-stiffness, and relative positions, which are represented on 3-dimensional mapping. In combination with general localization using RUS, sub-surface tissue density mapping could further improve the accuracy of renal mass excision, especially primarily endophytic masses. Thus, technology that was once limited by size and wired connections has been re-invented in a small, wireless form suited for minimally invasive surgery.

Source of Funding: none

MP2B-04 OFF-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR HILAR TUMORS: ONCOLOGIC AND RENAL FUNCTIONAL OUTCOMES

Simpa Salami*, Arvin George, Nikhil Waingankar, Louis Kavoussi, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: Nephron preservation remains a key goal of laparoscopic partial nephrectomy (LPN). In this study, we present our experience demonstrating the feasibility of off-clamp laparoscopic partial nephrectomy (LPN) for hilar tumors and evaluate intermediate oncologic and renal functional outcomes.

METHODS: A retrospective review of LPN cases in 9 patients was performed. Hilar lesions were defined as renal cortical tumors in direct physical contact with the renal artery, vein, or both as identified on preoperative imaging and confirmed intraoperatively. Although the renal hilum vasculature was isolated for possible clamping if needed, tumor extirpation was performed off-clamp, eliminating WIT. The clinicopathologic parameters, perioperative course, complications, and long-term oncologic and renal functional outcomes were analyzed.

RESULTS: Nine patients underwent off-clamp LPN for complex hilar tumors. The mean age was 60.5 years, mean ASA score was 2, and mean BMI was 27.7 kg/m². The mean tumor size and volume were 3.2 cm and 35.8 cm³ respectively. A greater proportion of the tumors (55.6%) were endophytic and mostly of clear cell histology (78%). The mean operative time was 131 minutes, estimated blood loss 250 cc, need for transfusion 0%, and complication rates 22%. No positive margins were present intraoperatively or on final pathology. After a median follow-up of 42.8 months, there was no evidence of clinical or radiographic recurrence in any patient. There was no change in the mean estimated glomerular filtration rate preoperatively and at greater than 6 months follow up (97.2 ml/min vs. 81.3 ml/min; p=0.53).

CONCLUSIONS: Complex renal hilar tumors can be successfully managed with laparoscopic nephron-sparing surgery with elimination of warm ischemia time with preservation of perioperative, renal functional, and oncologic outcomes.

Source of Funding: none

MP2B-05 COMPARISON OF RENAL PARENCHYMAL CLOSING PRESSURE DURING OPEN, LAPAROSCOPIC AND ROBOTIC-ASSISTED RENAL RECONSTRUCTION

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INTRODUCTION AND OBJECTIVES: Contemporary options for extirpative renal surgery include open (OPEN), laparoscopic (LAP), and robotic-assisted (RAT) techniques. Renal reconstruction is a challenge, and patient outcomes are related to the quality of the parenchymal closure. In this in vitro study, we measured and compared renal parenchymal closing pressure with open, laparoscopic, and robotic-assisted technique.

METHODS: Using an ex vivo porcine kidney model, we created a standardized 4 cm simulated parenchymal partial nephrectomy defect. Participants were stratified into three groups by level of training and expertise. Participants were asked to effectively close the renal defect, closing force (CF) (force between edges of the parenchymal closure), closing force (CF) (force put on suture while closing the renal defect), and on purpose performed tearing force (TF) (maximum pulling force applied on the needle end of the suture until the parenchymal tissue begins to tear) in Newtons. Each surgical technique was repeated in triplicate.

RESULTS: A total of 23 participants were included in the study (8 medical students, 8 residents and 7 experts). There was no difference for TF between the various training levels or techniques (p=0.121, p=0.545 respectively). Regardless of training level, CF for RAT was significantly higher compared to LAP and OPEN (p=0.013). For TF, LAP shows a significant higher value compared to OPEN and RAT (p=0.012). There was a significant difference in the total time completing all tasks across all different techniques (p<0.001), OPEN vs. RAT vs. LAP (8.67 vs. 13.53 vs. 19.33 minutes).

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Current orthotopic bladder cancer (BCA) xenografts rely on tumor cell inoculation by either intravesical instillation (superficial model) or direct injection into the bladder wall (primary invasive model). Intravesical instillation is limited by the lack of cell lines that are tumorigenic when delivered in this manner. The invasive model inflicts morbidity by the need for laparotomy. Similar limitations apply when establishing orthotopic renal cancer (RCC) xenografts. We addressed these obvious limitations of existing animal models in uro-oncology and developed novel techniques for inoculating cancer cells orthotopically into urologic organs by ultrasound-guided percutaneous injection.

METHODS: For the establishment of primary invasive BCA xenografts human cancer cell lines (UM-UC1, UM-UC3 and UM-UC13) were inoculated into 50 athymic nude mice by percutaneous injection. PBS was injected between the muscularis and the mucosa and subsequently tumor cells were injected between these separated layers. Tumor growth was monitored via bioluminescence and ultrasound. A similar approach (successive injection of PBS and cells (Caki1)) was applied in order to establish orthotopic RCC xenograft tumors (n = 6). Furthermore superficial BCA xenograft tumors (n = 7) cells (UM-UC13) were suspended in Matrigel and intravesically delivered directly at the posterior wall.

RESULTS: Technical success rate of the ultrasound-guided percutaneous intramural injections was 100%, mortality was zero. Ultrasound and bioluminescence imaging confirmed presence of tumor in the anterior bladder wall in all animals on day 3 after inoculation. The average tumor volumes increased to 288.7 ml (+/− 60.1), 78.3 ml (+/− 13.4) and 394.4 ml (+/− 72.4) for UM-UC3, UM-UC13 and UM-UC1, respectively. The tumor uptake rate for orthotopic RCC xenografts was 100%, for superficial BCA xenografts 85%.

CONCLUSIONS: The minimal invasive and time efficient model for establishing primary invasive orthotopic bladder cancer xenografts has in our hands replaced the traditional approach. The ultrasound guided inoculation of superficial orthotopic bladder and orthotopic renal cancer xenografts is also feasible and our preliminary results will soon be verified in larger animal trials.

Source of Funding: None

MP2B-08 COMPARISON OF TISSUE DAMAGE AFTER USE OF BIPOLAR SEALING DEVICES IN AN ANIMAL MODEL
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INTRODUCTION AND OBJECTIVES: Bipolar sealing devices are thought to perform effective safe cutting and hemostasis. However, some papers reported that the use of bipolar sealing devices have some risk of thermal damage on the tissue touched to the blade. In this study we examine tip temperature and histological changes after cutting tissue with 4 devices: EnSeal TrioTM, EnSeal RoundTM, LigaSureTM and BiClampTM.

METHODS: Chicken muscle, pig greater omentum and intestine were used in this study. Firstly, maximum blade temperature of 3 devices was recorded at 5s, 15s, 30s and 45s application. Histological changes in pig intestine touched to the blade were compared after 5s, 15s, 30s and 45s application. Secondly, in the 4 devices tip temperatures were recorded continuously after the application for dividing tissue both extracorporeally and intracorporeally (laparoscopic). The width of lateral thermal
damage from the blade and difference in thermal damage between vessels were also evaluated histologically.

**RESULTS:** Tip temperature increases in proportion to the application time. EnSeal produced the lowest tip temperature (53 degrees Celsius/68 degrees Celsius = 5 s/45 s application). BiClamp produced the highest temperature (76.7 degrees Celsius/89.0 degrees Celsius = 5 s/45 s application). Histological thermal damage was also seen in proportion to the application time. Severe damage was observed after 15 seconds in all devices, and BiClamp showed the severest damage to the mucosal layer among three devices. At one application for cutting tissue, blade of BiClamp produced the highest temperature among all devices in both intracorporeal and extracorporeal conditions. Temperature was much increased and sustains high temperature longer in an intracorporeal setting than that in an extracorporeal setting. The width of thermal damage of EnSeal, Ligasure and BiClamp were 1.54 mm, 1.78 mm and 3.52 mm, respectively, and the difference was statistically significant. Vessels touched to the blade showed histological changes in inner layer by one application, and BiClamp produced the deep layer of the inner membrane, which might cause the irreversible change.

**CONCLUSIONS:** A longer sustained period of application by bipolar sealing devices causes greater tissue thermal damage while short application of EnSeal and Ligasure (within 5 seconds) does not. The risk of thermal damage was affected by the device, intracorporeal situation and tissue components. Surgeons should pay close attention to neighboring tissue and organs around the blade during application.

Source of Funding: none

**MP2B-09** COMPARISON OF THE ITRAINER AND STANDARD LAPAROSCOPIC TRAINER FOR BASIC LAPAROSCOPIC TASKS

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**INTRODUCTION AND OBJECTIVES:** Laparoscopic trainers have well documented value in surgical education. However, trainers are often expensive and may not be routinely accessible to trainees. The iTTrainer (iT) was developed as an inexpensive, portable laparoscopic trainer, based on the iPad imaging platform. The iT comprises both a hardware and software component (under development). In this preliminary study, we compare the iT and a standard pelvic trainer (SPT), using the thread-the-loops task, in assessing surgical skills and for image quality, resolution, brightness, comfort, and overall performance.

**METHODS:** We built and designed the iT to engage the iPad 3 optical system and standard laparoscopic instruments. A total of 45 subjects including undergraduates (n = 10), medical students (n = 10), residents (n = 10), and experts (n = 15) participated. Each participant was assigned the thread-the-loops task and was randomized to start on either the iT or SPT. Each participant received a 2 minute warm up followed by a 2 minute testing period. Upon completion, skill assessment was scored using the product of skill quality (0–4 scale) and the quantity of loops threaded (0–10 scale). Skill quality was determined by the number of inadvertent pullbacks and missed loops on first try. All participants were then asked to evaluate each trainer on image quality, resolution, brightness, comfort, and overall performance on a 1–5 Likert scale. Paired T-tests were performed to determine statistical significance.

**RESULTS:** There was no significant difference between skill assessment scores for the thread-the-loops task assigned on the iT compared to the SPT for all groups tested (p > 0.05) with the exception of the medical student group who performed better on the SPT (p = 0.03). Participant evaluations showed superior image quality and resolution for the iT (p < 0.05). The SPT was superior in brightness, comfort, and overall performance (p = 0.00017, 0.04869, 0.00969).

**CONCLUSIONS:** We have demonstrated face, content, and criterion validity for the thread-the-loops task on the iTTrainer. The iT provides a unique advantage to trainees due to the increased availability and affordability of training tools. Solutions such as the iT affirm that effective, low-cost alternatives to highly priced surgical simulators are possible.

Source of Funding: Society for Urological Chairpersons and Program Directors

**MP2B-10** LAPAROSCOPIC ELECTRODE PLACE-MENT ON THE PUDENDAL NERVE IN PIGS

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**INTRODUCTION AND OBJECTIVES:** Neuromodulation (NM) by transforaminal access to the sacral nerve roots is an established treatment option for various pathologies in the small pelvis, mainly bladder disorders and pain. However, the target nerves can sometimes not be reached by the conventional route. Furthermore, others beside the sacral nerves, mainly the pudendal nerve, might become attractive future targets for NM. The access to these structures has to be defined. Laparoscopy (Lap) is popular in Urology. Accordingly, aim of the study was to investigate the feasibility of pudendal NM by Lap in an animal model and to establish a standard procedure for future trials.

**METHODS:** Nine adolescent farm pigs (25–30 kg) were operated under general anaesthesia. The optic trocar was placed infraumbilically in the midline and two 12 mm trocars were introduced caudal and lateral to the midline in a triangular position. In a 30° contralateral position, anatomical landmarks were defined. Urinary bladder was empty due to continuous catheter drainage. Lateral, the bifurcation of the internal iliac artery and vein, the superficially located obturator nerve and the dorsally situated sciatic nerve were established. The broad ligament of the pelvis was encountered. After careful incision and blunt opening, the pudendal nerve was localized straight subjacent and detached from surrounding tissue at a length of 2–3 cm. A standard electrode was placed bilaterally alongside each nerve and the procedure was carefully documented. For structural analyses, both pudendal nerves were dissected and chemically fixed.
RESULTS: The bilateral access to the pudendal nerve was successfully established, reproduced in eight pigs and thereby standardized. One pig died due to non-surgical complications. Electrode could generally be placed properly for durable placement and chronic stimulation. The tined electrode was inappropriate as the leads generally prohibit precise Lap manoeuvres and could inhibit proper permanent placement. The maximum operating time for bilateral nerve identification and electrode implantation was 60 minutes.

CONCLUSIONS: Feasibility of pudendal nerve localisation and electrode placement was shown. Thus, less invasive standard access for NM by Lap was established. The best electrode must be defined but this is only marginal due to the variety of available electrodes or the option to customize. Research will be extended defined but this is only marginal due to the variety of available electrodes or the option to customize. Source of Funding: none

Source of Funding: none

MP2B-11 LONG-TERM FOLLOW UP OF ROBOTIC PYELOPLASTY IN THE PEDIATRIC POPULATION
Mathew Oommen, Janet Colli, Aaron Boonjindasup*, Christopher Keel, Philip Dorsey, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Dismembered pyeloplasty has evolved as the standard of care for ureteropelvic junction obstruction. Laparoscopic and robotic procedures are available to both the pediatric and adult population. We present our experience with long term follow up of robotic pyeloplasty in children.

METHODS: Retrospective review of 35 consecutive patients who underwent robotic pyeloplasty at our institution between May 1, 2003 and June 30, 2012 was performed. Subjective (presence of pain) and objective (radiographic imaging) postoperative data were analyzed in patients age 18 years and younger. RESULTS: A total of 35 patients age 18 years or younger were included in the study. There were 16 girls and 19 boys with a mean age of 14.03 years (range: 5–18). All patients underwent robotic dismembered pyeloplasty including 15 (43%) left-sided and 20 (57%) right-sided repairs. Of these, 4 (11.8%) were secondary repairs. An anterior crossing vessel was encountered in 13 patients (38%), of which 4 (30.7%) were transposed posterior to the anastomosis. No patients had a solitary kidney. Two patients (5.9%) had concomitant stone removal for nephrolithiasis and two patients (5.9%) had a postoperative complication (pyelonephritis requiring admission on postoperative day 14 and acute urinary retention secondary to catheter compression). A total of 10 patients (33.3%) were lost to follow up following Hurricane Katrina. Mean objective follow up time was 13.5 months (range: 3–72) with success defined as stable or improved radiographic imaging or diuretic renography without need for any further intervention. Mean subjective follow up time was 27.5 months (range: 0.5–77) with a 94.4% success rate defined as absence of clinical symptoms. No patients required repeat intervention. CONCLUSIONS: Robotic pyeloplasty is a safe and effective treatment for primary and secondary ureteropelvic junction obstruction in the pediatric population with excellent long term results.

Source of Funding: None

MP2B-12 ARE LAPAROSCOPIC ADRENALECTOMIES FEASIBLE FOR LARGER ADRENAL MASSES?
Aditi Kumar*, Janica Chavda, Tamer El-Husseiny, Nuwan Premachandra, Birmingham, United Kingdom, Sashi Kommu, London, United Kingdom, Aniruddha Chakravarti, birmingham, United Kingdom

INTRODUCTION AND OBJECTIVES: Laparoscopic adrenalectomy (LA) is the current gold standard treatment for removal of adrenal masses. Compared to open adrenalectomy (OA) procedures, LA has shown reduced narcotic requirements, shorter hospital stay and fewer postoperative complications. LA in large adrenal tumours of >10 cm is generally not recommended due to the size and risk of malignancy and difficulty in obtaining complete clearance. We aim to assess the feasibility of conducting LA for adrenal masses >10 cm.

METHODS: Over a period of the last five months, we conducted three LA with masses >9 cm. Patient notes were used to obtain information on pre-operative assessments, analgesia requirements during inpatient admission, post-operative complications and length of hospital stay.

RESULTS: Three patients ranging from 51–88 years old were investigated, all with right adrenal masses of 15 cm, 9 cm and 12 cm. Their American Society of Anaesthesiologists (ASA) classifications were II indicating they were fit for surgery. All underwent right LA. Histological margins of the specimen were clear on all three cases, and no other organ injury happened peroperatively. In one case, the tumour was densely adherent to the inferior vena cava and elective excision of cuff of vena cava and repair was done. Post-operatively, two patients had patient controlled analgesia (PCA) for one day with minimal analgesic requirements thereafter. The mean length of hospital stay was 9 days. Two patients had post-operative complications of haematoma in the adrenal bed, which resolved with conservative management.

CONCLUSIONS: Although previous studies identify adrenal masses >10 cm as a relative contraindication for LA, our limited experience demonstrates it to be a feasible option producing optimal patient outcome in terms of minimal post operative pain and early convalescence. Minimally invasive surgery still remains a viable option for large adrenal masses therefore proving advantageous over OA.

Source of Funding: None

MP2B-13 HYBRID ROBOTIC TRANSRECTAL NATURAL ORIFICE TRANSLUMINAL ENDOSCOPIC SURGERY (NOTES) PARTIAL NEPHRECTOMY IN THE PORCINE MODEL
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INTRODUCTION AND OBJECTIVES: To evaluate feasibility of hybrid robotic transrectal natural orifice transluminal endoscopic surgery partial nephrectomy (RTR-NOTES-PN) in the porcine model.

METHODS: 4 female pigs (mean weight 47.8 kg) underwent RTR-NOTES-PN (2 left/2 right). An abdominal incision was made and GelPoint access (Applied Surgical, Rancho Santa Fe)
MP2B BASIC RESEARCH: LAPAROSCOPY/ROBOTICS/LESS

MP2B-14 INITIAL EXPERIENCE WITH A NOVEL FASCIAL CLOSURE DEVICE: OPTION3TM

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INTRODUCTION AND OBJECTIVES: In the practice of laparoscopic surgery (single port, robot-assisted, etc.) various port sizes are utilized, up to 15 mm in size. At our institution, we close all ports greater than 10 mm. We were recently presented the opportunity to use a new closure device, Option 3TM (FDA approved). Our objective is to test the efficacy and utility of this new fascial-closure device.

METHODS: The fascial closure device was first tested in vitro with a lap trainer. Once comfortable, 35 consecutive patients undergoing laparoscopic urologic procedures were identified for fascial closure. Demographic data was collected, along with perioperative data (distance between skin to fascia [S-F] and skin to peritoneum [S-P], and failure to close fascia).

RESULTS: There were no complications in using the fascial closure device. The device was successful in all cases. Port sizes were either 11 mm or 12 mm. Patients were predominantly male (30/35) undergoing robotic prostatectomy; other cases were total/partial nephrectomy and pyeloplasty. The average BMI was 29. The average S-F distance was 1.9 cm, and the average S-P distance was 2.9 cm. 33/35 attempts at closure were completed with one pass; there were no device failures.

CONCLUSIONS: The Option 3TM fascial closure device performed as well as the existing devices on the market. It provided precise closure (1 cm off either cut edge of fascia). The phalanges of the device allowed for pulling the abdominal wall up during passage of the needle, improving safety and visualization. In our experience it works exceptionally well with the higher BMI patients.

Source of Funding: None.

MP2B-15 INTRACORPOREAL RENAL SHRINKING WITH HYPERTONIC SALINE SOLUTION FOR SINGLE-SITE-NEPHRECTOMY: ASSESSMENT OF FEASIBILITY AND IMPACT ON THE INCISION FOR ORGAN REMOVAL

Hoomari Elias*, Hugo Quevedo, Cassio Andreoni, São Paulo, Brazil

INTRODUCTION AND OBJECTIVES: Laparoscopic nephrectomy is a standard procedure, but specimen removal still requires an incision. Previous studies have shown 25% renal shrinkage and 45% incision length decrease after renal perfusion with hypertonic solution. Recently, the single site variation of laparoscopy (LESS: laparo-endoscopic-single-site surgery) was described as a less invasive technique, however, the benefits have not been demonstrated very well yet, eventually because an incision up to 10 cm is still needed for the specimen removal. Thereby, the objective is to evaluate the feasibility of performing intracorporeal arterial perfusion of 5% saline and compare the length of the incision needed for renal extraction after LESS nephrectomy in pigs that do not undergo hypertonic solution.

METHODS: Twenty pigs underwent bilateral LESS nephrectomy. Randomly, one side was performed intracorporeal perfusion technique with 5% saline solution (SS) and the other underwent regular LESS nephrectomy. It was used a permanent single site device, a flexible scope and curved laparoscopic instruments to access the kidney. In one side, the renal artery was catheterized to infuse a 5% SS for about 8 minutes until we had a clear liquid coming out of the renal vein. The renal volume of each side was measured as well as the incision length required for complete specimen removal.

RESULTS: The procedures were successfully performed. Complete renal perfusion was not possible in 8 cases, because of early arterial bifurcation and selective catheterization and they were removed of the comparison evaluation. The mean operative time for the hypertonic perfusion group and non-perfusion group were 66.8 min and 30.2 min (p < 0.01), respectively. The mean renal volume for the hypertonic perfusion group and non-perfusion group were 58 cc and 72.5 cc (p = 0.46), respectively; relative renal volume reduction was 20%. The mean incision length for specimen removal in the hypertonic perfusion group and non-perfusion group were 33.6 mm and 48.2 mm (p = 0.49), respectively; relative incision length reduction was 30.1%.

CONCLUSIONS: Intracorporeal renal shrinking with hypertonic saline for LESS nephrectomy is feasible, however requires longer operative time and provided a 30% reduction in the incision length for specimen removal in pigs. The meaning of this eventual benefit is yet to tested in humans, when it may reveal cosmetic and convalescence advantages.

Source of Funding: None.
MP2B-16 TRANSCOLONIC EXTRACTION OF THE KIDNEY FOLLOWING LAPAROSCOPIC NEPHRECTOMY: A SURVIVAL STUDY IN PIGS TO MINIMIZE FECAL CONTAMINATION

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INTRODUCTION AND OBJECTIVES: To develop a technique for transcolonic extraction of a kidney following laparoscopic nephrectomy while maintaining sterility of the peritoneal cavity and demonstrate survival to 4 weeks in a pig model.

METHODS: After confirming the presence of bilateral kidneys on ultrasound, a laparoscopic left nephrectomy was performed in five pigs weighing 70–90 kilograms. A single dose of ceftriaxone 1 gm was given intravenously prior to the procedure. A tap water enema was performed until all fecal material was removed in the distal 50 cm of the colon as confirmed with colonoscopy. The colon was flushed with 60 ml of 10% povidone-iodine. A standard laparoscopic specimen pouch was then stapled to the wall of the colon using a laparoscopic stapler. The pouch was then laparoscopically cut open and through this opening, a colotomy was made with laparoscopic scissors. The kidney was removed through the colotomy, using the pouch as a shield to avoid peritoneal contamination. The colotomy was then closed with a laparoscopic linear stapler. The pouch was then removed through one of the laparoscopic ports. Swabs for culture of the peritoneal cavity were obtained at the beginning and end of the procedure. Necropsy was performed on all animals after a four week survival period.

RESULTS: All five animals survived to four weeks following surgery. Sterility of the peritoneal cavity can be maintained using this technique. Our complications consisted of three superficial wound infections that were self-contained. Necropsy demonstrated minimal peritoneal adhesions and excellent healing of the colotomy site.

CONCLUSIONS: Transcolonic extraction of the kidney may be performed using standard commercially available equipment. Further refinements of technique are necessary to reduce the likelihood of peritoneal contamination during transcolonic procedures.

Source of Funding: United States Air Force

MP2B-17 DIFFERENCES IN PERFORMANCE ACROSS DIFFERENT SURGICAL SUB-SPECIALTIES, UTILIZING LAPAROSCOPIC AND ROBOTIC SIMULATORS

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INTRODUCTION AND OBJECTIVES: Robot assisted surgery has gained tremendous momentum over conventional laparoscopy in many surgical specialties. In urology it has almost replaced laparoscopic surgery, owing to the short learning curve and increased availability of robotic systems. In other surgical specialties (gynecology and colorectal) there still remains a need for conventional laparoscopic training. Robot assisted and Conventional laparoscopic simulation is based on the same principles, however the latter remains cheaper, readily available and easier to access. Our objective is to assess the differences performance of urology and gynecology trainees with varying experience during both dry ‘box’ laparoscopic and robotic simulator tasks. To assess if clinical experience correlates with simulator performance.

METHODS: 5 OB/GYN, 7 Urology residents, at the University of Rochester completed a thirty question survey sent through an online survey website. A conventional laparoscopic box trainer approved for FLS training and the DaVinci surgical skills simulator (DSSS) were utilized. All completed scored laparoscopic simulation exercises: robotic camera control, endowrist manipulation and suturing; conventional peg transfer and intra-corporeal suturing. Scoring of robotic simulation tasks was done with DSSS software metrics and for conventional tasks with FLS metrics.

RESULTS: 67% of residents were proficient at all three robotic tasks. No resident was proficient at any conventional task. There was no significant difference in conventional or robotic task performance by specialty (p = 0.64, p = 0.12), perceived proficiency (p = 0.92, p = 0.76), or number of conventional laparoscopic cases/yr performed (p = 0.66, p = 0.26). Senior residents performed significantly better on robotic tasks (p = 0.0005), but not conventional tasks (p = 0.16). Residents with > 10 robotic cases/yr as primary surgeon performed significantly better on conventional (p = 0.007) and robotic tasks (p = 0.02).

CONCLUSIONS: The majority of residents were proficient at robotic simulation, with senior residents outperforming juniors; no residents were proficient at conventional simulation. Robotic simulation performance appears to correlate with clinical experience whereas conventional simulation performance does not. This suggests that robotic simulation could be a useful tool for resident assessment while conventional simulation may have more limitations.

Source of Funding: None

MP2B-18 LAPAROSCOPIC PARTIAL NEPHRECTOMY WITHOUT ISCHEMIA USING A NEW 1,318 NM DIODE LASER IN A PORCINE SURVIVAL MODEL: FEASIBILITY AND HISTOLOGICAL RESULTS AFTER 4 WEEKS

Reinhold Zimmermann*, Lukas Lusuardi, Martina Hager, Salzburg, Austria, Bogdan Hoinoa, Timisoara, Romania, Esra Fedisch, Gunter Janetschek, Salzburg, Austria

INTRODUCTION AND OBJECTIVES: Laparoscopy is established for complete nephrectomy, but not yet for partial nephrectomy, and the 1,318 nm diode laser holds excellent cutting and coagulation properties justifying its use for non-ischemic partial nephrectomy. To reconcile these two approaches, an experimental study was conducted in a pig survival model to determine the tissue trauma caused by implementation of the diode laser for zero ischemia laparoscopic partial nephrectomy.

METHODS: 10 healthy pigs underwent zero ischemia, laparoscopic partial nephrectomy with tissue excision and coagulation being conducted solely by a 1,318 nm diode laser. During surgery, laser data was collected and kidney specimens were obtained intraoperatively. After four weeks survival time, pigs were sacrificed and both kidneys were dissected for a comparative histopathological analysis of primarily dissected specimens and corresponding kidneys, respectively. Analysis focused on the definition of the range of necrosis and reparation area as well as diameter of coagulated blood vessels.

RESULTS: No intraoperative or post-surgical complications occurred and all animals survived the defined survival period. In specimens and kidneys, necrosis areas were small after application of the diode laser. In specimens, necrosis areas were 0.868 ± 0.629 mm, while in the kidneys, dimensions were measured to 1.672 ± 0.628 mm. Reparation region in kidneys was shown to be 1.938 ± 0.378 mm and the diameters of coagulated vessels were 0.479 ± 0.346 mm.

CONCLUSIONS: Tissue trauma provoked by the diode laser is low compared to other laser types, making the diode laser a reliable tool for laparoscopic partial nephrectomy by minimising
kidney harm and conserving renal function in combination with the zero ischemia strategy.

Source of Funding: none

MP2B-19  A CLINICAL COMPARISON OF A NOVEL COMMERCIAL SINGLE PORT AND A HOMEMADE SINGLE PORT IN SINGLE PORT ENDOSCOPIC TOTAL EXTRAPERITONEAL REPAIR OF GROIN HERNIAS

Yao-chou Tsai*, New Taipei City, Taiwan

INTRODUCTION AND OBJECTIVES: Introduction and Objective: Although, early experiences in laparoendoscopic single-site (LESS) Total extraperitoneal (TEP) hernia repair have demonstrated a comparable result with multiport TEP repair, LESS TEP was associated with lower procedural efficiency due to single port creation or instrument clashing. So far, none of the commercial available single port have been compared in a clinical setting. Here, we designed a prospective study to compare the peri-operative parameters regarding LESS TEP repair with either a homemade single port or a novel commercialized LagiPortTM.

METHODS: Methods: Sixty consecutive patients undergoing LESS TEP repair were enrolled in this trial with 31 in the commercial single port group and 29 in the homemade port group. Preoperative, intraoperative, and postoperative factors were recorded. The patients were interviewed at outpatient clinics postoperatively.

RESULTS: Results: The demographic data were comparable between the two groups. (table 1) The median operative time was longer in the homemade port group than in the commercial port group (59.4 versus 51.4 minutes, respectively, p = 0.04). (table 2) The homemade port group was significantly associated with more port related malfunction than the commercial port group (19% versus 0, respectively, p = 0.02). The postoperative results were comparable between the groups regarding pain scores, analgesic requirements, complications, and post-operative convalescence.

CONCLUSIONS: Conclusions: This novel commercial single port is more reliable and efficient than the homemade one in the LESS TEP groin hernia repair.

Source of Funding: None

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<td></td>
<td></td>
<td>0.59</td>
</tr>
<tr>
<td>Pain or discomfort</td>
<td>2(6%)</td>
<td>1(3%)</td>
<td></td>
</tr>
<tr>
<td>Ruling</td>
<td>3(10%)</td>
<td>3(10%)</td>
<td></td>
</tr>
<tr>
<td>Coincidential</td>
<td>26(88%)</td>
<td>25(87%)</td>
<td></td>
</tr>
<tr>
<td>Characteristics of hernia, no. (%)</td>
<td></td>
<td></td>
<td>0.47</td>
</tr>
<tr>
<td>Left</td>
<td>12(39%)</td>
<td>7(24%)</td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>13(35%)</td>
<td>13(45%)</td>
<td></td>
</tr>
<tr>
<td>Bilateral</td>
<td>8(26%)</td>
<td>9(31%)</td>
<td></td>
</tr>
</tbody>
</table>
RESULTS: A total of forty eight studies were identified using the search terms above. Upon scrutiny of the studies, 8 (17%) were accepted based upon the inclusion criteria. Out of these, four were randomised (intervention group versus a control group) and the other four studies were not randomised. Tasks included were object transfer, tissue manipulation, suturing, knot tying, tissue cutting and specialised procedural tasks. The outcomes were time to completion, errors, hand-eye coordination, efficiency and others.

All the non-randomised studies and one of the randomised studies showed improved efficiency and performance compared to controls. Of the other randomised studies fewer errors were noted in tissue handling in two studies compared to controls. Only one of the eight studies showed no difference in outcomes.

CONCLUSIONS: Video games experience seem to help in the training of tasks associated with laparoscopy.

Source of Funding: Nil

MP2B-21 COMPARATIVE OUTCOMES OF OPEN VERSUS LAPAROSCOPIC VERSUS ROBOTIC PYELOPLASTY FOR URETEROPELVIC JUNCTION OBSTRUCTION

Ugur Boylu*, Cem Basatac, Guven Turan, Fikret Fatih Onol, Eyup Gumus, Istanbul, Turkey

INTRODUCTION AND OBJECTIVES: To compare surgical and functional outcomes of open, laparoscopic and robotic dismembered pyeloplasty for ureteropelvic junction obstruction.

METHODS: Between 2010 and 2012, a total 22 patients underwent conventional open pyeloplasty, 16 patients underwent laparoscopic pyeloplasty and 15 patients underwent robotic pyeloplasty. Mean operative time, estimated blood loss, analgesic requirements, length of hospital stay and functional outcomes were compared among groups.

RESULTS: The mean age was 30 years in Group 1, 34.3 years in group 2 and 32.9 years in group 3. The mean operative time was 127, 130 and 114 min (p = 0.32) in group 1, 2, and 3, respectively. The mean estimated blood loss was 105, 31 and, 28 ml in group 1, 2, and 3, respectively (p = 0.001). The mean hospital stay was 4.14 (±1.8), 2.8 (±0.75) and 2 (±1) days in group 1, 2, and 3, respectively (p < 0.001). Analgesic requirement was significantly higher in group 1 when compared with group 2 and 3 (p = 0.02). The radiographic and symptomatic success rate was %95.5 in group 1, %93.8 in group 2, and %93.3 in group 3.

CONCLUSIONS: Open, laparoscopic and robotic pyeloplasty has similar success rates. Open repair has incisional morbidity, slower recovery, and longer hospital stay compared to laparoscopic and robotic pyeloplasty.

Source of Funding: None

MP2B-22 IS LAPAROSCOPIC RENAL SURGERY SAFE IN A DISTRICT GENERAL HOSPITAL?

palaniappa shannugaraju*, Croydon, United Kingdom

INTRODUCTION AND OBJECTIVES: Joseph Lister (1827–1912) stated, “these are exciting times to be surgeon” a century ago when he discovered carbolic acid. The same was reflected by Ralph Clayman when he demonstrated a safe laparoscopic nephrectomy in 1991.

While laparoscopic renal surgery was getting momentum in the United Kingdom since 2001, it was argued that its safety could be achieved only in the tertiary surgical centers. A few Urologists like me put a brave face and developed it in the Secondary Center and audited the results.

METHODS: The left hand of the right handed surgeon was put into action since January 2003. The standard dry and wet laboratory training in France and Germany was undertaken;

Three other Urology Colleagues in the United Kingdom who were already performing laparoscopic renal surgery were identified as Mentors and they were given Honorary contract. The whole team including the urologist, Consultant Anesthesiologist, Urology Trainee and three operating room nurses from Croydon hospital were taken to Mentor’s hospitals for initial exposure.

Funding to buy laparoscopic instruments were agreed and the first Nephrectomy was done in October 2004. First 22 of 84 cases were mentored.

A retrospective audit of the single surgeon’s experience was carried out.

RESULTS: Total number of cases were 84. 16 cases such as laparoscopic division of adhesions, Laparoscopic ureterolithotomy and Laparoscopic orchidectomy were excluded.

Remaining 68 were analysed

30 males and 38 females were noted

Average age was 57 (range 19–84)

Of 68, 48 patients had nephrectomy for Renal Cell carcinoma (T1 or T2 category except one T3); 8 had nephro ureterectomy for Transitional cell carcinoma; 8 patients had simple nephrectomy for non functioning and 4 had deroofing of cyst to relieve pain

Average hospital stay was 5 (1–30 days)

Average Operating time was 180 minutes (60 minutes to 210 minutes)
Conversion was in 6 patients (8.8%)
Blood transfusion was in 4 patients (5.8%)
Mortality: Nil
Neuropraxia: Nil

Follow up ranged from 12 months to 8 years.
T3 Renal Cell carcinoma patient developed recurrence and died

CONCLUSIONS: Laparoscopic Renal surgery involves a great deal of time and effort; needs motivated team.
Lot of time spent by mentors in travelling back and from the base hospital
One has to withstand the long learning curve
Morbidity: Conversion rate was 8.8% and the overall complication rate was 15%, which were comparable to the National audit in England (Kim Davenport National Audit 2006 and 2008 & BJUI)

In conclusion, Laparoscopic Renal surgery can be safely performed in a District General Hospital

Source of Funding: National Health Service, England

MP2B-23 MINIMALLY INVASIVE EXTRAPTIVE SURGERY FOR UPPER TRACT UROTHELIAL CARCINOMA: 10 YEAR SINGLE-INSTITUTION EXPERIENCE OF LAPAROSCOPIC AND ROBOT-ASSISTED NEPHROURETERECTOMY
Khushabu Kasabwala*, Andrew Tracey, Lisa Wolkin, Jennifer Yates, Ravi Munver, Hackensack, NJ

INTRODUCTION AND OBJECTIVES: Laparoscopic nephroureterectomy (LNU) has been associated with decreased perioperative blood loss and shorter hospital stay as compared to open nephroureterectomy. Robot-assisted laparoscopic nephroureterectomy (RALNU), similarly offers the advantages of decreased postoperative pain and improved cosmesis as compared to the open technique. The use of robotic assistance aids with distal ureteral dissection and intracorporeal excision of the bladder cuff, with suture repair. As such, there is increasing acceptance of RALNU. We report on our intermediate outcomes with LNU and RALNU.

METHODS: A retrospective review of all patients undergoing minimally invasive nephroureterectomy from 2003–2013 was performed. Demographic and perioperative variables were recorded. Patients with complete data and follow-up in the outpatient setting were included in the data analysis of perioperative variables and postoperative outcomes.

RESULTS: A total of 57 patients underwent minimally invasive nephroureterectomy, of which 46 met inclusion criteria. Open surgery. Robotic technology offers a promising alternative to open surgery. Robotic technology offers a promising alternative to open surgery. Robotic nephroureterectomy has replaced the use of open, hand-assisted, and laparoscopic nephroureterectomy at our institution. While oncologic outcomes and survival are dependent on the disease stage, the robotic approach obviates the need for a separate incision for bladder cuff excision. Laparoscopic nephroureterectomy is an acceptable alternative to open surgery. Robotic technology offers a promising advancement in the minimally invasive management of upper urinary tract urothelial carcinoma.

Source of Funding: None

Table 1. Perioperative Data

<table>
<thead>
<tr>
<th></th>
<th>Mean Age of Surgery, (years)</th>
<th>Lateality</th>
<th>Operative Time, (min)</th>
<th>Estimated Blood Loss, (ml)</th>
<th>Length of Hospital Stay, (days)</th>
<th>Mean Foley Duration, (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-assisted LNU (n=32)</td>
<td>72.3</td>
<td>14 Right / 5 Left</td>
<td>162 (95-263)</td>
<td>111 (50-300)</td>
<td>3.6 (1-4)</td>
<td>10.0</td>
</tr>
<tr>
<td>Conventional LNU (n=11)</td>
<td>65.6</td>
<td>8 Right / 3 Left</td>
<td>168 (80-270)</td>
<td>91 (50-200)</td>
<td>3.6 (2-6)</td>
<td>8.1</td>
</tr>
<tr>
<td>Robot-assisted LNU (n=16)</td>
<td>62.9</td>
<td>7 Right / 9 Left</td>
<td>187 (95-268)</td>
<td>153 (36-350)</td>
<td>3.8 (2-8)</td>
<td>5.1</td>
</tr>
</tbody>
</table>

MP2B-24 IMPROVING POSTOPERATIVE PAIN FOLLOWING ROBOTIC-ASSISTED AND LAPAROSCOPIC UROLOGIC SURGERIES: A COMPARISON OF LIPOSOME BUPIVACINE TO ROPIVACINE DELIVERED BY THE ON-Q PAIN RELIEF SYSTEM
Paul W. Walker*, Michael A. White, Edwin E. Morales, San Antonio, TX, Uzoama Oke Nwwoye, Fort Sam Houston, TX, William J. Harmon, San Antonio, TX

INTRODUCTION AND OBJECTIVES: Opioids often have side effects such as nausea, constipation, sedation and urinary retention. Therefore, an approach to minimize the use of narcotics after surgery is desired. This single institution, single surgeon, retrospective study compares patients treated with two long acting local anesthetic regimens at the time of robotic-assisted and laparoscopic urologic surgeries in an effort to determine which method reduced postoperative opioid use the most.

METHODS: Between September 2011 and October 2012, 108 robot-assisted or laparoscopic urologic surgeries were completed. Fifty-four consecutive patients were treated with 0.5% ropivacaine delivered by the On-Q pain relief system through two catheters placed under the fascia at the wound sites at the end of the surgery. They were compared with the next 54 consecutive patients who were injected with liposome bupivacaine subcutaneously into the incision sites and circumferentially along the trocars above and below the fascia down to the peritoneum. All of the incisions were 3 cm or less. The primary end point of morphine equivalent dose (MED) during a patient’s hospital stay and the secondary endpoints of time to first opioid use, number of patients free of opioids while in the hospital and length of hospital stay were examined.

RESULTS: The mean MED was less in the liposome bupivacaine group versus the On-Q group (23.8 vs. 65.9; p < 0.0001). The mean time to first opioid use was delayed in favor of liposome
bupivacaine (186 vs. 63.9 minutes; p = 0.0043). Five patients were free of opioid use during their hospitalization with liposome bupivacaine versus one On-Q patient (p = 0.0929). The mean length of hospital stay was similar between the liposome bupivacaine group versus the On-Q group (1.6 vs. 1.8 days; p = 0.6414).

CONCLUSIONS: Liposome bupivacaine significantly reduced and delayed opioid use compared to ropivacaine delivered by the On-Q pain relief system in patients after robotic-assisted and laparoscopic urologic surgeries. In an effort to control a patient’s pain after minimally invasive surgery while simultaneously reducing narcotic use, liposome bupivacaine should be considered an excellent option.

Source of Funding: None.

MP2B-25 OFF-CLAMP ROBOTIC PARTIAL NEPHRECTOMY OUTCOMES

AbdulRaouf Lamoshi, Mohamad Salkini*, Morgantown, WV

INTRODUCTION AND OBJECTIVES: Robotic nephron-sparing surgery is becoming more popular as it demonstrated good long-term renal functional and oncologic outcomes. Robotic partial nephrectomy (RPN) is a technically challenging procedure, as it requires advanced skills to accomplish tumor resection, hemostasis, and renorrhaphy within short ischemia time. Off clamp partial nephrectomy may decrease the risk of ischemic injury, however it might increase the risk of bleeding and other related complications. We reviewed our partial nephrectomy cases to evaluate the outcome of off clamp technique utilized in certain circumstances.

METHODS: A total of 76 patients underwent robotic partial nephrectomy between March 2009 and May 2013 for solid renal masses. Robotic partial nephrectomy was offered routinely to all patients with T1a tumors and to certain patients with T1b tumors. We identified two groups in our series, the first underwent classical partial nephrectomy with variable warm ischemia time. The patients in the second group had off clamp robotic partial nephrectomy with zero ischemia time. The criteria utilized to perform the cases off clamp was exophytic, non hilar tumors that have a base of 2 cm or less. We utilized pre-placement of hemostatic stitches into the tumor bed before the resection of the tumor.

RESULTS: Patients’ demographics were similar between the two groups. 43 patients (56%) underwent warm ischemia with an average warm ischemia time of 20.26 (range: 11-34 min). 33 patients were done without warm ischemia (44%). Patients with warm ischemia tend have more blood loss 299.28 ml when compared to those who had RPN without ischemia 96.29 ml (P = 0.023). RPN with warm ischemia was accompanied with longer hospital stay of 2.43 days compared to off clamp RPN 1.56 days (P = 0.002). Warm ischemia RPN resulted in a sharper increase in the immediate post operative creatinine of 0.67 mg/dl compared to the off clamp RPN 0.31 mg/dl (P = 0.01).

CONCLUSIONS: Off-clamp RPN is a safe and feasible approach for solid small renal masses. Patients tend to have shorter hospital stay, smaller change in their kidney function, and less blood loss.

Source of Funding: None
revealed exophytic/peripheral renal mass was more feasible to renal functional preservation.

CONCLUSIONS: The peri-post operative result including functional outcomes affect the anatomic location of renal mass. Especially, exophytic/peripheral regional mass are to be larger than endophytic/hilar regional mass. In spite of tumor size, renal function is tending to be more reserved in exophytic/peripheral regional mass than others.

Source of Funding: none

**MP01-02** INTERMEDIATE TERM ONCOLOGIC OUTCOMES OF RENAL CRYOABLATION: AN INTERNATIONAL MULTI-INSTITUTION ANALYSIS

Achim Lusch*, Philip Bucur, Zhamshid Okhunov, Orange, CA, Ithaar Derweesh, Michael A Liss, San Diego, CA, Louis R Kavoussi, New Hyde Park, NY, M Pilar Laguna, Jean J De La Rosette, Amsterdam, Netherlands, Matvey Tsivian, Thomas J Polascik, Durham, NC, H Christoph Klingler, Tobias Klatte, Vienna, Austria, Jaime Landman, Orange, CA

**INTRODUCTION AND OBJECTIVES:** The increased application of imaging technologies has resulted in an increased incidence of small renal masses and a stage migration in renal cancer. Cryoablation has emerged as a treatment option, but there remains a scarcity of intermediate and long-term follow-up results. We present the 5-year follow up data of an international multi-institutional experience.

**METHODS:** After institutional board approval we reviewed data for patients who underwent laparoscopic or percutaneous cryoablation at 8 academic institutions internationally from 2004–2007 with a focus on patients with a minimum of 5 years follow-up. Patient demographics, perioperative outcomes, and oncologic outcomes were retrospectively recorded. Statistical analysis was performed with SPSS v10 (SPSS, IBM Corporation, Armonk, New York) and a p-value <0.05 was considered as statistical significant.

**RESULTS:** A total of 256 patients were available for evaluation, 149 patients had a minimum of 5 year follow up [mean 69.4 months, range 60–106 month]. The mean age was 66.9 years with a mean body mass index (BMI) of 27.8 and a median American Society of Anesthesiologists score (ASA) of 3. Percutaneous cryoablation was performed on 31.5% (47/149) while 68.5% (102/149) underwent laparoscopic cryoablation. The mean tumor size was 2.6 cm [range 0.9–6 cm], median number of treated lesions was 1 [range 1–3]. A median number of 3 cryoablation needles [range 1–6] were used for the procedure and an intraoperative kidney biopsy was performed in 94.6% (141/149) of the patients. Pathology revealed 68.5% malignant, 16.8% benign, 14.8% indeterminate results. The median number of freeze/thaw cycles was 2 with mean duration of 9.4 min for the first and 8.5 min for the second freeze cycle.

The median follow-up for percutaneous and laparoscopic cryoablation patients was 65.5 month and 70.5 month, with a recurrence rate of 12.1% and 16.4%, respectively. The mean time to recurrence was 15.8 and 15.2 month, respectively. Eight patients died of cancer, 24 had locoregional recurrence and 2 patients had distant metastasis. 5 year overall, disease free survival rates were 87.7%, 96.1% and 86.8%.

**CONCLUSIONS:** In this largest multi-institutional series of laparoscopic and percutaneous renal cryoablation for SRM we demonstrate excellent oncological outcomes in selected patients with a disease free survival rate of 86.8%.

Source of Funding: None

**MP01-03** EARLY EXPERIENCE WITH ROBOTIC ANATROPHIC NEPHROLITHOTOMY FOR MANAGEMENT OF STAGHORN CALCULI

Sherita King*, Zachary Klaassen, Rabii Madi, William Shingleton, Augusta, GA

**INTRODUCTION AND OBJECTIVES:** We are presenting the first reported experience of robotic anatrophic nephrolithotomy (RAN) for management of complex staghorn kidney stones.

**METHODS:** From October 2012 and April 2013, six patients with staghorn calculi underwent transperitoneal RAN by a single surgeon (RM). All but one patient had a full staghorn stone occupying the entire kidney. Patients and stones characteristics are presented in table 1. Briefly, the hilum was controlled with vascular clamps. The renal parenchyma and collecting system were incised vertically along Brodel’s line with cold monopolar scissors. The stones were extracted using robotic forceps. The collecting system was closed with a running 3-0 polyglycolide suture. The parenchyma was closed with a running horizontal mattress 2-0 barbed polyglycolide suture with hemostatic clips instead of knot tying.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
<th>Patient 4</th>
<th>Patient 5</th>
<th>Patient 6</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>54</td>
<td>66</td>
<td>56</td>
<td>41</td>
<td>56</td>
<td>22</td>
<td>49 ± 15</td>
</tr>
<tr>
<td>Sex</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>--</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>25</td>
<td>34.1</td>
<td>24.2</td>
<td>48.8</td>
<td>41.5</td>
<td>31.2</td>
<td>33.7 ± 9.6</td>
</tr>
<tr>
<td>Side</td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
<td>Right</td>
<td>Right</td>
<td>Right</td>
<td>--</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Recurrent UTI</td>
<td>None, incidental finding</td>
<td>Flank pain</td>
<td>Flank pain</td>
<td>Flank pain</td>
<td>Flank pain</td>
<td>--</td>
</tr>
<tr>
<td>Complete vs Partial</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Partial</td>
<td>Complete</td>
<td>--</td>
</tr>
<tr>
<td>Reason for RAN</td>
<td>Mental Retardation</td>
<td>Would not tolerate nephrectomy</td>
<td>Patient Choice</td>
<td>Multiple surgeries on contralateral kidney for stones</td>
<td>Patient Choice</td>
<td>Stone eroded through Gerota’s fascia</td>
<td>Multiple surgeries on contralateral kidney for stones</td>
</tr>
</tbody>
</table>

**TABLE 1: Patient Demographics and Stone Characteristics**

**TABLE 2: Surgical Outcomes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
<th>Patient 4</th>
<th>Patient 5</th>
<th>Patient 6</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm Ischemia Time (min)</td>
<td>41</td>
<td>40</td>
<td>43</td>
<td>35</td>
<td>27</td>
<td>36</td>
<td>37 ± 6</td>
</tr>
<tr>
<td>Robotic Time (min)</td>
<td>153</td>
<td>214</td>
<td>186</td>
<td>210</td>
<td>105</td>
<td>158</td>
<td>171 ± 41</td>
</tr>
<tr>
<td>Operative Time (min)</td>
<td>185</td>
<td>250</td>
<td>255</td>
<td>285</td>
<td>190</td>
<td>240</td>
<td>234 ± 19</td>
</tr>
<tr>
<td>EBL (ml)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>200</td>
<td>117 ± 41</td>
</tr>
<tr>
<td>Hospital Stay (d)</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.7 ± 1.4</td>
</tr>
<tr>
<td>Residual Stone</td>
<td>None</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>None</td>
<td>5%</td>
<td>--</td>
</tr>
<tr>
<td>Proop/Postop Ccr (mg/dl)</td>
<td>1.2/1.2</td>
<td>2.6/1.81</td>
<td>0.63/0.96</td>
<td>0.83/0.84</td>
<td>0.81/0.97</td>
<td>1.41 ± 0.74</td>
<td></td>
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</tbody>
</table>

**Source of Funding:** None
RESULTS: There were no intra-operative complications. Mean warm ischemia time was 37 minutes with mean robotic and total surgery times of 171 minutes and 234 minutes, respectively. No stent or drain was kept in the patients. On post-operative abdominal x-ray, two patients were rendered totally stone free, one had 5% of residual stone, and three had 20–40% of residual stone. Table 2 shows the peri-operative outcomes.

CONCLUSIONS: In our initial experience, RAN provided encouraging outcomes as a minimally invasive modality of treatment for patients with extensive stone burden. Utilizing intraoperative imaging techniques (laparoscopic ultrasound), appropriate patient selection and continued experience with this procedure will continue to improve warm ischemia, robotic console time and ultimately stone free rates.

Source of Funding: none

MP01-04 RENAL FUNCTION OUTCOMES FOLLOWING SELECTIVE ANGIOEMBOLIZATION FOR IATROGENIC VASCULAR LESIONS AFTER PARTIAL NEPHRECTOMY
Jeffrey Gahan, Mansi Gaitonde, Monic Morgan*, Jeffrey Cadeddu, Clayton Trimmer, Dallas, TX

INTRODUCTION AND OBJECTIVES: Iatrogenic vascular lesions (renal artery pseudoaneurysm, arteriovenous fistula) occur in approximately 2% of patients following partial nephrectomy (PN). Angioembolization (AE) is the treatment of choice for these lesions, but the additional renal injury conferred by this treatment has not been well described. We sought to report clinical and renal function outcomes in one of the largest series of treated iatrogenic vascular lesions (IVL) following partial nephrectomy (PN).

METHODS: All Patients that underwent open (OPN), laparoscopic (LPN) or robotic partial nephrectomy (RPN) from 2002–2012 were identified and those who underwent AE were selected. Patients’ charts were reviewed and renal function was analyzed using estimated GFR (eGFR) and progression of chronic kidney disease (CKD) classification before and after PN and AE. Paired statistics were used to compare these outcome measures before and after PN and before and after AE.

RESULTS: 849 patients underwent PN during the study period and 28 (3.3%) developed IVL. 20 (71%) patients had gross hematuria, 10 (36%) had flank pain and 10 (36%) had symptomatic anemia (hypotension, tachycardia or dizziness) at presentation. Mean time to presentation was 10.2 ± 7.7 days after PN. 8 patients (28%) required transfusion. All patients had identifiable IVL at the time of selective AE and technical success was achieved in 24 (86%) patients with 4 requiring subsequent AE. The paired decrease in eGFR after PN (~16.4 mL/min/1.73 m²) was significant (p < 0.01), while the paired change in eGFR after AE (~1.7 mL/min/1.73 m²) was not either with short-term (2.8 days) or intermediate-term (362 days) follow-up. A net total of 4 patients experienced worsening in CKD classification after PN, as opposed to 1 after AE.

CONCLUSIONS: A high index of suspicion for IVL should be maintained in any patient presenting with hematuria, pain or symptoms of anemia in the post-operative period after PN. Selective angioembolization for these lesions is safe, efficacious and can be performed without the worry of significant loss of renal function.

Source of Funding: none

MP01-05 A MODIFIED SUTURE TECHNIQUE USING A BARBED SUTURE IN RETROPERITONEOSCOPIC PARIAL NEPHRECTOMY – A SINGLE SURGEON EXPERIENCE OF 150 CASES
Christian Wülfing*, Niclas Flechtenmacher, Serkan Filiz, Johannes Göckschwal, David Marghawal, Hamburg, Germany

INTRODUCTION AND OBJECTIVES: Recently, a paradigm shift preferring partial nephrectomy over radical nephrectomy has been encountered. In minimally-invasive partial nephrectomy, warm ischemia time (WIT) can – in most cases - not be avoided. The main influencing factors for WIT are tumor excision and intracorporeal suturing which can be quite time-consuming.

METHODS: We analyzed a modified suture technique using two barbed sutures (V-Loc®, Covidien Inc.) which was used in 150 consecutive patients undergoing retroperitoneoscopic partial nephrectomy by one surgeon (C.W.) in our department. In brief, after exposing the tumor and placing an endo-bulldog clip, the tumor was excised. In the first step, the deep tumorbed was sutured with the first V-loc® suture applying a running suture without clips. In the second step, the same suture, but with a bigger needle was used for a running transparentchymal suture which was combined with placement of Surgicel®.

RESULTS: 150 patients with 155 renal tumors (median tumor size = 2.8 cm) were included in the study. With the technique presented favorable results could be demonstrated: the median operating time was 88 (32–241 min). Blood loss was minor (132 ml (0–1600 ml)) with a transfusion rate of 2.6%. The mean warm ischemia time was 14 (0–31) min.

CONCLUSIONS: WIT is a critical aspect in minimally-invasive partial nephrectomy and should not exceed 20 minutes. The modified suture technique presented in this study leads to favorable and reliable results concerning operating time, blood loss and WIT. In our view this technique combines elegantly with the advantages of the retroperitoneal access in minimally-invasive partial nephrectomy, which is the standard access at our institution.

Source of Funding: none

MP01-06 USE OF INDOCYANINE GREEN DYE WITH NEAR-INFRARED LIGHT FOR VASCULAR IDENTIFICATION AND CLAMPING DURING MINIMALLY INVASIVE PARTIAL NEPHRECTOMY: CASE-CONTROL STUDY
Luca Lunelli*, Eric Barret, Rafael Sanchez-Salas, Francois Rozet, Youness Ahallal, Petr Macek, Dominique Prapotnich, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: Small (<4 cm) renal tumors account for 60–70% of diagnosed renal masses. Partial nephrectomy (PN) compared with radical, showed significantly better long term preservation of renal function. Warm Ischemia Time (WIT) is a key variable of the procedure.

Indocyanine Green (ICG) is a fluorescent intravascular dye that absorbs and emits near-infrared light. Objective of the study is to evaluate vasculature under Near Infrared Fluorescence (NIRF) compared to the standard white light during PN.

METHODS: Between February 2012 and February 2013 we performed a prospective non randomised study, comparing 20 minimally invasive PNs with ICG and NIRF imaging (ICG Group) and 24 minimally invasive PNs without ICG (Non-ICG Group). ICG Group received a IV bolus of 5 mL/12.5 mg of ICG
CONCLUSIONS: The use of ICG under NIRF for minimally invasive partial nephrectomy is feasible and safe.

Laparoscopic optical system can be used for LESS and Robotic settings.

ICG and NIRF contribute in evaluation of renal vasculature. When clamping is mandatory, a selective clamping can be facilitated.

Source of Funding: None

**MP01-07 HYBRID TRANSVAGINAL NEPHRECTOMY: THREE CENTERS’ EXPANDING EXPERIENCE**

Ioannis Georgiopoulos*, Jason Kyriazis, Panagiotis Kallidonis, Stavros Kontogiannis, Patras, Greece, Jens-Uwe Stolzenburg, Leipzig, Germany, Christian Schwentner, Tuebingen, Germany, Evangelos Liatsikos, Patras, Greece

INTRODUCTION AND OBJECTIVES: Nephrectomy techniques are rapidly evolving, and hybrid transvaginal nephrectomy may be an important addition to the available techniques. We present the expanding experience of three European academic centers.

METHODS: 25 female patients underwent hybrid transvaginal nephrectomy for tumor (n=16) and non-functioning renal unit (n=9) in two academic medical centers. The patients were informed for the procedure, the type of accesses (both transumbilical and transvaginal) and its innovate nature. The potential conversion to conventional laparoscopic surgery was also explained. Informed consent was obtained from all patients. Body mass index (BMI) was not an exclusion criterion. Prospective data recording took place and information regarding patient demographics, intra- and post-operative course of the patients, pathology results was obtained.

RESULTS: Average age and BMI for patients was 56 years old and 23.9 kg/m² respectively. Average operative time was 115 minutes, and the estimated blood loss was 83.3 ml. Patient’s stayed on average for 3.3 days post-operatively in hospital, and had few complications overall. One case of bladder perforation requiring suture (Clavien Dindo IIIb) and one case of hemorrhage requiring transfusions were reported (Clavien Dindo II). Final pathology results for tumor cases were three T1a, nine T1b and four T2.

CONCLUSIONS: Transvaginal hybrid nephrectomy is an evolving technique, and the expanding experience of centers worldwide suggests that it is a safe and effective minimally invasive surgical technique.

Source of Funding: None

**MP01-08 856 ROBOTIC, LAPAROSCOPIC AND OPEN PARTIAL NEPHRECTOMIES FOR T1A RENAL MASSES: COMPARISON OF SURGICAL OUTCOMES AT A SINGLE INSTITUTION**

Humberto Laydner*, Ahmad Kassab, Ali Khalifeh, Riccardo Autorino, Robert Stein, Amr Pergany, Jihad Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: In 2004, robotic partial nephrectomy (RPN) was first reported. Large comparative studies between RPN and older techniques, such as open (OPN) and laparoscopic partial nephrectomy (LPN) are needed to better define the role of RPN. Here, we compare surgical outcomes of RPN, LPN and OPN approaches for T1a renal masses (≤ 4 cm).

METHODS: We retrospectively reviewed an IRB-approved prospectively-maintained database for 856 patients with T1a renal masses who underwent partial nephrectomy at our institution from March 2002 to April 2012. Estimated glomerular filtration rate (eGFR) was used to assess renal function. Tumor complexity was evaluated by the R.E.N.A.L.-nephrometry score (RNS). Kruskal-Wallis and Wilcoxon tests were used to analyze continuous variables, Chi-square and Fisher’s exact test were used to analyze categorical variables.

RESULTS: We identified 443 RPN, 296 LPN, and 117 OPN. Data are summarized in Table 1. RPN and OPN had more complex tumors (median RNS 7) than LPN (5;p < 0.001). OPN had lower preoperative median eGFR (77 ml/min/1.73 m²) than LPN (88;p < 0.001) and RPN (85;p = 0.02). OPN had more blood loss (200 mL) than RPN and LPN (150;p < 0.001), however blood transfusion was significantly lower in the OPN group (p < 0.001). Conversion rate to OPN was significantly higher for LPN than RPN (2.7%;p < 0.001). Conversion to radical nephrectomy was higher for LPN than RPN and OPN (p < 0.001). Median WIT was similar for RPN and OPN groups (19 and 20 min; p = 0.15), and both were significantly shorter than LPN (26 min; p < 0.001). Complications were comparable in all groups (23% in RPN, 28% in LPN, and 21% in OPN; p = 0.92). OPN had longer hospital stay (p < 0.001). RPN had lower positive margin rate (0.45%) than LPN (3%; p < 0.001) and OPN (4.3%; p < 0.001) for malignant tumors. LPN group had longer median follow up (29.5 months vs. 6.3 for RPN and 9.1 for OPN; p < 0.001). There were no significant differences in operative time (p = 0.4) and changes in renal function (p = 0.34). The main limitations are the retrospective nature of our study and shorter follow up of the RPN and OPN groups.

CONCLUSIONS: LPN had a higher conversion rate to OPN and radical nephrectomy. RPN and OPN had lower WIT than LPN. Complication rate was similar in all groups. RPN afforded least positive margins and shortest hospital stay.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: The transition from open to robot-assisted partial nephrectomy (RAPN) has been gaining momentum in recent years. Despite its more established position for prostate cancer surgery, the role for the da Vinci Surgical System in laparoscopic renal surgery continues to evolve. Advances in instrumentation and technology has resulted in its increasing application for nephron-sparing surgery. We report on the largest collaborative multi-institutional experience with robot-assisted partial nephrectomy (RAPN) to date, at a total of 27 high volume academic institutions.

METHODS: A retrospective review of all consecutive robot-assisted partial nephrectomies was performed at 27 institutions between 2007–2012. Of 33 primary surgeons, approximately 80% had received advanced training in minimally invasive/endourology (76%) or urologic oncology (24%) fellowships. The surgeons had a collective experience of more than 3000 pure or hand-assisted laparoscopic partial nephrectomies. Demographic and perioperative data were prospectively collected and analyzed.

RESULTS: A total of 2507 patients that underwent RAPN were evaluated. The mean patient age was 58.0 years (range 19–89) and included 1490 men (59%) and 1017 women (41%). Procedures were performed for tumors in the left in 1251 patients (49.9%) or right in 1256 patients (51.1%) kidney. The mean operative time was 199.6 min (range 52–447 min) and warm ischemia time was 22.5 min (range 5–77 min). Estimated blood loss was 204 mL (range 5–2800 mL) and the mean hospital stay was 2.6 days (range 1–89 days). The mean tumor size was 2.9 cm (range 0.5–15 cm) and 95.7% of the specimens had negative surgical margins. The mean and median R.E.N.A.L. scores were 6.54 (range 4–12) and 7 (median). The overall postoperative complication rate was 16.0% (n = 402) of which 59% were Clavien I and II complications.

CONCLUSIONS: Robot-assisted laparoscopic partial nephrectomy is gaining popularity among surgeons with various levels of expertise in laparoscopic and robotic surgery. The benefits of robotic-assistance for experienced laparoscopic renal surgeons are beginning to become evident. This 5 year study across several major institutions is a truly unbiased multiinstitutional experience that has generated significant data demonstrating the advantages and limitations of robotic technology. We report on our intermediate experience with RAPN and will continue to report our ongoing evaluation with robot-assisted partial nephrectomy.

Source of Funding: None.

Table 1: Demographics, Outcomes, and Pathology

<table>
<thead>
<tr>
<th>Table 1: Demographics, Outcomes, and Pathology</th>
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<tbody>
<tr>
<td>DEMOGRAPHICS</td>
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<tr>
<td>Age (years)</td>
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<tr>
<td>BMI</td>
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<tr>
<td>ASA score</td>
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<tr>
<td>Tumor size (cm)</td>
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<tr>
<td>RENAL nephrometry score (RNS)</td>
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<tr>
<td>Pre-op eGFR</td>
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<tr>
<td>OUTCOMES</td>
</tr>
<tr>
<td>EBL (mL)</td>
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<td>Blood transfusion n(%)</td>
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<tr>
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<tr>
<td>Postoperative</td>
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<tr>
<td>WIT (min)</td>
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<tr>
<td>Operative time (min)</td>
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<tr>
<td>% Preserved parenchyma</td>
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<tr>
<td>Conversions, n(%)</td>
</tr>
<tr>
<td>to OPN</td>
</tr>
<tr>
<td>to RN</td>
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<tr>
<td>Complications, n(%)</td>
</tr>
<tr>
<td>CAVN Grade I</td>
</tr>
<tr>
<td>CAVN Grade II</td>
</tr>
<tr>
<td>CAVN Grade III</td>
</tr>
<tr>
<td>% Change of eGFR</td>
</tr>
<tr>
<td>Length of stay (days)</td>
</tr>
<tr>
<td>PATHOLOGY</td>
</tr>
<tr>
<td>Malignant, n(%)</td>
</tr>
<tr>
<td>Benign, n(%)</td>
</tr>
<tr>
<td>Positive margin, n(%)</td>
</tr>
<tr>
<td>Follow up (months)</td>
</tr>
</tbody>
</table>

BMI: body mass index, ASA: American Society of Anesthesiologists, RNS: RENAL nephrometry score, eGFR: estimated glomerular filtration rate, EBL: estimated blood loss, WIT: warm ischemia time, OPN: open partial nephrectomy, RN: radical nephrectomy, RCC: renal cell carcinoma, N/A: not applicable, Kruskal-Wallis and Mann-Whitney U-test for continuous variables, and Chi-square and Fisher’s exact test for categorical variables. Continuous and categorical variables expressed as median (range) and n (%), respectively.

MP01-10 LAPAROSCOPIC CRYOABLATION FOR CLINICAL STAGE T1 RENAL MASSES: LONG-TERM ONCOLOGICAL AND FUNCTIONAL OUTCOMES AT THE MEDICAL COLLEGE OF WISCONSIN

Scott Johnson*, Khanh Pham, Milwaukee, WI, Frank Begun, Columbus, OH, Peter Langenstroer, Milwaukee, WI

INTRODUCTION AND OBJECTIVES: Ablative therapy is an evolving option for the management of small renal masses. Robust long-term data on oncological and functional outcomes are...
lacking. We report outcomes of laparoscopic cryoablation for clinical stage T1 renal masses at our institution.

METHODS: An IRB approved retrospective chart review was performed evaluating 144 patients who underwent laparoscopic cryoablation of 171 renal masses at the Medical College of Wisconsin between February 2000 and October 2009. Patients with clinical follow-up of less than 5 years and renal masses with benign pathology were excluded.

RESULTS: Eighty-four patients met inclusion criteria. A total of 104 renal masses were treated. Mean patient age was 58.8 years (SD 13.2). Mean tumor size was 2.3 cm (SD 0.79). Mean follow-up was 97.2 months (SD 24.6). Progression-free survival (PFS) was 91.7%; cancer-specific survival (CSS) was 98.7%; and overall survival (OS) was 90.5%. Mean preoperative serum creatinine was 1.09 (SD, 0.78) compared to 1.32 (SD, 0.99) postoperatively at last follow-up (p=0.11).

CONCLUSIONS: Laparoscopic cryoablation is a viable treatment option for clinical stage T1 renal masses with excellent long-term oncological and functional outcomes that are comparable to alternative nephron-sparing modalities, such as laparoscopic or open partial nephrectomy.

Source of Funding: None

MP01-11 DOES RENAL ARTERY AND VEIN CLAMPING IMPAIR SHORT OR LONG TERM RENAL FUNCTION AS COMPARED TO ARTERY ONLY CLAMPING? A NON-RANDOMIZED COMPARATIVE STUDY

Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

INTRODUCTION AND OBJECTIVES: The advent of surgical techniques to improved renal dysfunction following hilar clamping for partial nephrectomy has been a subject of great debate. Renal artery clamping alone as compared to clamping of the artery and vein has been shown in animal models as potentially superior. We evaluated this in a non-randomized fashion at our institution to evaluate if the occlusion of the renal vein can impact long term renal function.

METHODS: 249 consecutive patient undergoing robotic partial nephrectomy who had hilar clamping at a single institution were include in this analysis. Decision to clamp artery and vein (AV) or artery alone (AO) was at the discretion of the attending physician at the time of the procedure. Chronic kidney disease stage progression was defined as increasing from stage I or II (GFR >60) to stage III (GFR<60) or higher. Patients who progressed from Stage III to Stage IV or higher were also included. GFR was calculated using the MDRD equation preoperatively, perioperatively (highest serum Cr at time of hospitalization) and at last follow-up. Perioperative acute kidney injury (AKI) was defined according to the RIFLE criteria of a 25% decrease in estimated GFR. Cox proportion hazards evaluating risk of CKD progression including tumor size, ischemia time, age (as a continuous variable) and clamping technique demonstrated that each of these were associated with long term CKD progression (Table 1).

RESULTS: One hundred and three (41%) had AO clamping. Body mass index (p=0.75), nephrometry score distribution (p=0.48) and preop estimated GFR (78 vs 76, p=0.43) were similar between the two groups. Tumor size was slightly larger (median 3.1 cm vs 2.9 cm, p=0.045) in the AV cohort. The incidence of perioperative AKI was significantly higher in the AV (26%) versus the AO (12%) cohorts, (p=0.01). Median follow up was 12 months (IQR 3–20) and similar between groups (p=0.12). Artery and vein clamping was associated with a 6 minute increased clamp time (22 vs 16 min, p=0.001) Cox proportion hazards evaluating risk of CKD progression including tumor size, ischemia time, age (as a continuous variable) and clamping technique demonstrated that each of these were associated with long term CKD progression (Table 1).

CONCLUSIONS: Renal hilar occlusion of both the artery and vein may play a role in increased risk of both short term AKI and long term chronic kidney disease progression. Future studies are warranted to elucidate the exact effect of renal vein clamping at the time of robotic partial nephrectomy.

Source of Funding: None

MP01-12 RENAL CELL CARCINOMA RECURRENCE AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY


INTRODUCTION AND OBJECTIVES: The objective of this study was to delineate characteristics of patients developing recurrence after laparoscopic partial nephrectomy in a contemporary cohort.

Table. 1. Patient Characteristics (N=378)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recurrence (n=16)</th>
<th>n (%)</th>
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</thead>
<tbody>
<tr>
<td>Mean Age [yrs]</td>
<td>62 (41-77)</td>
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<tr>
<td>Gender:</td>
<td></td>
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</tr>
<tr>
<td>Female (% (n)</td>
<td>19% (3)</td>
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</tr>
<tr>
<td>Male (% (n)</td>
<td>81% (13)</td>
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<tr>
<td>Mean ASA score (1–4)</td>
<td>2.36</td>
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</tr>
<tr>
<td>Mean Tumor Size [cm]</td>
<td>4.01</td>
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<tr>
<td>Mean Nephrometry Score</td>
<td>8.5</td>
<td></td>
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<tr>
<td>Histology:</td>
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<tr>
<td>Clear Cell RCC</td>
<td>93.75% (15)</td>
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<tr>
<td>Papillary RCC</td>
<td>6.25% (1)</td>
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<tr>
<td>Stage:</td>
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<tr>
<td>T1a (%) (n)</td>
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<td>T1b (%) (n)</td>
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<td>T2a (%) (n)</td>
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<tr>
<td>T3a (%) (n)</td>
<td>6.25% (1)</td>
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</tr>
<tr>
<td>Grade:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (%) (n)</td>
<td>6.25% (1)</td>
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</tr>
<tr>
<td>2 (%) (n)</td>
<td>31.25% (5)</td>
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</tr>
<tr>
<td>3 (%) (n)</td>
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</tr>
<tr>
<td>4 (%) (n)</td>
<td>12.5% (2)</td>
<td></td>
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<tr>
<td>Mean BMI</td>
<td>31.49</td>
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</table>
METHODS: A retrospective review was performed of 631 patients undergoing laparoscopic partial nephrectomy. Perioperative patient and tumor characteristics were recorded including age, gender, ASA, BMI, nephrometry score and pathologic data.

RESULTS: A total of 16 recurrences were detected for a recurrence rate of 2.5%. The mean time to recurrence was 40.3 months. The mean tumor size of the initial resection was 4.01 cm with a mean nephrometry score of 8.5. The majority (94%) of recurrences were for conventional clear cell carcinoma, with the remaining secondary to papillary rcc. Pathologic characteristics are noted in Figure 1. Only 1 patient had a positive margin at the time of the initial resection. Only 4 patients were found to have recurrence within the first 2 years postoperatively, with 4 patients having recurrence detected at >60 months followup, all of which were for T1a lesions.

CONCLUSIONS: The recurrence rate of rcc following laparoscopic partial nephrectomy was 2.5% with >25% of these occurring at greater than 5 years follow-up. Identifying patients with risk factors for recurrence may help identify those patients who may benefit from extended surveillance.

Source of Funding: none

MP01-14 COMPARISON OF TRADITIONAL AND MICRO-LAPAROSCOPIC PYELOPLASTY: A SINGLE INSTITUTION EXPERIENCE
Sapan Ambani*, J. Stuart Wolf Jr., Ann Arbor, MI

INTRODUCTION AND OBJECTIVES: The introduction of laparoscopic instruments ≤3 mm is hoped to improve cosmesis without sacrificing other outcomes. This approach is appealing especially in the young and healthy UPJ obstruction population requiring a laparoscopic pyeloplasty (LP). We compared a single surgeon’s initial micro-laparoscopic pyeloplasty (MLP) experience with a well-established practice of performing standard laparoscopic pyeloplasty (SLP) to treat UPJ obstruction.

METHODS: We retrospectively reviewed our institutional laparoscopy database to identify patients who underwent SLP (n=39) or MLP (n=17) from 3/2010 to 10/2012.

RESULTS: Compared to SLP patients, MLP patients had significantly lower BMI (mean, 24 v. 29, p=0.001) and ASA scores (ASA 1 in 41% compared to 13%, p=0.008). There was no significant difference in operative time (mean, 201 v. 207 minutes, p=0.74) or median estimated blood loss (25 v. 50 cc, p=0.11) for MLP v. SLP, with no need for transfusion in either group. No postoperative complications were seen in the MLP group, while 9 patients experienced a postoperative complication in the SLP group (p=0.05). Median follow up time was similar (p=0.49). Each group experienced 3 failures of surgery characterized by re-obstruction. Although no quantitative measurements were performed at follow up, subjectively the cosmetic appearance was improved with MLP.

CONCLUSIONS: MLP was performed in a more favorable group with a lower rate of postoperative complications. No difference was seen in estimated blood loss or operative time, suggesting that using smaller ports does not increase the difficulty in performing an LP. We did not see any change in the rate of failure with MLP. Our initial experience with MLP is encouraging and suggests that improved cosmesis is possible without sacrificing other outcomes.

Source of Funding: none

MP01-15 TRANSPERITONEAL PYELOPLASTY: MICROLAPAROSCOPY VERSUS CONVENTIONAL LAPAROSCOPY
Aaron Benson*, Trisha Juliano, Nashville, TN, Davis Viprakasit, Chapel Hill, NC, Ryan Pickens, S. Duke Herrell, Nashville, TN

INTRODUCTION AND OBJECTIVES: Microlaparoscopy possesses inherent mechanical and cosmetic benefits over conventional laparoscopy in certain populations (e.g., pediatrics and young adults), but is potentially overshadowed by technological advances, such as robotic-assistance. Considering the small instrument size, microlaparoscopy may be ideally suited for procedures without specimen extraction incisions, such as laparoscopic pyeloplasty. We present our experience with microlaparoscopy compared to conventional laparoscopy for transperitoneal pyeloplasty.

METHODS: The charts of patients who underwent laparoscopic transperitoneal pyeloplasty for ureteropelvic junction obstruction...
were reviewed. Data collected included: age, sex, body mass index (BMI), American Society of Anesthesiology (ASA) level, laterality, prior treatment, laparoscopic type, trocar size, operating room (OR) time, estimated blood loss (EBL), pain scores, length of stay (LOS) success rates, and complication rates. The data for microlaparoscopic pyeloplasty (MLP) and conventional laparoscopic pyeloplasty (CLP) were compared using Student’s t-test and Pearson’s chi–squared test.

RESULTS: Between January 2009 and May 2013, there were 21 MLP and 34 CLP procedures performed. The MLP group mean age was younger than the CLP group (33 vs. 47; p = 0.0007). Prior treatment rate was higher in the CLP group (65.4% vs. 28.6%; p = 0.029). Mean BMI was higher in the CLP group (28 vs. 24; p = 0.035). Sex, ASA, OR time, LOS, pain scores, ureteral stent duration, and complication rates were not different between the MLP and CLP groups. The MLP trocar size range was 1.9–3 mm (5 mm HD camera was used through a hidden umbilical fold), while the CLP trocar size range was 5–12 mm. Strict success rates (indicated by renal scan T½ < 20 minutes) were similar between MLP and CLP groups (93.8% vs. 87.5%; p = 0.44); however, renal scan results were available for more MLP than CLP patients (88.9% vs. 80.8%; p = 0.47). No MLP procedures were converted to CLP or open approaches.

CONCLUSIONS: From technical, perioperative, and outcome perspectives, microlaparoscopy for transperitoneal pyeloplasty appears to be comparable to conventional laparoscopy. This series represents the first MLP cohort at our institution and primarily has been utilized in a younger population, which may benefit cosmetically from the smaller trocars and instruments. Our series also demonstrates that even complex laparoscopic tasks, such as ureteral suturing, are feasible with microlaparoscopic instruments.

Source of Funding: None.

MP01-16 SALVAGE ROBOTIC PARTIAL NEPHRECTOMY: A VIABLE APPROACH FOR MANAGEMENT OF LOCAL TUMOR RECURRENT FOLLOWING FAILED NEPHRON SPARING SURGERY

Zachary Klaassen*, Junjian Huang, Sherita A. King, Qiang Li, W. Bruce Shingleton, Kelvin A. Moses, Martha K. Terris, Rabii Madi, Augusta, GA

INTRODUCTION AND OBJECTIVES: Failure of nephron sparing surgery (NSS) for renal cell carcinoma (RCC) is usually managed by radical nephrectomy. Alternatively, we report successful salvage robotic partial nephrectomy for recurrent RCC.

METHODS: Between August 2006 and April 2013, 138 consecutive patients underwent partial nephrectomy for a suspicious kidney tumor by a single surgeon (RM). Four surgeries were performed in a salvage setting for recurrent enhancing kidney tumors following failed NSS. One patient had previous cryo-therapy, one patient had previous hand-assisted laparoscopic partial nephrectomy, one patient had previous robotic partial nephrectomy and one patient had previous radiofrequency ablation. Diagnosis of recurrence was based on imaging except for the cryotherapy patient who had biopsy proven recurrence.

RESULTS: All surgeries were performed via the robotic approach without intra-operative complications. The mean robotic time was 165 ± 85 min. Other peri-operative parameters are listed in Table 1. The post-operative course was uneventful and all patients were discharged home on the second postoperative day. Final pathology showed viable malignant tumor in all but one specimen. There was no evidence of tumor recurrence upon follow up.

CONCLUSIONS: Robotic salvage partial nephrectomy is a feasible and safe approach for recurrent kidney tumors initially managed by minimally invasive NSS or ablation. Pre-operative biopsy may be necessary to minimize the incidence of false positive results.

Source of Funding: None

MP01-17 MINIMALLY INVASIVE RENAL SURGERY IS ASSOCIATED WITH DECREASED HOSPITAL CHARGE

Mark Ball*, Hiten Patel, Jeffrey Mullins, Brian Matlaga, Mohamad Allaf, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Single institution series have previously demonstrated decreased cost of laparoscopic radical nephrectomy compared to open radical nephrectomy (ORN). However, the impact of open versus minimally invasive surgery (MIS) for radical nephrectomy (RN) and partial nephrectomy (PN) has not been assessed at the population level. Here we define the impact of surgical treatment approaches on hospital charge in a large state-wide population-based cohort.

METHODS: The Maryland Health Services Cost Review Commission (HSCRC) database documents all acute care hospital discharge data. This database was used to identify patients who underwent RN and PN from 2000–2011. These cases were subclassified by open and MIS approach. Patient demographics, length of stay (LOS), ICU days, and hospital charge data were analyzed. All charge data were adjusted for inflation and reported in year 2011 equivalents. MIS refers to both laparoscopic and robotic-assisted approaches.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
<th>Patient 4</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Surgical Approach</td>
<td>Hand-Assisted Laparoscopic Partial Nephrectomy</td>
<td>Laparoscopic Cryoablation</td>
<td>Robotic Partial Nephrectomy</td>
<td>Radiofrequency Ablation</td>
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<td>Gender</td>
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</tr>
<tr>
<td>Age (years)</td>
<td>61</td>
<td>46</td>
<td>70</td>
<td>25</td>
<td>51 ± 10</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>38.6</td>
<td>42.5</td>
<td>27.9</td>
<td>26.7</td>
<td>32.4 ± 10.0</td>
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<tr>
<td>Tumor Size (cm)</td>
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<td>3.7</td>
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<td>2.1</td>
<td>2.2 ± 1.5</td>
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<tr>
<td>Preoperative Hematocrit (%)</td>
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<td>43</td>
<td>42</td>
<td>48</td>
<td>42 ± 5</td>
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<tr>
<td>Preoperative Creatinine (mg/dl)</td>
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<td>0.9</td>
<td>0.7</td>
<td>0.8</td>
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<td>Clamping Time (min)</td>
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<td>24</td>
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<td>Robotic Time (min)</td>
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<td>290</td>
<td>140</td>
<td>100</td>
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<tr>
<td>Surgical Time (min)</td>
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<td>340</td>
<td>180</td>
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<td>234 ± 77</td>
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<td>Estimated Blood Loss (ml)</td>
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<td>40</td>
<td>50</td>
<td>25</td>
<td>123 ± 186</td>
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<td>Discharge Hematocrit (%)</td>
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<td>35</td>
<td>39</td>
<td>37</td>
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<tr>
<td>Discharge Creatinine (mg/dl)</td>
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<td>1</td>
<td>1.1 ± 0.3</td>
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<td>Pathology</td>
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<td>Clear Cell RCC, Fuhrman Grade 2</td>
<td>Negative</td>
<td>Clear Cell RCC, Fuhrman Grade 2</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Perioperative Variable for Patients undergoing Salvage Robotic Partial Nephrectomy

- A49 -
RESULTS: Overall, 14239 patients underwent renal surgery for RCC. Open radical nephrectomy (ORN) was performed in 9189 cases, MIS RN in 2371, open partial nephrectomy (OPN) in 1862 cases and MIS PN in 817. Total hospital charge for ORN was higher than MIS RN (P < 0.001) and OPN charge was more than MIS PN (P < 0.001). Length of stay (LOS) was significantly longer for both ORN and OPN as compared to the MIS counterparts. OR charge was higher for ORN compared to MIS radical nephrectomy, while OR charge for MIS partial nephrectomy was higher than OPN. Room and board charges were higher for open surgeries versus MIS counterparts.

CONCLUSIONS: MIS surgery is associated with decreased hospital charge both in RN and PN. The difference in charge is driven by decreased LOS and correspondingly decreased room and board, drug and laboratory charges. Despite a perception of higher costs related to MIS that depend on expensive devices, this study reveals that compared with open surgery MIS is less costly in the state of Maryland.

Source of Funding: none

MP01-18 EARLY UNCLAMPING SURGICAL TECHNIQUE FOR ROBOT-ASSISTED PARTIAL NEPHRECTOMY: A MULTICENTER PROSPECTIVE EXPERIENCE

Andrew Wagner, Boston, MA, Alireza Moinzadeh, Burlington, MA, Peter Chang, Andrew Percy, Boston, MA, Diana Mehedint, Terrance Creighton, Buffalo, NY, Christopher Lebeis, Burlington, MA, Thomas Schwaab*, Buffalo, NY

**Demographics Characteristics and Perioperative Outcomes**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>N</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (range)</td>
<td>75.4 (19-98)</td>
<td></td>
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<tr>
<td>Mean BMI (range)</td>
<td>29.6 (17.6-56.0)</td>
<td></td>
</tr>
<tr>
<td>Mean ASA score (range)</td>
<td>2.3 (1-3)</td>
<td></td>
</tr>
<tr>
<td>Mean Charlson comorbidity index (range)</td>
<td>2.7 (0-12)</td>
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<tr>
<td>Mean cm preoperative tumor size (range)</td>
<td>3.1 (0.7-8.0)</td>
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<tr>
<td>Tumor Pole (%)</td>
<td>Upper: 31%</td>
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<tr>
<td></td>
<td>Mid: 33%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower: 36%</td>
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<tr>
<td>Mean total nephrectomy score</td>
<td>7.0</td>
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<tr>
<td>Mean m/min per 1.73m2 preoperative eGFR (range)</td>
<td>81.4 (24.4-168.3)</td>
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</tr>
<tr>
<td>Mean operative minutes (range)</td>
<td>188.9 (60-581)</td>
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</tr>
<tr>
<td>Mean mL EBL (range)</td>
<td>255.7 (0-1800)</td>
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</tr>
<tr>
<td>Mean minutes WIT (range)</td>
<td>15.2 (5-36)</td>
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<tr>
<td>Transfusion (N, %)</td>
<td>7, 2.4%</td>
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<tr>
<td>Median days LOS (range)</td>
<td>2 (1-90)</td>
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<tr>
<td>Intraoperative Complications (N, %)</td>
<td>8, 2.7%</td>
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<td>Conversion: Lap to Open (N, %)</td>
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<td>Conversion: Partial to Radical (N, %)</td>
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<td>PSM</td>
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<tr>
<td>Postoperative Complications (N, %)</td>
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<td>Clavien Grade:</td>
<td>I: 34 (51%)</td>
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<tr>
<td></td>
<td>II: 28 (42%)</td>
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<td>III: 5 (7%)</td>
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<td></td>
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<tr>
<td></td>
<td>V: 0</td>
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</tr>
<tr>
<td>Postoperative eGFR change ≤ 3 months (%)</td>
<td>4.9% (0.0 - 112.5)</td>
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ASA American Society of Anesthesia eGFR estimated glomerular filtration rate, EBL estimated blood loss, WIT warm ischemia time, LOS length of stay, PSM positive surgical margin
INTRODUCTION AND OBJECTIVES: Warm ischemia time (WIT) during partial nephrectomy (PN) is the strongest modifiable surgical risk factor for decreased renal function. Zero ischemia techniques during PN, including unclamped PN and super-selective segmental clamping, have been reported but are exceedingly difficult. Minimally invasive PN using an early unclamping (EU) technique consists of renal artery bulldog clamping, tumor resection, and placement of one layer of running suture at the base of the resection defect. The bulldog clamp is then removed, and completion of all other reconstruction and renorrhaphy is done “off clamp”. Our objective was to report a prospective multi-institutional experience using an EU technique during robot-assisted partial nephrectomy (RAPN).

METHODS: Prospectively maintained databases from three academic kidney cancer centers were combined and analyzed. We report the demographic, perioperative, and postoperative data.

RESULTS: Between 2008–2013, 296 patients underwent RAPN using an EU technique (Table 1). The majority of tumors were clinical stage T1 (mean tumor size 3.1 cm) and of moderate to high complexity (nephrometry scores ≥7 in 62% of tumors). Mean WIT was 15.2 minutes (range 5–36 minutes), and mean estimated blood loss was 256 mL. 7 (2.4%) patients required a blood transfusion and positive surgical margin rate was 5.8%. 67 patients (22.6%) had a postoperative complication, of which 34 (51%) were Clavien grade I and 28 (42%) were grade II. Median length of stay was 2 days.

CONCLUSIONS: RAPN with EU is safe and reproducible, allowing excellent visualization during tumor excision and precise closure of collecting system and end arteries. The technique provides for a reliably short WIT with acceptable perioperative complication risks. In our experience, EU may be a more straightforward method of limiting WIT than unclamped and segmental occlusion techniques.

Source of Funding: None

MP01-19 LAPAROSCOPIC AND ROBOTIC PARTIAL NEPHRECTOMY: COST ANALYSIS OF PERI-OPERATIVE AND POST-OPERATIVE OUTCOMES AT A SINGLE INSTITUTION

Aaron Boonjindasup*, Sree Mandava, Benjamin Woodson, Raju Thomas, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Partial nephrectomy is a nephron-sparing technique that is the standard of care for Stage T1a renal masses. Laparoscopic partial nephrectomy (LPN) produces good oncological outcomes with improved convalescence over open surgery. Questions concerning LPN include long ischemic times due to complicated suturing and risk of complications. Reduced morbidity from robotic partial nephrectomy (RPN) may determine the final direct cost. We compare direct costs of both laparoscopic and robotic-assisted laparoscopic partial nephrectomy at a single institution.

METHODS: Data was collected from an IRB approved retrospective database of partial nephrectomy patients between 2003 and 2013 for laparoscopic and robotic partial nephrectomies. Mean OR time, length of stay (LOS), estimated blood loss, ischemia time and direct costs were evaluated between groups. Data were analyzed by Fisher’s exact T-test and Mantel-Haenszel chi-square odds ratio analysis. A p-value of < 0.05 was considered significant.

RESULTS: 190 LPN and 221 RPN procedures were identified in our database. Mean OR time was 168.7 minutes for LPN and 167.3 minutes for RPN (p = 0.678). Mean LOS was 3.7 and 2.52 days (p < 0.05) respectively for LPN and RPN. LPN was more a more cost-effective approach at a mean cost of $10,546.39 compared to $11,619.45 (p = 0.0023), when factoring in amortized upfront robot cost. RPN was also shown to be as sufficient or better than LPN in extirpation of larger tumors (2.7 cm for LPN vs. 3.2 cm for RPN, p = 0.018). Intra-operative morbidity such as estimated blood loss (326.6 for LPN vs. 235.4 for RPN, p = 0.155) and ischemia time (35.5 for LPN vs. 19.66 for RPN, p < 0.05) showed equal or better results for RPN.

CONCLUSIONS: LPN is more cost effective than RPN when factoring in robotic costs. RPN has a higher cost due to upfront costs and intra-operative instrumentation costs than LPN, but is partially compensated by a shorter LOS. Intra-operative predictors of patient morbidity are shown to be the same or better for RPN. RPN may be superior and cost-efficient for complex tumors and cases where ischemia times are crucial (i.e. solitary kidney).

Source of Funding: none

MP01-20 IS CYSTATIN C USEFUL AS A BIOMARKER FOR ASSESSING AND STRATIFYING RENAL INJURY AFTER WARM ISCHEMIA FOLLOWING ROBOTIC PARTIAL NEPHRECTOMY

Ben Woodson*, Liang Wang, Sree Mandava, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Currently predominate methods of assessing global renal function include serum creatinine and estimated glomular filtration rate. In a patient with a normal contralateral kidney, the serum creatinine measurement may appear normal due to systemic measurements. Cystatin C is a nonglycosylated 13kDa basic protein that is a member of the cystatin superfamily of cysteine protease inhibitors and is produced by all nucleated cells. Cystatin C is filtered by the glomerulus, then undergoes essentially complete tubular reabsorption and catabolism. Our objective was to assess use of cystatin C as a biomarker to better determine the effects of renal ischemia in a series of clinical patients undergoing robotic partial nephrectomy.

METHODS: Serum cystatin C levels (n = 27) were obtained immediately post-operatively at the induction of anesthesia before robotic partial nephrectomy, immediately post-operatively, and on post-operative day 1 and 2. Three of these patients had their tumors excised off clamp with zero ischemia, and served as controls. We then estimated the GFR by using the Creatinine-Cystatin C Equation.

RESULTS: For our measurements of cystatin C in our surgical patients undergoing partial nephrectomy, we elected to use cystatin C into the CKD-EPI 2012 equation in an effort to obtain meaningful data on patients GFR post-operatively. This newly formulated GFR was then compared to GFR estimates based on creatinine alone. The overall trend demonstrated an increase in the GFR's calculated with the combined use of cystatin C and creatinine, compared with those calculations made from creatinine alone. Using the CKD-EPI 2012 equation with incorporation of cystatin C values into the calculations, we observed a 12.4% increase in the GFR on post-operative day 2 compared with the GFR calculated by the Modification of Diet in Renal Disease (MDRD) equation. Serum cystatin C levels did increase at each post operative time point, but maintained baseline levels in the control group.

CONCLUSIONS: Combining Cystatin C with Creatinine to estimate GFR can more accurately predict actual GFR, thereby allowing more accurate dosing of medications and enabling better allocation of resources by avoiding unnecessary referrals to nephrologists in those nearing Stage 3 Chronic Kidney Disease.

Source of Funding: Departmental
MP01-21  LAPAROSCOPIC PARTIAL NEPHRECTOMY VERSUS ROBOT-ASSISTED PARTIAL NEPHRECTOMY FOR RENAL CELL CARCINOMA: A MULTICENTER ANALYSIS OF FUNCTIONAL OUTCOMES

Kang Sup Kim*, Yong Sun Choi, Seoul, Korea, Republic of, Yong Hyun Park, Seoul, Korea, Republic of, Yong-June Kim, Cheongju, Korea, Republic of, Seok Ho Kang, Seoul, Korea, Republic of, Seok-Soo Byun, Seongnam, Korea, Republic of, Sung-Hoo Hong, Seoul, Korea, Republic of, Seung Hyun Jeon, Please choose an option below

INTRODUCTION AND OBJECTIVES: Robot-assisted partial nephrectomy (RAPN) is an emerging technique as an alternative modality for a small renal mass. The oncologic outcomes of RAPN were comparable with laparoscopic partial nephrectomy (LPN). Still, functional outcomes were not evaluated yet. We present the recent comparison of functional outcomes between RAPN and LPN with 5 multicenter results.

METHODS: Data on patients who underwent partial nephrectomy for renal cell carcinoma between 2003 and 2011 at multiple institutions were collected. Patient characteristics including preoperative estimated glomerular filtration rate (eGFR) were investigated, and postoperative results were evaluated. Functional outcome change was evaluated with variations in pre-and post-operative eGFR.

RESULTS: A total of 1061 patients were included for evaluation; 223 patients underwent LPN, while 838 patients underwent RAPN. The mean follow-up period was 31.72 ± 25.8 months (range, 12–120 months). Preoperative patient’s age, body mass index, gender distribution between RAPN and LPN were equivalent.

Preoperative eGFR in LPN was higher than RAPN (p < 0.001). Operative results with operative time (214 vs. 152 min, p < 0.001), ischemic time (34 vs. 23 min, p < 0.001) were significantly shorter in RAPN. Tumor size between two groups (2.26 vs. 2.56 cm, p = 0.005) was significantly different. Subset analysis based on tumor location revealed that RAPN was done in technically difficult cases. But, estimated blood loss (EBL) data between two groups (358 vs. 277 cc, p < 0.001) revealed RAPN is technically more feasible.

Surgical margin rate was similar between LPN (1%) and RAPN (1.6%) (p = 0.573). Postoperative renal functional change was remarkable in LPN (15.46 ml/min/1.73 m²) than RAPN (13.41 ml/min/1.73 m²) (p = 0.014).

CONCLUSIONS: RAPN is equivalent in oncologic outcomes. And the functional outcome in RAPN is superior to LPN. The renal function can be preserved even the tumor is technically difficult. In addition, operative parameters for RAPN appear to be less affected by tumor complexity compared to LPN. But, RAPN has few disadvantages such as cost-effectiveness, and assistant control of renal hilum. Additional randomized studies are needed.

Source of Funding: none

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<th>RALPN</th>
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<tr>
<td>Age</td>
<td>54±22±13.29</td>
<td>54±55±12.79</td>
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<tr>
<td>BMI</td>
<td>24±31±51</td>
<td>24±49±13.13</td>
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<tr>
<td>Preop eGFR</td>
<td>90±56±28.78</td>
<td>79±68±10.05</td>
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<td>Operation time</td>
<td>214±75±45</td>
<td>191±61±50.63</td>
<td>&lt;0.001</td>
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<td>Ischemic time</td>
<td>14±11±7.1</td>
<td>23±22±13.28</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>EBL</td>
<td>358±44±247.58</td>
<td>277±36±260.84</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Tumor Size</td>
<td>2.26±1.04</td>
<td>2.56±1.39</td>
<td>0.005</td>
</tr>
<tr>
<td>delta eGFR</td>
<td>15±4±14.33</td>
<td>13±4±13.31</td>
<td>0.014</td>
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<tr>
<td>Transfusion</td>
<td>14±20%</td>
<td>6±40%</td>
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<td>Surgical margin rate</td>
<td>1%</td>
<td>1.6%</td>
<td>0.573</td>
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<td>Tumor location</td>
<td>Exophytic</td>
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<td></td>
<td>Medullopapillary</td>
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<td></td>
<td>Endophytic</td>
<td>28.60%</td>
<td>35.00%</td>
</tr>
<tr>
<td></td>
<td>Inter</td>
<td>2.10%</td>
<td>8.00%</td>
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MP01-22  MULTICENTER COMPARISON OF PERIOPERATIVE TRENDS FOR ROBOTIC AND LAPAROSCOPIC PARTIAL NEPHRECTOMY

Michael Liss*, Kerrin Palazzi, La Jolla, CA, James Masterson, San Diego, CA, Reza Mehrzad, Memphis, TN, Sean Stroup, San Diego, CA, Ramzi Jabaji, Ryan Kopp, Hossein Mirheydar, Hak Lee, Christopher Kane, La Jolla, CA, James L’Esperance, San Diego, CA, Ilhaar Derweesh, La Jolla, CA

INTRODUCTION AND OBJECTIVES: Laparoscopic partial nephrectomy (LPN) has emerged as an acceptable alternative to nephron sparing surgery for select small renal masses; however, concerns regarding potential shortcomings of the laparoscopic platform have continued. Robot-assisted LPN (RALPN) has emerged as a platform that may increase adoption of partial nephrectomy with wristed instruments improving reconstructive effort for renorrophy. Herein we have compared intraoperative indicators and complications of LPN and RALPN along the transition to the robotic approach.

METHODS: Retrospective multicenter analysis of 205 consecutive patients who underwent LPN (n = 118) or RALPN (n = 87) from 2004–2012. Demographics, tumor characteristics including RENAL nephrometry score, intraoperative variables, and perioperative outcomes were compared. Primary outcomes were estimated blood loss (EBL) and complications. Trend analysis was performed for operative times and EBL, and multivariable analysis (MVA) was performed for factors associated with increasing blood loss.

RESULTS: In comparing LPN vs. RALPN, there were no significant differences in median tumor size (2.3 vs. 2.2 cm, p = 0.9), mean RENAL score (6.3 vs. 6.5, p = 0.5), ischemia time (29 vs. 34 min., p = 0.259), positive margin status (4.6% vs. 2.4%, p = 0.468), retroperitoneal approach (both 15%, p = 1.0), or complications (19.5 vs. 20.7, p = 0.861), respectively. Significantly more posterior (28 vs. 46%, p = 0.03) and interpolar (44 vs. 56%, p = 0.03) tumors were noted in the robotic cohort. Median EBL was significantly less in RALPN (100 mL vs. LPN 200 mL, p = 0.005), though there was no difference in transfusion rate (p = 0.077). There was a significant decrease in median EBL over time for RALPN but not for LPN (p = 0.026 and p = 0.128, respectively). Moreover, there was a significant decrease in operative time over the study period in the RALPN cohort compared to LPN (p = 0.045 and p = 0.275, respectively). MVA revealed that LPN was independently associated with increased EBL (OR 2.52, p = 0.007).

CONCLUSIONS: Over time, RALPN provides faster operative times and less intraoperative blood loss despite similar tumor characteristics to LPN. Transitioning to robotic surgery did not seem to comprise intraoperative outcomes and can become more efficient with experience. Long-term comparisons are needed to provide important data comparing the oncologic efficacy of the two groups.

Source of Funding: None

MP01-23  NATIONAL TRENDS IN FOLLOW-UP ANATOMIC AND FUNCTIONAL IMAGING AFTER PYELOPLASTY: IS SUCCESS OVERESTIMATED?

Ryan Hsi*, Sarah Holt, John Gore, Jonathan Harper, Seattle, WA

INTRODUCTION AND OBJECTIVES: There is no standard of care imaging algorithm for patients with ureteropelvic junction obstruction (UPJO) after undergoing pyeloplasty. High success rates have been reported albeit with limited follow-up, which
may underestimate failures. Success rates could also differ depending on whether postoperative imaging is anatomic versus functional. The purpose of this study was to characterize postoperative care after adult pyeloplasty in order to identify trends in imaging use, duration of follow-up, and determine whether these factors confound estimates of pyeloplasty success.

**METHODS:** The MarketScan Database contains insurance claims data from US employer-based commercial health plans including claims from inpatient admissions and outpatient visits. Patients aged 17–65 years undergoing pyeloplasty from 2007–2011 were identified. Follow-up imaging was classified as functional (diuretic renogram, IVP) and anatomic (ultrasound, CT, MRI). The postoperative period was divided into ≤6 months, 6–12 months, 12–24 months, 24–36 months and >36 months from the date of surgery. Patients without enrollment in the database at least 12 months after surgery were excluded (n = 937). Chi-square test and logistic regression were performed to determine associations between demographic variables and whether follow-up imaging was performed at least annually in the first 24 months after pyeloplasty.

**RESULTS:** Of 1,340 patients who underwent pyeloplasty for the correction of UPJO, 68% underwent minimally invasive pyeloplasty. At ≤6 months, 983 (73%) had at least one imaging study (53% had functional imaging, 37% had anatomic imaging). Between 0–12 months, 81% had at least one imaging study (60% had functional imaging, 47% had anatomic imaging). After the first year, only 34% of patients received follow-up imaging, of which most studies were anatomic imaging. Overall, 16% of pyeloplasty patients had no postoperative imaging during the observed follow-up period. At least annual follow-up imaging was significantly associated with older age, female gender, and longer hospital stay. At least one secondary procedure was required in 97 patients (7.2%).

**CONCLUSIONS:** Following adult pyeloplasty, the majority of patients receive a functional imaging study within 6 months of surgery. However, after 1 year, only one-third of patients receive follow-up imaging, which is most commonly anatomic. We identified an underuse of imaging beyond 1 year, which may indicate that current estimates of pyeloplasty success are confounded by insufficient follow-up.

**Source of Funding:** None.

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MP01 ROBOTICS/LAPAROSCOPY: UPPER TRACT I

**MP01-24 UPPER QUADRANT PORT PLACEMENT FOR ROBOTIC-ASSISTED RENAL SURGERY: IMPLEMENTATION OF THE FLOATING ARM AND THE XL PROTOTYPE**

Samer Totonchi*, Robert Elgin, Michael Monahan, Farmington Hills, MI, William Johnston III, Novi, MI

**INTRODUCTION AND OBJECTIVES:** A robot-assisted laparoscopic technique has become an increasingly utilized approach for renal surgery. Placement of the 4th arm in the lower quadrant (LQ) is the most common position, but has anatomical movement restrictions and limited ergonomics. An alternative, upper quadrant (UQ) location is desirable, but patient habitus and spacing may interfere with arm attachment. We sought to better understand the current trends in 4th arm port placement and propose an alternative method at attaching the robotic 4th arm-the “Floating Arm”.

**METHODS:** Robotic surgeons from the Endourology Society were surveyed. We engineered a 10 cm extra long (XL Protype) DaVinci Instrument in our laboratory and investigated using a “Floating Arm” technique-a robotic arm attached to a port, but not physically touching the patient. A dry lab allowed quantita-tive comparison of spacing and ranges of motion for standard DaVinci ports (dVP), bariatric dVP, telescoping dVP, and the “Floating Arm” technique.

**RESULTS:** 108 respondents participated. Half of respondents routinely use the 4th arm, but the remaining avoids the 4th arm (lack of need (30%), or due to instrument/camera/patient interference (20%)). The majority (90%) typically positions the 4th arm in the LQ, and the majority reported significant limitations in this location from robot arm clashing (76%), limited space to place port (63%), and problems with prominent hip bones (54%). Few place 4th arm in the UQ (5%), while most have never heard of placement superiorly (73%). Dry lab measurements revealed that the bariatric dVP and telescoping dVP techniques increased shoulder height clearance, but inversely shortened the working length of the instrument intra-corporeally. Alternatively, use of the XL Protype significantly increased the shoulder length and maintained available working distances intra-corporeally. Adja-cent arm interference angle was essentially identical (27 degrees) for all ports, although the XL Protype had a greater range of movement (35 degrees).

**CONCLUSIONS:** Few surgeons are using an UQ positioning of the 4th arm or use techniques to improve 4th arm attachment such as telescoping. Our studies indicate the greatest freedom may be obtained by implementing the Free Floating arm, but this necessitates production of a longer instrument similar to our XL Protype.

**Source of Funding:** None.

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MP01-25 COMPARING RENAL FUNCTION AFTER OPEN AND ROBOTIC PARTIAL NEPHRECTOMY

Clinton Bahlert*, Jason Sea, Rudy Bowens, Jagan Kansal, Christian Tabib, Chandru Sundaram, Indianapolis, IN

**INTRODUCTION AND OBJECTIVES:** To understand the differences in glomerular filtration rate (GFR) following open and robotic partial nephrectomy and factors associated with these differences.

**METHODS:** We studied the GFR retrospectively on 121 consecutive partial nephrectomies (52 open and 69 robotic) performed between 2010 and 2012 at Indiana University. Correlation and multiple regression analysis were done to test the model.

**RESULTS:** The open group had a larger tumor size (3.4 vs. 2.8 cm, p < 0.01), lower percent male gender (48 vs. 64%, p < 0.01), shorter operative time (152 vs. 220 minutes, p < 0.01), higher transfusion rate (19.2 vs. 2.9%, p < 0.01), and longer length of stay (4.6 vs. 2.7 days, p < 0.01). Only 2 urine leaks and 3 pseudo-aneurysms were reported for the entire cohort. The median preoperative, nadir, and late GFR for the entire cohort was 79, 61, and 75 mL per minute/1.73 m², respectively. The open group had a more favorable change in GFR on last follow-up than the robotic (0.8 vs. −6.7, p = 0.007). Ischemia time <19 minutes (−0.5 vs. −6.6, p = 0.028) and the absence of a renorrhaphy suture closure of the capsule (8.7 vs. −7.3, p = 0.00001) were also favorably associated with a change in GFR. When controlling for renorrhaphy, surgery type and ischemia time were no longer associated with GFR. Renorrhaphy was the only significantly associated factor on multivariate regression analysis.

**CONCLUSIONS:** The renorrhaphy suture closure of the renal capsule following partial nephrectomy adversely affects renal function.

**Source of Funding:** None.
**MP02-01** PRELIMINARY STRATIFICATION OF EXPERT VS NOVICE LAPAROSCOPISTS USING THE BASIC LAPAROSCOPIC UROLOGIC SURGERY (BLUS) CURRICULUM

Sree Harsha Mandava*, Benjamin Woodson, Philip Dorsey, Raju Thomas, Benjamin Lee, New Orleans, LA

**INTRODUCTION AND OBJECTIVES:** To assess determinants of performance with the tasks of the Basic Laparoscopic Urologic Surgery (BLUS) skills curriculum administered at a single institution.

**METHODS:** After obtaining Institutional Review Board approval, 4th year medical students, urology residents (PGY-1 to PGY-5), and attendings from one academic institution were recruited for the study. Participants were grouped by level of experience and evaluated on four different BLUS modules testing fundamental laparoscopic techniques from September 2012 to September 2013. Task Completion Time (TCTs) were compared and correlated with previous laparoscopic experience, amount of endourological training and from scores obtained through the SimuLab EDGE E simulator.

**RESULTS:** TCTs among the participants were slower and with greater incompletes in the Novice (n = 9) level group than compared to the Intermediate (n = 5) and Expert (n = 6) level groups; 212.6 ± 53.9, 116.4 ± 42.0 and 106.0 ± 18.2 seconds respectively; p = 0.006. When past laparoscopic numbers of participants were compared with TCPs, a positive correlation at R² = 0.38, signifying a relationship between number of laparoscopic cases and TCP outcomes.

**CONCLUSIONS:** Performance on the BLUS® simulator during the various modules significantly correlated with the amount of laparoscopic experience. Increase in the years of experience and number of laparoscopic cases lead to faster and more accurate TCPs.

Source of Funding: none

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**MP02-02** CITATION ANALYSIS: DOES INSTITUTIONAL H-INDEX CORRELATE WITH A PROGRAM’S RANK IN UROLOGY?

Michael Johnson*, Jonathan Mobley, Sam Bhayani, Joel Vetter, Brian Benway, Saint Louis, MO

**INTRODUCTION AND OBJECTIVES:** The h-index was introduced in 2005 as a metric to measure the impact of a researcher’s publications within his or her field. Defined as the number of publications, h which have at least h citations in the literature, the h-index has been validated as one of a number of metrics whereby the quality and consistency of publications may be judged. We hypothesize that the h-index of researchers may correlate with their institution’s esteem. Therefore, we sought to compare the h-index of faculty members at the top urology programs in the United States as defined by the U.S. News and World Report (USNWR) 2013 rankings.

**METHODS:** An internet search was performed for all urology departments listed in the top 20 USNWR, “Best Hospitals 2013”. Institutions were excluded from the analysis and replaced by the next ranked institution if the faculty members’ academic ranks were not published on their website. The h-index for each faculty member was obtained through the Scopus database. Emeritus, adjunct professors, and clinical instructors were excluded. Spearman’s Correlation Coefficients were calculated comparing USNWR rankings and mean h-index per institution. Further analysis was performed based on the h-indices of professor, associate professor, and assistant professor subgroups.

**RESULTS:** There was a statistically significant correlation between the mean overall institutional and associate professor h-index and USNWR hospital rank (R = 0.5895, p = 0.0062 and –0.4496, p = 0.0467, respectively). There was no a significant correlation between mean professor or assistant professor h-indices and program rank.

**CONCLUSIONS:** Institutional h-index appears to correlate with USNWR ranking, suggesting that the institutional impact upon the literature is tied closely with a program’s esteem, as evaluated through other metrics in the USNWR algorithm. Specifically, the h-indices of associate professors appear to have a significant impact upon program rank, which may reflect their upward mobility within the field of urology. Alternatively, in the case of professors, their impact upon rank may be skewed by the fact that the Scopus database only indexes articles published after 1994.

For assistant professors, many may not have been active for a sufficient period of time for the impact of their publications to be registered. Nevertheless, the strong correlation between h-index and program rank may suggest that bibliometric analyses could be of further value in judging a program’s esteem.

Source of Funding: none
MP02-03  CONTENT AND FACE VALIDATION OF A CURRICULUM FOR ULTRASONIC PROPULSION OF RENAL CALCULI IN A HUMAN PHANTOM

Ryan Hsi*, Barbrina Dunmire, Bryan Cunitz, Xuemei He, Mathew Sorensen, Jonathan Harper, Michael Bailey, Thomas Lendvay, Seattle, WA

INTRODUCTION AND OBJECTIVES: Ultrasound propulsion to reposition urinary tract calculi has recently been developed and requires knowledge about ultrasound image capture, interpretation, and manipulation of the hardware. The purpose of this study was to validate a curriculum to teach urologists how to use ultrasonic propulsion to reposition kidney stones in a tissue phantom.

METHODS: With institutional review board study approval, 10 board-certified urologists recruited from a single-institution underwent a didactic session on renal ultrasound imaging. All subjects then completed three technical skills modules in tissue phantoms, including renal and kidney stone imaging, pushing a stone through a translucent maze, and repositioning a lower pole calyceal stone to the renal pelvis in a kidney phantom. Objective metrics included cognitive skills assessment based on the didactic session, and technical skills assessment including task time and % effective pushes that resulted in calculus movement. Each subject then completed a questionnaire ascertain face and content validity.

RESULTS: Eight urologists (80%) had never attended a prior ultrasound course, and nine (90%) performed renal ultrasound exams less frequently than once per 6 months. All training sessions were completed within 1.5 hours. Mean cognitive skills scores improved from 55% to 91% (paired t-test, p < 0.0001). In the kidney phantom, 10 (100%) repositioned the lower pole calyceal stone to at least the lower pole infundibulum, and 9 of 10 (90%) successfully repositioned the stone to the renal pelvis (the phantom is constructed with a blind-ending ureteropelvic juncture). A mean total of 15.7 ± 13.3 pushes (mean 80.1% effective pushes) was required to complete the task over a mean time of 4.6 ± 2.2 minutes. Urologists rated the curriculum’s effectiveness and realism as a training tool at mean scores of 4.6/5 and 4.1/5, respectively (Figure).

CONCLUSIONS: The curriculum is effective and useful for training stone propulsion technique and technology to urologists of varying degrees of ultrasound proficiency. Further studies in animate and human models will be required to assess predictive validity.

Source of Funding: Work supported by NIH DK43881, DK092197 and NSBRI through NASA NCC 9-58.

MP02-04  PERCEPTION OF UROLOGISTS PERFORMING LIVE CASE DEMONSTRATION (LCD) - TO BE OR NOT TO BE?

Simpa Salami*, Sammy Elsamra, Justin Friedlander, Arvin George, Brian Duty, Zeph Okeke, Arthur Smith, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: To evaluate the perception of urologists around the world regarding live surgery demonstrations: safety, educational value/benefits and ethics.

METHODS: A 19-question anonymous survey was sent out to urologists who had participated in the performance of LCD in the past of which 86 responded. Of those who participated, at least 87% responded to each of the 19 questions.

RESULTS: Of the 86 participants who responded to the survey, 77% practice full time in an academic setting and most were from Europe and North America. Only 53.0% of respondents were fellowship trained (8.4% have neither completed fellowship training or any formal course, nor performed the demonstrated case at a high volume). Sixty-one percent (61%) have performed more than 5 LCD at their various home institutions. Considering the technical complexity of the procedure performed, 74.0% of respondents deemed it to be appropriate for a LCD. Performing LCD at an away institution was associated with higher level of anxiety when compared with performing LCD at a home institution. Considered to be distracting by the responders were: film equipment and crew (30.6%); Audience and moderator discussions (45.2%); Unfamiliar instruments and tools (64.9%); unfamiliar team (67.6%); having to narrate the procedure (44.0%). Language barrier was reported to have negatively impacted LCDs by 20.3% of respondents.

Eighty-six percent (86%) reported that LCD is an ethical practice, but 70.5% will allow themselves or a family member to be a patient for a LCD; 59.2% reported that the patients’ operative care was delayed as a result of the LCD. Although 40.8% reported that the patient’s operative care was delayed, only in 2.6% of cases does the delay negatively impact the patient’s care. Ninety-one (91%) of respondents felt that LCD are beneficial, that they are a great way to educate. Although 35.9% reported that their benefits are limited to increasing attendance at meetings, 62.8% felt that LCDs would not be replaced by videos because the interaction afforded by LCD cannot be mimicked by videos. Considering the various factors and conditions associated with LCD, 84.6% would agree to participate in another LCD and 11.5% will participate in another LCD only at their home institution.

CONCLUSIONS: Live Case Demonstrations are a great way of education of surgeons. However, standard guidelines and policies are needed for the selection of patient, surgeon and his team, and equipment and facility. Studies are needed to evaluate the impact of this education process.

Source of Funding: none

MP02-05  UTILIZATION OF LEARNING RESOURCES AMONG UROLOGY RESIDENCY APPLICANTS

Kelly A. Healy*, Sanjay S. Kasturi, Demetrius H. Bagley, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Urology continues to be an attractive field for medical student applicants. However, information about the resources utilized by medical students to prepare for urology rotations is limited. As technology continues to evolve, smartphones, tablets, and other electronic platforms are playing an increasing role in medical training and patient
CONCLUSIONS: Urology residency applicants prefer to use ward rounds, clinic hours, and operative cases. Of all hardware formats, smartphones were the most commonly used to prepare for ward rounds, clinic hours, and find if there is any improvement in the performance of the tasks needed for a laparoscopic nephrectomy. The majority of applicants preferred these resources in their electronic format when available. The most common websites were the AUA (22), Up to Date (21), and Urology Match (19). Surgical videos were primarily viewed on YouTube (25). Most applicants visited the AUA website, but less than half used the available AUA resources were commonly used by applicants. The most popular textbooks included Campbell’s Urology (n = 22), Smith’s Urology (21), Netter’s Atlas (18), and Hinman’s Atlas (8). Weider’s Pocket Guide of Urology (27) was the most popular handbook. Only the minority of applicants used a question book or question book (21). Applicants mainly used review articles in the Journal of Urology (21), Urology (17), BJU International (15), and European Urology (14). AUA resources utilized included Update Series (13) and Clinical Guidelines (13). CONCLUSIONS: Urology residency applicants prefer to use electronic and web-based applications in medical training. Future studies are needed to evaluate how such digital media affects learning among trainees as well as clinical outcomes.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: The majority of learning curve studies have concentrated on the latest surgical techniques, whilst there is little data pertaining to basic urological procedures such as TURP and related laser therapies. This prospective study aims to establish learning curves for the AMS GreenLight Simulator, the first virtual reality simulator for GreenLight Laser Photoselective Vaporisation of the Prostate (PVP), and develop an evidence-based training curriculum to assist trainees in transferring the skills learnt to the operative setting.

METHODS: This prospective, observational and comparative study, recruited 25 novices from the United Kingdom. A group of the novices (n = 12) performed 10 sessions of the subtask training modules and a second group (n = 13) performed five sessions of a given common case. No more than two sessions were completed per day, each one hour apart. Assistance during sessions wasn’t provided. The outcome measures for evaluating the learning curves were time to task, coagulation time, vaporization time, average sweep speed, average laser distance, blood loss, operative errors, and instrument cost.

RESULTS: This study applied a stepwise process to the training modules and case metrics of the AMS GreenLight SIM. A learning curve was established for all tasks in the training curriculum. This study showed that learning curves are achievable with each procedure and can be used to establish standards for performance. It also demonstrated the feasibility of using virtual reality simulators to train urologists in essential surgical skills.

Source of Funding: none

MP02-06 EXPERIENCE IN 3D LAPAROSCOPIC NEPHRECTOMY IN PORCINE MODEL

Alberto Jorge Camacho Castro*, México, Distrito Federal, Mexico, Victor Osornio, Mauricio Cantellano, Carlos Martinez, Gustavo Morales, Carlos Pacheco, México, Distrito Federal, Mexico

INTRODUCTION AND OBJECTIVES: The improving in laparoscopic imaging, instrumentation and new surgical techniques will offer advantages for patients and urologists of the future. From early 90’s some three-dimensional (3D) systems have been developed to overcome the lack of stereoscopic vision in laparoscopic surgery. The objective of this study is define the learning curve of laparoscopic nephrectomy using a 3D imaging system, and find if there is any improvement in the performance of the residents.

METHODS: From January 2012 to May 2013 a transversal, ambispective, descriptive study was performed in which 6 Urology residents were involved, 3 of fourth year an 3 of third year, we performed 96 3D laparoscopic nephrectomies using a Viking 3D imaging system in porcine models at the facilities of our institution, this procedures were performed once a week, the same day bilateral nephrectomy was performed, residents were divide in 3 groups compound of 2 residents each, 1 of fourth and 1 of third year, and they rotate the surgeon and camera man position each week, several factors were measured such as total surgery time, hilium dissection time, operatory bleeding, renal parenchyma injuries, renal vessels injuries, solid organ injuries, and other injuries.

RESULTS: Each surgical group operated on 32 kidneys, with the same surgeon operating on both kidneys of each pig. Mean kidney and ureter section was 40 minutes with a 20 to 84 minutes range. Approximation to the mean occurred after 10 procedures to group 1, 15 procedures to group 2, and after 13 procedures to group 3. There were 28 renal parenchyma injuries, 22 renal vessels injuries, 4 solid organ injuries (3 hepatic and 1 splenic), 1 colon, 1 gastric and 1 small intestine injuries.

CONCLUSIONS: This study shows us the usefulness of practicing laparoscopic skills in animal models for residents, and the 3D image provided for the Viking system helps giving residents stereoscopic view and the perception of deepness, which allows a quicker perform of the tasks needed for a laparoscopic nephrectomy.

Source of Funding: None
CONCLUSIONS: This study has demonstrated the AMS GreenLight SIM to be a useful training tool for GreenLight laser PVP. It is hoped that by using the training curriculum for the GreenLight SIM, novice trainees can acquire skills and knowledge to a predetermined level of proficiency.

Source of Funding: None

**MP02-08** CAN AT-HOME TRAINING RIVAL IN-LAB TRAINING IN THE ACQUISITION OF LAPAROSCOPIC SKILLS?
Ali Bahsoun*, Michael Michael, Saied Froghi, Kamran Ahmed, Prokar Dasgupta, London, United Kingdom

INTRODUCTION AND OBJECTIVES: Opportunities to acquire laparoscopic skills can be difficult and costly to access. At-home training may prove to be an innovative solution for our trainees gain access to training. Our objective was to directly compare the skill acquisition between an ‘At-Home’ laparoscopic training device, an iPad tablet trainer (TT), and an ‘In-Lab’ laparoscopic box trainer (BT).

METHODS: Participants were required to draw cards from a box to randomise them to either BT group or the TT group. All participants were medical students who have had no experience with using laparoscopic instruments. The participants were required to complete three tasks (object manipulation, glove dissection and suturing) at their designated environments. A member of the team accompanied the home training group to ensure that additional practice was not undertaken and that all attempts had been recorded. The tasks performed were recorded for both groups, anonymised and send to two examiners. The examiners assessed the scores of the participants using OSATS (a validated assessment tool). The scores were accumulated and processed using Statistical Package for the Social Sciences (SPSS).

RESULTS: Over the repetitions of each task the OSATS improved significantly for Group A (p<0.05). Similarly, over the repetitions of each task the OSATS improved significantly for Group B (p<0.05) except in task 2 (p=0.322). For task 1, both groups demonstrated a Significant improvement in time taken (p<0.002), but in task 2 (p=0.096) and task 3 (p=0.47) there was no significant improvement in both groups.

CONCLUSIONS: Both simulators proved useful at teaching basic laparoscopic skills to novices. Additionally, the TT has similar acquisition of basic laparoscopic skills to the BT. This is important as the TT is more portable and cost effective than the BT. Therefore, ‘shifting’ laparoscopic training from ‘In-Lab’ to ‘At-Home’ is a convenient way of training.

Source of Funding: none

**MP02-09** A DA VINCI S TO SI CURRICULUM ON A 3D VR ROBOTIC SURGICAL SIMULATOR MAY BE EFFICIENTLY EMPLOYED TO FACILITATE SURGEON TRANSITION
Ryan Speir*, Lacey, WA, Timothy Brand, Tacoma, WA

INTRODUCTION AND OBJECTIVES: As robotic surgical technology evolves to new hardware, it is imperative that surgeons make the transition as well. Ideally, this transition occurs in a simulation setting. With the introduction of the da Vinci Si system (Intuitive Surgical, Sunnyvale, CA), surgeons were introduced to new finger clutching and new pedal configuration. We designed a study to evaluate a novel curriculum for the transition of use from the da Vinci S system to the da Vinci Si system by means of the dV Trainer 3D VR robotic simulator (Mimic Technologies, Seattle, WA). The aim of this study is to create and validate an efficient transition curriculum from the S to the Si platform.

METHODS: We had 10 subjects complete the Ring Walk Level 3 task using the Mimic dv trainer S platform 5 times for benchmarking purposes. Our curriculum began with the utilization of the commercially available Si orientation training module available on the dV Trainer software, followed immediately by completion of Ring Walk level 3 using the Si platform 5 times. The task, Ring Walk 3, relies heavily on expertise with movement of the camera, instrument clutching and use of the fourth arm, all of which are features which differ between the S and Si platforms. Data collection included recorded metrics of performance to include time to completion, economy of motion, time instruments are out of view, instrument collisions and master workspace range.

RESULTS: Our benchmark time of 133 seconds (SD 33.04 seconds) for Ring Walk 3 was set using mean averages of the 3,4,5 trials on the S platform. Our subjects took an average of 2 trials using Si platform to achieve the set benchmark (138 seconds, SD 41.69). When the junior and senior level groups were compared, no significant differences were found. The average time to completion of the entire curriculum from the orientation module to completion was 20 minutes.

CONCLUSIONS: In our curriculum an instructional module and a single complex task was used in order to guide a surgeon through the new features of the Si surgical platform. We demonstrated predictive validity in our curriculum in that after completing the tutorial, it takes a minimum of 2 practice runs to reach the same level of proficiency when compared to the S platform. We feel this curriculum could be efficiently utilized at facilities where the new robot is introduced.

Source of Funding: none
**MP02-10**  
**EFFECT OF EXPERT MENTORING ON THE ACQUISITION OF ROBOTIC SURGICAL SKILLS - A RANDOMISED CONTROLLED TRIAL.**

Daniel Hay*, Kamran Ahmed, Prokar Dasgupta, Ben Challacombe, London, United Kingdom

**INTRODUCTION AND OBJECTIVES:** To analyse the impact of expert mentoring on the performance of specific tasks using the da Vinci Skills Simulator (dVSSim). To establish whether a correlation exists between students’ experience with video-games and their innate ability with the dVSSim.

**METHODS:** Twenty robotically naive medical students were blinded and randomised to two cohorts; the control cohort who received no mentoring (CC, n = 10) and the intervention cohort who received individual expert mentoring (IC, n = 10). Each student’s performance on the dVSSim was initially measured and then following an independent practice (CC) or mentor guided practice session (IC) was reassessed to look for any improvement. In the mentored session students were given advice on their technique for controlling the dVSSim, watched the expert to see the optimal approach for each of the tasks and were then observed and given feedback. The outcomes of interest were overall score, time to completion and economy of motion. For the purpose of evaluation of video-games correlation, quantitative (questionnaire) data was collected. Comparisons between cohorts were made using the independent t-test.

**RESULTS:** On average, the CC improved by 16.8% compared to 43.3% for the IC (p<0.05). Time to completion improved by 26.2% (CC) vs. 40% (IC) and economy of motion improved by 16.5% vs. 25%, but neither of these findings were statistically significant. Students with video-game experience had initial overall scores that were on average 30.9% better than those with little or no experience (p<0.05). This correlation was also seen for time to completion (15% better) and economy of motion (20.1% better), but neither were statistically significant.

**CONCLUSIONS:** Mentorship based simulation learning is effective. Expert mentoring leads to a significantly greater improvement in performance with the virtual reality simulator than independent practice alone. Prior experience with video-games improves innate ability with the dVSSim.

Source of Funding: None

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**MP02-11**  
**ASSESSMENT OF ROBOTIC SIMULATION PERFORMANCE BY UROLOGY TRAINEES IN RESIDENCY PROGRAMS**


INTRODUCTION AND OBJECTIVES: Resident performance on the Mimic dV-trainerTM (Mimic Technologies, Inc., Seattle, WA) was assessed for correlation with resident trainee level, console experience, and simulator exposure in their home training program.

**METHODS:** 27 residents from 14 programs of the Southeastern Section of the American Urologic Association were invited to participate in a two-day robotic training course consisting of didactic training and console simulation training. Each resident was scored regarding four different simulator tasks (peg board, camera targeting, energy dissection, and needle targeting) with three different outcomes (final score, economy of motion score, and time to complete exercise) measured for each task. These scores were correlated with resident console experience, trainee level, and simulator exposure in their home training program. We considered year of Urology residency as a dichotomous categorical variable (Year 1 or 2 versus Year 3 or 4) as well as an ordinal variable in association analysis. P-values ≤ 0.05 were considered statistically significant.

**RESULTS:** 13 trainees had never been on the robotic console for an actual case. Time to complete exercise for the task of energy dissection was significantly shorter for residents who had used a robotic console for an actual case compared to those who had not (P = 0.003). Additionally, although not quite significant, time to complete exercise for the task of peg board was shorter for residents who had used a robotic console for an actual case (P = 0.076). There were no other associations with use of a robotic console for an actual case that approached significance (all P≥0.21). The only measure that was significantly associated with year of Urology residency was time to complete exercise for the task of energy dissection, where year 3 and 4 residents had a shorter time than year 1 and 2 residents (P = 0.009), and time was shorter as year of Urology residency increased in general (P = 0.005). No associations with previous access to a robotic simulator were statistically significant, although there was a non-significant trend toward a better economy of motion score for the task of energy dissection for residents who did not have previous access to a robotic simulator (P = 0.085).

**CONCLUSIONS:** The energy dissection exercise on the Mimic dV-trainerTM is most associated with real life console experience and resident trainee level compared to other exercises. Exposure to the Mimic dV-trainerTM in training programs does not appear to alter performance scores compared to trainees that do not have access to the simulator.

Source of Funding: none

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**MP02-12**  
**PRELIMINARY EXPERIENCE WITH THE USE OF THE DA VINCI SI ROBOTIC SURGERY SYSTEM IN PANAMA. RESULTS OF THE IMPLEMENTATION OF SURGERY CLINICAL PATHWAY FOR TRAINING**

Marcos Young*, Leticia Ruiz, Alejandro Manduley, Elias Bodden, Panama, Panama, Octavio Castillo, Santiago, Chile, Brian Matlaga, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Robotic surgery for urologic disease is becoming increasingly widespread. However, there is a known learning curve for this technology that can inhibit its adoption; this concern may be particularly important in an international, non-academic setting. Our institution introduced the first robotic system in our geographic region (Central America), and we reviewed our experience in implementing a training pathway for robotic surgery, to define lessons learned from these efforts.
METHODS: In March 2012 a da Vinci SI robotic system was installed at a private hospital in Panama; this was the first system installed in Central America. Our implementation pathway was comprised of an online virtual course, video reviews, on-site surgical system training, off-site Surgical skills training using animate and inanimate models, off site Live Procedure Observation, and on site surgery with an experienced preceptor. We prospectively tracked intra-operative parameters: time for patient preparation, docking of the robot, and console time. We also reviewed early patient results for all procedures.

RESULTS: During an 11 month period, 96 robotic-assisted laparoscopic surgeries were performed: 45 urologic, 9 gynecologic and 42 general surgery cases. The 45 urology cases included: 24 radical prostatectomies, 10 partial nephrectomies, 5 radical nephrectomies, 1 donor nephrectomy, 4 pyeloplasties and 1 partial cystectomy. Mean console time for the first 8 cases, with preceptor, was 251 minutes and for the following 31 cases 110 minutes. Regarding robotic-assisted laparoscopic prostatectomies: patient preparation was 37 min, docking time 5.6 min, console time 226 min. Estimated blood loss was 344 ml. No conversions were made. Complications included: Ureteral meatus edema (1), bleeding (2), shoulder pain (1), skin haematoma (1). Positive Surgical margin rate for pT2 was 0%. Contience (0 to 1 pad daily): 88%. Erectile function was present in 69% of patients (follow-up from 8 to 2 months).

CONCLUSIONS: Our structured clinical training program assisted in the rapid development of our robotic surgical program, and we believe was responsible for our safe and effective experience. As robotic surgery continues to expand to diverse international regions and non-academic institutions, detailed protocols such as ours can aid in its successful adoption elsewhere, as well.

Source of Funding: None

MP02-13 AN EFFECTIVE REPETITIVE TRAINING SCHEDULE TO ACHIEVE SKILL ACQUISITION IN NOVEL ROBOTIC VIRTUAL REALITY SIMULATOR

Seok Cho*, Sung Gu Kang, Kyung Sook Yang, Byung-Ju Ryu, Hoon Ah Jang, Seok Ho Kang, Jeong Gu Lee, Je Jong Kim, Jun Cheon, Seoul, Korea, Republic of; Koo Han Yoo. Please choose an option below

INTRODUCTION AND OBJECTIVES: Recent studies related with robotic simulator (Ed note: should this be in plural?) showed excellent face, content and construction validity, but there has been no report about an effective training schedule to train the trainee. Excessive training could induce fatigue and too long an interval between training could not make the consolidation of training. Herein, we investigate (Ed note: present tense for purpose statements) which training schedule would be the most effective, and whether the simulator training could lead to improved performance in drylab using real da Vinci Robot.

METHODS: A total of 15 candidates were enrolled after an approval from the local institutional review board and the Tube 2 task, which is known to show proficiency within four hours, were performed. According to the training schedule, participants were divided into three groups. Five (33%) novices (Ed note: confirm word; novices)) in Group I performed the task on daily 1 hour for 4 days. Five (33%) in Group II performed the task on weekly 1 hour for 4 days. Five (33%) in Group III performed the task on a whole day for four hours. The effect of the training was investigated through the repeat trial number and the plateau of a learning curve and the time to complete the Tube 2 task. Correlation was evaluated through Spearman’s correlation coefficient between the mean time of the last five trials using the simulator and the average time of five trials using real da Vinci Robot.

RESULTS: The average time to complete the task in the plateau was 150. 3 seconds in group I, 171.9 seconds in group II and 188.5 seconds in group III. The repeat count for the plateau in a learning curve was 45 times in group I, 36 times in group II and 39 times in group III; therefore, there was a continuous improvement after 40 times in the score only in group I. There was a significant correlation between improvement in each trial interval and attempt, the correlation coefficient (0.924) in group I was bigger than 0.899 in group II and 0.838 in group III. On the other hand, each mean time to complete the Tube 2 in 6 participants had a significant correlation with average time to complete the task in dVSS.

CONCLUSIONS: The most effective training results was shown in daily 1 hour group. This study can be used for the useful information for simulator training curriculum of robotic surgery.

Source of Funding: None

MP02-14 DOES RESIDENT AND FELLOWSHIP TRAINING AFFECT OPERATIVE AND SHORT-TERM ONCOLOGIC AND FUNCTIONAL OUTCOMES IN PATIENTS UNDERGOING ROBOT-ASSISTED RADICAL PROSTATECTOMY (RAPR)?

Ziho Lee*, Shaileen Sehgal, Reid Graves, Yu-Kai Su, Elton Luukan, Kelly Monahan, Alice McGill, Phillip Mucksavage, David Lee, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: To determine whether fellow and chief resident participation during RARP influences operative and postoperative outcomes.

METHODS: Between August 2011 and June 2012, 388 patients underwent RARP by a single primary surgeon (DIL) at our institution. Statistical comparisons of patient characteristics, and operative and functional outcomes were conducted after grouping the cohort according to the surgeon(s) operating the robotic console: attending only (n = 91), attending and fellow (n = 152), and attending and chief-resident (n = 145). Postoperative urinary continence was defined as using 0 pads per day, and postoperative erectile function was assessed by Sexual Health Inventory for Men (SHIM) score. Approximately normal variables were compared utilizing one-way analysis of variance (ANOVA) test, and categorical variables were compared utilizing two-tailed chi-square (χ²) test; p < 0.05 was considered statistically significant.

RESULTS: There were no differences in mean age (p = 0.590), body mass index (p = 0.339), preoperative SHIM score (p = 0.084), preoperative American Urology Association Symptom Score (p = 0.086), preoperative prostate-specific antigen (p = 0.258), preoperative and postoperative Gleason score (p = 0.349 and p = 0.808, respectively), clinical stage (p = 0.242), and pathological stage (p = 0.270). With regards to operative outcomes, there was no difference in mean estimated blood loss (p = 0.807), %NS performed (p = 0.130), length of stay (p = 0.494), and rate of positive surgical margins (p = 0.058). There was, however a difference in mean operative time (p < 0.001; attending only = 89.3 min, attending and fellow 125.4 min, and attending and chief-resident 126.9 min). With regards to functional outcomes at 3 months...
postoperatively, there was no difference in urinary continence rate (p = 0.977), and SHIM score (p = 0.822).

CONCLUSIONS: Fellow and chief-resident involvement during RARP may be associated with increased operative times, but does not compromise short-term functional and oncologic outcomes.

Source of Funding: None

MP02-15 CONSTRUCT, CONTENT AND FACE VALIDITY OF THE DA VINCI SURGICAL SIMULATOR

Adam C Calaway*, Jason C Sea, Chandru P Sundaram, Indianapolis, IN

INTRODUCTION AND OBJECTIVES: We sought to determine the construct, content and face validity of a single exercise in the da Vinci Skills Simulator (dVSS).

METHODS: 54 subjects with a varying degree of robotic experience participated in this study assessing performance on the previously validated Thread the Rings exercise. 42 were senior medical students (0 robotic cases performed), 7 were junior residents (PGY2–3, < 50 cases), and 7 were senior residents/fellows (≥ PGY4, > 50 cases). The metrics provided by the simulator were used to assess performance to determine construct validity. Subjects completed a corresponding survey to determine content and face validity.

RESULTS: Overall performance, time to complete and economy of motion were significantly different between the groups (Table 1). Overall score was positively correlated with surgical experience; time to complete and economy of motion had negative correlation. Residents/fellows survey responses regarding the utility of the simulator in robotic training and simulator realism were 4.36 and 4 on a 5 point Likert scale, respectively.

CONCLUSIONS: Our study results support the construct, content and face validity of the dVSS on a previously validated exercise in a large cohort with varying surgical experience.

Source of Funding: None

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<thead>
<tr>
<th>Table 1: Comparison of Junior Residents and Senior Residents Performing Inanimate Training Exercises</th>
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MP02-16 OUTCOMES OF INDIANA UNIVERSITY UROLOGY WEEKEND ROBOTICS TRAINING PROGRAM

Jason C Sea*, Adam Calaway, Clinton D Bahler, Christopher Southwood, Chandru P Sundaram, Indianapolis, IN

INTRODUCTION AND OBJECTIVES: Simulation is an important tool for training residents in robotic urologic surgery. Indiana University has a weekend training program that involves inanimate and virtual reality simulation. We present the outcomes of the training program comparing the junior and senior residents.

METHODS: Residents enrolled in the urology training program at IU underwent training in the weekend sessions. Sessions included an introductory inanimate training followed by virtual reality simulation. We utilized SPSS v20 to perform t-test, correlation and regression analysis.

RESULTS: Metrics for the inanimate exercises comparing juniors to seniors during the first trials were most likely to show significant difference (Table 1). Paired t-test analysis demonstrated that both novices and advanced trainees improved scores with practice (Table 2). Regression found that number of trials, number of robotic cases and comfort with robots were predictive of outcomes for string running and suturing (Table 3).

Results of the virtual reality exercises demonstrated that advanced trainees outperformed the novices in all 10 exercises evaluated (Table 4). Significance in the t-test was identified for thread the rings (p = 0.013). T-test was also trending to significance for ring and rail 1 (p = 0.066) 2 (p = 0.083). Correlation and regression did not demonstrate factors in virtual simulation that could predict outcomes (data not shown).

CONCLUSIONS: Novice and advanced trainees improved their skills with the use of the inanimate training exercises. Construct
validity was present as the advanced trainees performed better than the novices.

Source of Funding: none

MP02-17 COMPARISON OF COMPUTER GENERATED PERFORMANCE METRICS IN THE DAVINCI SKILLS SIMULATOR- WHICH DEMONSTRATE THE MOST CONSTRUCT VALIDITY?

Ryan Dorin*, Kyle Finnegar, Halil Kiziloz, Steven Shichman, Hartford, CT

Introduction and Objectives: Previous studies have demonstrated construct validity of the daVinci Skills Simulator (Intuitive Surgical, Sunnyvale, CA) for differentiating novice, intermediate, and advanced robotic surgeons in overall score and time to completion of simulator tasks. Our purpose is to determine the relative construct validity of specific performance metrics within the Skills Simulator scoring system, thereby elucidating which metrics may be particularly useful to incorporate in a robotic surgery training curriculum.

Methods: Thirty-nine surgeons (18 group I [0–20 robotic cases]; 8 group II [21–150 robotic cases]; and 13 group III [> 150 robotic cases]) were enrolled from September 2010 to December 2010. Participants completed 24 virtual-reality exercises on the da Vinci Skills Simulator. Data on 12 performance metrics was collected by the software. The ability of each of the 12 metrics to differentiate between surgeon experience groups was analyzed using univariate general linear model and analysis of variance tests.

Results: Of the 12 metrics, 7 were applicable to all 24 exercises, with 5 metrics (i.e. misapplied energy time) only being applicable to select exercises. Of the 7 universally applied metrics, scores on ‘Time to Complete,’ ‘Economy of Motion,’ and ‘Work Space Range’ were significantly different between Group I and Group II surgeons across the greatest number of exercises. Only ‘Time to Complete’ demonstrated significant differentiation between Group II and Group III surgeons. Five of the seven simulator metrics demonstrated significant construct validity in differentiating between all three subgroups.

Conclusions: Within the daVinci Simulator exercise library, metrics relating to efficient use of the console workspace were most effective in differentiating novice surgeons from intermediate surgeons, while the speed metric was most effective in differentiating intermediate from expert surgeons. A simulator curriculum focusing on economy of motion and efficient clutching may be especially effective in training the novice robotic surgeon.

Source of Funding: Intuitive Surgical- Sunnyvale, CA

MP02-18 ASSESSMENT OF ROBOTIC SIMULATION USE IN RESIDENCY PROGRAMS OF THE SOUTHEASTERN SECTION OF THE AMERICAN UROLOGIC ASSOCIATION

Abby Taylor*, David Thiel, Jacksonville, FL, Vipul Patel, Celebration, FL, Todd Larson, Seattle, WA, Amy Lannen, Jacksonville, FL, Raymond Leveilee, Coral Gables, FL

Introduction and Objectives: To assess Southeast Section of the American Urological Association (SESAUA) trainee exposure to and thoughts on robotic simulation.

Methods: 3 trainees from each SESAUA residency training programs were invited to Orlando, Fl. for a formal 2-day robotic training course. Day 1 was a 3 component didactic session. Day 2 involved faculty direction to trainees in set tasks for 4 hours on a live porcine model and 4 hours on the Mimic dV-trainerTM (Mimic Technologies, Inc., Seattle, WA). 32 trainees from 14 programs in the SESAUA participated in the course and filled out a 1 page, 8 item questionnaire following their simulator exposure.

Results: 53.1% (17/32) had never had robotic console time during their residency training. 25% (8/32) of the trainees rated their training as excellent, of which 4 had access to a simulator, while 21.9% (7/32) rated their training as poor, of which 4 had access to a simulator. 65.6% (21/32) of trainees had access to the Mimic dV trainer or Mimic “backpack”, while 31.3% (10/32) of the trainees had no prior exposure to robotic simulation.

Source of Funding: Intuitive Surgical- Sunnyvale, CA
robotic simulation. 84.4% (27/32) of the trainees felt the simulator replicated real life robotic console surgery and 90.6% (29/32) felt the simulator was, or would be, helpful for training in their program. Trainees felt the “tubes 2” drill, which mimics a vesico-urethral anastomosis, was the most difficult drill to perform.

CONCLUSIONS: A majority of trainees in the SESUA have had none to limited robotic console time during their urology residency program. A high number of trainees in the SESUA have exposure to virtual reality robotic simulation. Trainees believe that the simulator replicates real life robotic console movements and almost all believe they would benefit from having access to robotic simulation.

Source of Funding: None

MP02-19 PERCEIVING A LIVE CASE DEMONSTRATION: PERCEPTION OF BENEFIT

Sammy Elsamra*, Hector Motato, Justin Friedlander, Daniel Moreira, Arvin George, Brian Duty, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: Many societies utilize live case demonstrations (LCD) at meetings. The educational benefit LCDs is unclear. Therefore we sought to evaluate perspectives of urologists viewing live and taped case demonstrations (TCD).

METHODS: A 15-question anonymous survey was distributed to attendees of the live surgery session at the AUA 2012 national meeting (Atlanta) and the 3rd International Challenges in Endourology meeting (Paris).

RESULTS: Of 1000 surveys distributed, 253 were returned completed. Nearly half of respondents were in academic practice setting and nearly 75% were beyond training. Just over 30% had performed a LCD previously. The perceived benefit of an LCD was greater than unedited and edited videos (chi-squared p = 0.0138 and p = 0.0001, respectively). Nearly no one selected “not helpful” and few selected minimally helpful for any of the three modalities. The majority of respondents identified that opportunity to ask questions (61%) and having access to the full unedited version (72%), two features inherent to LCD, improved upon the educational benefit of edited videos. The majority (78%) identified LCD as ethical. However, those that did not perceived lower educational benefit from LCD (p = 0.019). A slim majority (58%) would allow themselves or a family member to be a patient of a LCD. The vast majority (86%) plan to transfer knowledge gained at the LCD session into their practice.

CONCLUSIONS: Urologists who attended these LCD sessions into their practice. Of a LCD. The vast majority (86%) plan to transfer knowledge (58%) would allow themselves or a family member to be a patient LCD ethical though not as many would volunteer themselves for LCD. Further studies are necessary to determine if there is actual benefit from LCD over TCD to patient care.

Source of Funding: None

MP02-20 ELECTRONIC DATA COLLECTION FOR PATIENT-REPORTED OUTCOMES IN MEN WITH PROSTATE CANCER: ASSESSING EASE OF USE AND PATIENT SATISFACTION

Brian Benway*, Leslie McIntosh, Linda Black, Joanne Morley, Sheri Long, Patricia Carter, Elizabeth Jones, Alethea Paradis, Arnold Bullock, Gerald Andriole, Saint Louis, MO

INTRODUCTION AND OBJECTIVES: The Expanded Prostate Cancer Index – Composite for Clinical Practice (EPIC-CP) is a validated questionnaire which assesses patient-reported quality-of-life (QOL) measures related to prostate cancer and its management. We have previously reported equivalence between traditional paper surveys and electronic data collection via iPad with regards to survey completion time, as well as a two-fold increase in accuracy of data collection using the electronic format. With this in mind, we aimed to evaluate the ease of use and overall patient satisfaction associated with an electronic format for questionnaire completion, compared to traditional paper questionnaires.

METHODS: 226 men with prostate cancer were asked to complete either a traditional paper EPIC-CP survey, or an electronic survey administered on an iPad. After completing the surveys, each was assessed for completion, and patients were asked to fill out a questionnaire regarding their experience, focusing upon satisfaction and comfort with the method of collection, in addition to a self-assessment of computer literacy. Scores were rated on a 1–10 scale, with 10 indicating high satisfaction or proficiency.

RESULTS: 113 men completed the paper version of the EPIC-CP questionnaire, and 113 completed the electronic version. Patients found both the iPad and paper formats easy to use (mean ease-of-use scores of 9.14 vs. 8.80, respectively, p = 0.19), although mean satisfaction was significantly higher in patients who completed the iPad version of the survey (8.50 vs. 7.75, p = 0.04). Patients who completed the iPad version rated themselves as more computer-savvy (7.56 vs. 4.88, p < 0.001); however, when a subset analysis was performed of iPad respondents, comparing patients who rated their computer proficiency as novice, intermediate, or expert, no difference in mean satisfaction (6.89 vs. 8.51 vs. 8.61, respectively, p = 0.19) or ease-of-use (8.56 vs. 9.10 vs. 9.27, p = 0.54) was noted, indicating that novices were just as adept as experts at completing the electronic questionnaire.

CONCLUSIONS: In addition to providing a highly-accurate method for data collection, the use of an electronic format for completion of the EPIC-CP questionnaire is associated with greater patient satisfaction, even for patients with minimal computer literacy.

Source of Funding: Midwest Stone Institute Research Fund

MP02-21 IMPACT OF PAST LAPAROSCOPIC EXPERIENCE ON ROBOTIC PERFORMANCE

Roger Smith, Haidar Abdul-Muhsein*, Vipul Patel, Celebration, FL

INTRODUCTION AND OBJECTIVES: Objective: To determine the degree to which a surgeon’s years of laparoscopic experience contribute to the acquisition of robotic surgical skills and the achievement of proficiency.

METHODS: Surgeons were tested in their ability to perform four different simulated robotic surgical skills using the dV-Trainer simulator (Mimic Technologies, Inc., Seattle, WA) of the da Vinci Surgical System (Intuitive Surgical Inc., Sunnyvale, CA). The subjects completed a pre-test questionnaire to provide demographic and experience data, which included the number of years of practice in both laparoscopic and robotic surgery. Each subject performed four exercises using the simulator: ring board, camera targeting, thread the rings, and energy dissection. The simulator collected multiple performance metrics during each of the exercises. A Pearson’s correlation was calculated on the relationship between the number of years of laparoscopic and robotic experience (independent variables) with their overall proficiency score on the robotic simulator (dependent variable).
RESULTS: A total of 54 subjects participated in the experiment and 42 completed all four tasks in the robotic simulator. The subjects reported a range of experience in laparoscopic surgery between 4 and 34 years, and in robotic surgery between 0 and 11 years. Subjects indicating zero years of robotic experience were excluded from the study, reducing the sample size to 30 surgeons. Using the Pearson Product Moment Correlation with 28 degrees of freedom and $r=0.05$, a significant correlation threshold of 0.349 was established. There was a statistically significant negative correlation between years of laparoscopic experience and the overall proficiency score in two of the four robotic surgery exercises (ring board $=-0.361$; thread the rings $=-0.454$) and a negative correlation which did not achieve statistical significance in the two remaining exercises (camera targeting $=-0.152$; energy dissection $=-0.228$).

CONCLUSIONS: Using a robotic simulator to measure the proficiency of surgeons with both laparoscopic and robotic surgical experience we found a statistically significant negative correlation between the number of years of laparoscopic experience and proficiency in two of four exercises and a trend toward a negative correlation in the other two exercises. This analysis suggests that extensive laparoscopic experience may have a negative impact on the learning curve associated with robotic surgery.

Source of Funding: Department of Defense

MP02-22 UTILIZATION OF ROBOTIC SIMULATORS FOR UROLOGIC TRAINING
Edan Shapiro*, Ari Bergman, Rus Korets, Trushar Patel, Ketan Badani, New York, NY

INTRODUCTION AND OBJECTIVES: Computer-based simulators are being increasingly utilized in surgical training to supplement actual surgical experience. However, with work hour restrictions and other demands, it is challenging for residents to optimize their simulator experience during training. We sought to determine the utilization patterns of two robotic simulation training devices among urology residents.

METHODS: We enrolled all Urology residents in their PGY2-PGY5 years of training. Participants underwent an orientation session, completed a baseline survey, and a baseline skill level assessment (mScore on Needle Control task). The participants were then instructed to complete a total of 4 hours of training over 2 months, which could be completed on either the dV-Trainer (Mimic Technologies) or on the daVinci robotic console (Intuitive Surgical); the choice of which training platform to use was at the participant’s discretion. Following the 2 month training period, participants were asked to complete an online survey describing their experience and delineate the motivating factors in choosing the time and place of the training. In addition, the skill assessment was repeated and participants completed an exit questionnaire. Utilization patterns were analyzed to determine which factors were associated with skill acquisition.

RESULTS: Thirteen residents were enrolled. Overall, the daVinci platform was utilized for 75% of the total training time vs. 25% for the dV-Trainer. Of the subjects that used the daVinci platform to train, 100% reported that it was their first choice, compared to only 28% of those that used the dV-Trainer. Primary indications for choosing the daVinci included fidelity, comfort, and ease of use; availability was the primary indication for using the dV-Trainer. Baseline skill mScore was 72.5 (24–93), which increased to 78.6 (50–95) following the 2 month training period. When stratified by level of training, the increase among junior residents (65.5→75.5; 15% change) was more pronounced that for senior residents (78.4→82.4; 5% increase). Overall, 85% of participants viewed the experience favorably, 100% thought it helped performance, and 82% felt simulation should be mandated in training. Of note, 100% of residents preferred the daVinci console even though 55% felt the dV-Trainer was more readily available.

CONCLUSIONS: A standardized simulator training program can help improve robotic skill, especially for junior residents with minimal experience. The majority of residents preferred the daVinci console to the dV-Trainer even though the dV-Trainer was more readily available.

Source of Funding: None

MP02-23 A SYSTEMATIC REVIEW OF TECHNOLOGY-DRIVEN SIMULATORS FOR MEDICAL STUDENTS
Michael Michael, Stevenage, United Kingdom, Hamid Abboudi, Brighton, United Kingdom, Jean Ker, Dundee, United Kingdom, Kamran Ahmed, Prokar Dasgupta, London, United Kingdom, Ali Bahsoun*, Please choose an option below

INTRODUCTION AND OBJECTIVES: Simulation based education has evolved as a key training tool in high-risk industries such as aviation and the military. In parallel with these industries, the benefits of incorporating specialty-oriented simulation training within medical schools are vast. Adoption of simulators into medical school education programs has shown great promise and is attracting much interest among medical educators. We analysed randomised control studies in order to identify various ‘Technology-Driven’ simulators used in undergraduate medical education. A validity framework incorporating certain aspects from the ‘Framework For Technology Enhanced Learning’ report by the Department of Health was used to evaluate the capabilities of each technology-driven simulator.

METHODS: An English literature search was carried out using MEDLINE, EMBASE and psychINFO databases. Information was collected regarding the simulator type, characteristics and brand name. Where possible, we extracted information from the studies on the simulators’ performance with respect to validity status, reliability, feasibility, education impact, acceptability and cost effectiveness.

RESULTS: We identified 19 studies, analysing simulators for medical students across a variety of procedure-based specialties including: cardiovascular (n-2), endoscopy (n-3), laparoscopic surgery (n-8), vascular access (n-2), ophthalmology (n-1), obstetrics and gynaecology (n-1), anaesthesia (n-1) and paediatrics (n-1). Incorporation of simulators has so far been on an institutional level; no national or international trends have yet emerged.

CONCLUSIONS: Simulators are capable of providing a highly educational and realistic experience for the medical students within a variety of specialty-oriented teaching sessions. Further research is needed to establish how best to incorporate simulators into a more primary stage of medical education; pre-clinical and clinical undergraduate medicine.

Source of Funding: none

MP02-24 LAPAROSCOPIC RENAL RESECTION TRAINING IN CADAVERS EMBALMED USING THIEL’S METHOD: DEVELOPMENT AND EVALUATION OF SKILLS LEARNING
Sarvpreet Singh Ubee*, Wolverhampton, United Kingdom, Benjie Tang, Roos Eisma, Dundee, United Kingdom, Chandrashekhar Biyani, Wakefield, United Kingdom, Ghulam Nabi, Dundee, United Kingdom

INTRODUCTION AND OBJECTIVES: Simulation based education has evolved as a key training tool in high-risk industries such as aviation and the military. In parallel with these industries, the benefits of incorporating specialty-oriented simulation training within medical schools are vast. Adoption of simulators into medical school education programs has shown great promise and is attracting much interest among medical educators. We analysed randomised control studies in order to identify various ‘Technology-Driven’ simulators used in undergraduate medical education. A validity framework incorporating certain aspects from the ‘Framework For Technology Enhanced Learning’ report by the Department of Health was used to evaluate the capabilities of each technology-driven simulator.

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CONCLUSIONS: Simulators are capable of providing a highly educational and realistic experience for the medical students within a variety of specialty-oriented teaching sessions. Further research is needed to establish how best to incorporate simulators into a more primary stage of medical education; pre-clinical and clinical undergraduate medicine.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Thiel’s embalming method is less known, however it preserves natural colours, texture and flexibility; thus overcoming the limitations of formalin embalming. These qualities place this close to living tissue therefore an ideal training model for minimally invasive surgical (MAS) training. The teaching model was implemented as part of BAUS endorsed laparoscopic training courses for the past 2 years. We report assessment of surgical anatomy, tissue planes, consistency, smell and satisfaction with performance of procedure by participants and course faculty.

METHODS: In a prospective descriptive study, 14 participants and 4 experts carried out transperitoneal or retroperitoneal laparoscopic left or right nephrectomy. Questionnaires previously validated for other surgical courses were used.1,2 Responses were recorded using five-point Likert satisfaction scale alongwith BAUS feedback forms. Mean scores for each step were compared between delegates and faculty.

RESULTS: Faculty members were laparoscopic surgeons with teaching and training experience of more than three years. Delegates were in the advanced stage of their training with experience in basic laparoscopy. Table-1 summarises the results from questionnaire responses. The anatomy, tissue consistency, anatomical planes were very well preserved with mean score of 4.25 ± 0.25. All participants were highly satisfied with surgical quality of the tissues. Similar scores were reported by faculty on the course.

CONCLUSIONS: Thiel’s embalming method preserves many features of human anatomy and the present study showed excellent preservation of anatomical planes, tissue consistency and landmarks as consistently reported by participants and faculty. This resource could be used to address the challenges of surgical training, particularly MAS in the UK.

References:

Source of Funding: University of Dundee

MP02-25 CONSTRUCTION AND ASSESSMENT OF A NOVEL INDIGENOUS PCNL SIMULATOR: AN INNOVATIVE APPROACH TO TRAINING
Ashish Rawandale*, Lokesh Patni, Atul Mulay, Preeti Patil, Dhule, India

INTRODUCTION AND OBJECTIVES: PCNL has a significant learning curve. Commercial simulators have prohibitive costs/pitfalls. Hence we patented, constructed and evaluated our indigenous PCNL simulator.

METHODS: Our portable fluoroscopy compatible simulator (fig 1) was designed using CAD software; patented and constructed. It uses the usual PCNL instruments, replicates natural tissue-haptics, has various error alarms, simulates respiratory movements and uses regular uroendoscope to confirm successful puncture.

Simulator evaluation:
“Simulator orientation and puncture demonstration” was performed by PCNL expert (control).
13 trainees, underwent a 3-step test in the operating room.
Step 1: 3 successful punctures were performed and “End points” measured
Step 2. Two practice sessions (30 mins each) given
Step 3. Repeat test as in step 1
Pre and post test subjective performance was accessed with a Likert 5 point GRS scale
Trainee feedback form analysed

RESULTS: Table 1
Trainees demonstrated statistically significant improvement (SPSS analysis) in the GRS scores, total time, fluoroscopic time
and attempted needle punctures after training (p = 0.001). Parameters showed a rightward shift. Data helped quantify the individual training hours mandatory to reach the desired expertise. Subjective simulator assessment indicated a high degree of satisfaction on effectiveness of simulator.

CONCLUSIONS: Our PCNL simulator is an efficient means of skill acquisition. It provides an opportunity for supervised, repeated performance of essential technical skills in a controlled, low stress, OR environment. It allows trainee evaluation, provides tailored training sessions and has the potential to decrease the learning curve for skill acquisition in order to maximise trainee performance. It has a low initial and maintenance cost. Developing such simulators may open up further new avenues in urology trainee education.

Source of Funding: none

**MP02-26**  
**EFFECTS OF RESIDENCY TRAINING ON OPERATING ROOM TIME: A REVIEW OF PROSTATE BIOPSIES IN A RESIDENT-RUN CLINIC AT A CITY HOSPITAL**

Allison Polland*, New York, NY, Alfred Winkler, Elmhurst, NY

**INTRODUCTION AND OBJECTIVES:** Residents are vital to the clinical workforce in academic hospitals; residency programs aim to train residents through rotations in which, under supervision, residents provide the majority of clinical care. Elmhurst Hospital Center is a city hospital affiliated with the Icahn School of Medicine at Mount Sinai and one of three primary sites for resident urological training. Prostate biopsies are performed in a minor operating room (OR) setting by first-year urology residents with chief resident and attending supervision. Prior to July of the first year, residents have minimal experience with ultrasound and no simulator training with transrectal US. The purpose of this study was to examine the effects of time of year, a proxy for residency training, on OR procedure time for transrectal ultrasound-guided prostate biopsy.

**METHODS:** The Elmhurst Hospital Center Surgical Database was queried for transrectal ultrasound-guided prostate biopsy procedures from January of 2010 to December of 2012. Case duration was recorded in minutes. A student’s t-test was performed to determine if OR procedure time early in the academic year was significantly different from OR procedure time late in the academic year.

**RESULTS:** A total of 222 transrectal ultrasound-guided prostate biopsies were performed. The minimum procedure time was 5 minutes and the maximum procedure time was 85 minutes. There was a significant difference in length of procedure between July, the month in which residents had least training and June, the month in which residents had most training (p = 0.027) on two-tailed t-test. Median procedure time decreased by almost fifty percent, from 20 minutes in July to 11 minutes in June.

**CONCLUSIONS:** Resident experience is significantly associated with length of procedure in transrectal ultrasound-guided prostate biopsies. This may be related to time required for teaching and learning curve. In addition to potential patient risk related to longer procedure time, there are financial implications of increased OR time and need for staffing. Although transrectal ultrasound simulators exist, they are not widely used or required in residency training. Additional resident simulation training, specifically for procedures which utilize transrectal imaging technology, may mitigate the effects of early training on OR procedure time.

Source of Funding: None

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**MP03-01**  
**UROBEAM™ DIODE LASER VAPORIZATION OF THE PROSTATE: MID-TERM OUTCOMES**

Joao Padua Manzano*, Frederico Teixeira Barbosa, Jose Ricardo Cruz Silvino Jr, Luciano Salles Lage, Adalberto Andriolo Jr, Roberto Soler, Joaquim Francisco De Almeida Claro, Sao Paulo, Brazil

**INTRODUCTION AND OBJECTIVES:** Evaluate the short-term outcome and prevalence of perioperative complications of the new surgical alternative for men with LUTS due to benign prostatic enlargement (BPE), the vaporization of the prostate (VP) with Medilas D UroBeam high power 940nm Diode laser (UroBeam).

**METHODS:** Prospective data were collected from 114 consecutive patients undergoing UroBeam VP at our institution from January 2011 to January 2013. Perioperative data and surgery-related complications, and 30-day efficacy and safety assessments were documented. All the surgeries were performed by the same experienced surgeon. Comparative analysis between pre and post operative data was conducted using paired Student’s t test.

**RESULTS:** UroBeam laser VP was successfully performed in all patients with no intraoperative complications. The mean ± SD prostate volume was 68.3 ± 29.9 mL (range 25–149 g). Mean operative time, proportion of patients needing bladder irrigation and catheterization time was 65.9 ± 23.7 minutes (40–130 min), 30.7% (35 patients) and 22.1 ± 18.8 hours (6–120 h), respectively. Median applied laser energy was 334.7 kJ (85–827 kJ). Hospitalization time was 20.8 hours (range 10–96 hours). 30-day rate of rehospitalization was 2.63% (3 patients), of retreatment was 1.75% (2 patient) and of emergency room visits was 10.5% (12 patients). Urinary stricture developed in four patients (3.5%), and bladder neck stricture in five patient (4.38%). Temporary urinary incontinence occurred in 6 patients (5.26%), stress incontinence and urge-incontinence occurred in 4 patients (3.5%). Nineteen
patients had early urinary retention (16.6%) and two had late urinary retention (1.7%). Irritative symptoms seemed not to have impacted quality of life. No patients required blood transfusion or had TUR syndrome. Statistically significant improvements were noted in all key parameters postoperatively: Qmax (5.1 ± 2.8 vs 16.5 ± 3.3 mL/s; p < 0.0001), IPSS (25.4 ± 4.5 vs 6.6 ± 2.2; p < 0.0001) IPSS-QoL (4.5 ± 1.0 vs 1.6 ± 0.67; p < 0.0001), PVR (170 ± 180 vs 19 ± 88 mL; p = 0.004) and PSA (3.8 ± 5.5 vs 1.0 ± 0.58 ng/mL; p < 0.0001).

CONCLUSIONS: The UroBeam high power diode laser is an effective and safe new treatment option for patients with LUTS-BPE. Complications rates seem to be similar to those reported with TURP. Further advantages seem to be the short hospital stay and bladder irrigation and catheterization times. Further randomized controlled studies are needed to confirm these data.

Source of Funding: none

MP03-02 IS COMBINED PROSTATE RESECTION WITH CYSTOLITHOTRIPSY BENEFICIAL FOR BPH PATIENTS WITH BLADDER CALCULI? - A NATIONWIDE POPULATION-BASED STUDY

Eric Yi-Hsü Huang*, Tzu-Ting Kuo, Hsiao-Jen Chung, Chih-Chieh Lin, Alex TL Lin, Kuang-Kuo Chen, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: Benign prostatic hyperplasia (BPH) related urinary stasis has been regarded as the precipitating factor of bladder calculus formation in male patients. As such, transurethral resection of prostate (TURP) is usually advocated to be performed with cystolithotripsy simultaneously in BPH patients with bladder calculi. We investigated the recurrence rate and recurrence interval of bladder calculi in this patient cohort by analyzing a nationwide population-based database.

METHODS: We obtained a cohort dataset from the Longitudinal Health Insurance Database 2005 (LHID 2005) of Taiwan, which contains 1,000,000 individuals randomly sampled from 25.68 million Beneficiaries in Taiwan National Health Insurance Program. There was no significant difference in the gender and age distribution between the patients in the LHID 2005 and the original database. The patients underwent cystolithotripsy with/without TURP were identified from the claim data (n = 1,737). The patients having the diagnosis of ureteral stone within 3 months prior to TURP, no definite diagnosis of BPH (ICD-9-CM code 600.0), or accepted repeated TURP during post-operative follow-up were excluded. The recurrence of bladder calculi was defined by the occurrence of second time cystolithotripsy.

RESULTS: There were 523 patients identified, 221 received cystolithotripsy alone and 302 received concurrent TURP. The recurrence rates of bladder calculi were 12.2% and 11.9%, respectively (p = 0.918). The median interval of stone recurrence were 3 and 4 years for each (p = 0.085). The patients with small resection weight of prostate (≤ 15 g) have similar stone recurrence rate as compared to patients receiving cystolithotripsy alone (13.7% vs 12.2%, p = 0.626), whereas others with large resection weight of prostate (> 15 g) have significantly lower recurrence rate (2.1% vs 12.2%, p = 0.037).

CONCLUSIONS: For the patients with small resection weight of prostate, concurrent TURP and cystolithotripsy may not be beneficial as compared to the patients accepted cystolithotripsy alone in terms of reducing the recurrence of bladder calculi and prolonging recurrence interval.

Source of Funding: Taipei Veterans General Hospital

MP03-03 BASELINE CHARACTERISTICS PREDICT RISK OF PROGRESSION AND RESPONSE TO COMBINATION MEDICAL THERAPY FOR BENIGN PROSTATIC HYPERPLASIA

Michael Kozinski*, John Wei, Ann Arbor, MI, Jason Nelson, David Kent, Boston, MA

INTRODUCTION AND OBJECTIVES: Multiple risk factors have been identified for the progression of benign prostatic hyperplasia (BPH). Current practice patterns and national guidelines fail to account for the evidence behind these factors and arguably result in overtreatment. We sought to derive a nomogram based on data from the Medical Therapy of Prostatic Symptoms (MTOPS) trial to help optimize decision making for men with moderate to severe lower urinary tract symptoms (LUTS) secondary to BPH.

METHODS: We conducted secondary analysis of MTOPS data. In short, MTOPS was a randomized trial evaluating doxazosin, finasteride, or the combination of these medications for risk of BPH progression in men ≥50 years with AUA-SI scores of 8–30 and Qmax of 4–15 mL/sec. Using bivariate tests, we identified significant factors that would predict BPH progression, as defined by MTOPS. We then utilized these factors in Cox proportional hazards model for risk of BPH progression, divided by quartile.

| Table 1. Cox Proportional Hazards Model for Risk of BPH Progression, Divided by Quartile |
|-----------------|-----|-----|-----|-----|
|                 | Q1  | Q2  | Q3  | Q4  |
| Placebo         |     |     |     |     |
| N               | 193 | 189 | 182 | 191 |
| Event %         | 8.8 | 14.2| 17.0| 28.8|
| Doxazosin       |     |     |     |     |
| N               | 176 | 190 | 179 | 209 |
| Event %         | 6.3 | 10.5| 9.5 | 17.2|
| RR (95% CI)     | 0.71 (0.34-1.47) | 0.74 (0.43-1.29) | 0.56 (0.32-0.97) | 0.62 (0.43-0.89) |
| ARR% (95% CI)   | 2.6 (-3.8-7.9) | 3.7 (-3.2-10.5) | 7.5 (0.9-14.5) | 21.4 (2.9-19.3) |
| NNT             | 39  | 28  | 34  | 10  |
| Finasteride     |     |     |     |     |
| N               | 210 | 202 | 172 | 183 |
| Event %         | 8.6 | 11.4| 11.5| 15.3|
| RR (95% CI)     | 0.97 (0.52-1.83) | 0.80 (0.47-1.37) | 0.68 (0.43-1.15) | 0.51 (0.35-0.80) |
| ARR% (95% CI)   | 0.2 (-5.3-0.7) | 2.8 (-4.0-0.7) | 5.4 (-1.9-12.7) | 13.5 (5.2-21.7) |
| NNT             | 300 | 36  | 19  | 8   |
| Combination     |     |     |     |     |
| N               | 181 | 199 | 227 | 177 |
| Event %         | 3.3 | 5.0 | 7.9 | 8.5 |
| RR (95% CI)     | 0.38 (0.15-0.93) | 0.35 (0.17-0.72) | 0.47 (0.27-0.80) | 0.23 (0.13-0.40) |
| ARR% (95% CI)   | 5.5 (0.7-10.3) | 9.2 (3.1-15.3) | 9.1 (2.6-15.6) | 20.3 (12.7-27.9) |
| NNT             |     |     |     |     |

Event % = observed BPH progression rate; RR = relative risk compared to placebo; ARR = absolute risk reduction compared to placebo; NNT = number needed to treat (1/ARR)
Proportional Hazard models to 1) more comprehensively risk stratify the study population based on pre-treatment parameters and 2) to establish a nomogram for clinical use.

RESULTS: 3047 men were followed in MTOPS for a mean of 4.5 years. Baseline post-void residual (per 10 mL, HR 1.015, 95% CI 1.004–1.026), PSA (HR 1.082, 95% CI 1.033–1.133), age (per 10 yrs, HR 1.320, 95% CI 1.140–1.529), AUA-SI score (HR 0.974, 95% CI 0.956–0.993), and Qmax (per 5 mL/sec, HR 0.752, 95% CI 0.613-0.924) were found to be significantly correlated with overall BPH progression in multivariable analysis. This predictive model of risk for BPH progression (AUC = 0.62) demonstrated varying risks of progression across quartiles (see Table). The highest-risk quartile had a risk of progression approximately three times that of the lowest within all trial arms.

CONCLUSIONS: MTOPS data suggests that the benefits of medical therapy for BPH are unevenly distributed with men who were in the highest risk strata accounting for the greatest clinical benefit. Importantly, utilizing commonly available, baseline risk factors permits estimation of individual patient risk for clinical progression. A novel nomogram based on these analyses will allow clinicians to better select those most likely to benefit from medical therapy for BPH. Potential treatment effect can then be weighed against possible costs and risks of adverse effects for a given patient.

Source of Funding: PCORI

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MP03-04 TWO-YEAR PROSPECTIVE, RANDOMIZED COMPARISON BETWEEN THE BIPOLAR PLASMA ENucleATION OF THE PROSTATE AND OPEN PROSTATECTOMY IN BPH CASES OVER 80 ML

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INTRODUCTION AND OBJECTIVES: This long term, prospective, randomized trial aimed to evaluate the viability of the bipolar plasma enucleation of the prostate (BPEP) by comparison to open transvesical prostatectomy (OP) in cases of large prostates concerning surgical efficacy, perioperative morbidity and follow-up parameters.

METHODS: A total of 140 benign prostatic hyperplasia (BPH) patients with prostate volume over 80 mL, maximum flow rate (Qmax) below 10 mL/s and International Prostate Symptom Score (IPSS) over 19 were randomized in the 2 study arms (70 cases each). All patients were assessed preoperatively and every 6 months after surgery for a period of 2 years by IPSS, Qmax, quality of life score (QoL), post-voiding residual urinary volume (PVR), postoperative prostate volume and PSA level.

RESULTS: The two series were characterized by similar preoperative parameters, including the prostate volume (132.6 versus 129.7 mL). The BPEP and OP techniques emphasized similar mean operating times (91.4 versus 87.5 minutes) and resected tissue weights (108.3 versus 115.4 grams). The postoperative hematuria rate (2.9% versus 12.9%) as well as the mean hemoglobin drop (1.7 versus 3.1 g/dL), catheterization period (1.5 versus 5.8 days) and hospital stay (2.1 versus 6.9 days) were significantly improved for BPEP. The re-catheterization for acute urinary retention was more frequent in the OP group (8.6% versus 1.4%), while the rates of early irritative symptoms were similar for BPEP and OP (11.4% versus 7.1%). During the 2 year’ follow-up period, no statistically significant difference was determined in terms of IPSS, Qmax, QoL, PVR, PSA level and postoperative prostate volume between the two series. Consequently, the calculated prostate volume decrease (83.0–84.7% versus 82.1–83.9%) and PSA level reduction (90.6–92.5% versus 90.1–92.6%) by comparison to the preoperative measurements were statistically equivalent for the BPEP and OP groups.

CONCLUSIONS: BPEP represents a promising endoscopic approach in large BPH cases, characterized by good surgical efficiency and similar BPH tissue removal capabilities when compared to standard open prostatectomy. Plasma enucleation patients benefited from significantly reduced complications, shorter convalescence period and satisfactory long term follow-up symptom scores and voiding parameters.

Source of Funding: None

MP03-05 LEARNING CURVE OF MORCELLATION DURING HOLMIUM LASER ENucleATION OF THE PROSTATE (HOLEP)

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INTRODUCTION AND OBJECTIVES: Morcellation of the enucleated adenoma is an essential step of holmium laser enucleation of the prostate (HoLEP). However, few results have been reported about the learning curve of the morcellation procedure. We aimed to analyze our results and assess the learning curve of morcellation of the enucleated adenoma.

METHODS: We retrospectively reviewed the data of patients who underwent HoLEPs performed by two surgeons (SJO & JSP) between July 2008 and August 2010. We assessed the cut-off point of the learning curve of morcellation. We analyzed preoperative and intraoperative parameters and the incidence of intraoperative complications related to morcellation.

RESULTS: A total of 339 patients whose mean age was 68.3 (±6.5, SD) years and prostate volume was 55.6 (±23.6) ml were included. The mean total operation time, morcellation time and weight of the enucleated adenoma were 75.3 (±37.4) minutes, 11.3 (±9.5) minutes and 20.8 (±16.9) g, respectively. A significant decrease in morcellation index (morcellation time per weight of the enucleated adenoma) was shown as cases accumulated (figure: Trend of morcellation index). There were significant differences in morcellation time and morcellation index before and after 50 cases (25 cases for each surgeon).
(p < 0.001). There was no significant correlation between the morcellation index and total prostate volume, transitional zone volume or maximal cystometric capacity. All cases with bladder injury were minor and were managed by conservative treatment. There were no major complications requiring conversion to open surgery.

CONCLUSIONS: Our results showed that learning curve of morcellation of each surgeon could be overcome after approximately 25 initial cases.

Source of Funding: none

MP03-06 HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP) OUTCOMES IN PATIENTS WITH PRIOR BENIGN PROSTATIC HYPERPLASIA (BPH) SURGERY

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INTRODUCTION AND OBJECTIVES: Many patients who fail an intervention for BPH are subsequently treated by transurethral resection of the prostate (TURP). HoLEP is as effective as TURP in the treatment of patients with BPH. Our study objective was to define the outcomes of patients undergoing HoLEP following previous surgical or minimally invasive therapy for the treatment of BPH.

METHODS: A retrospective analysis of a multi-institutional prospectively maintained database was performed on 615 patients who underwent a HoLEP. 96 of which had a HoLEP after a prior surgery for BPH. All patients underwent preoperative history and physical, uroflow, PSA, post–void residual (PVR). Quality of life data was also collected as the International Prostate Symptom Score (I-PSS), International Continence Society Short Form (ICS-SF), and Sexual Health Inventory for Men (SHIM) questionnaires. A follow-up PSA was drawn at 3 months post-operatively. The patients were followed up at 6 weeks, 3 and 12 months post-operatively. Salient data was collected and statistical analysis was performed.

RESULTS: From 6/2008 to 5/2012, a total of 96 patients underwent HoLEP who had also undergone prior BPH procedures including; 20 transurethral microwave therapy (TURM), 14 transurethral needle ablations (TUNAs), 40 TURPs and 22 laser ablative type procedure. No patient that underwent a HoLEP required repeat surgical intervention for tissue re-growth. The mean time between HoLEP and prior surgery was 47 months (range: 4–122). The mean age at HoLEP was 67.4 years. The mean prostate volume pre-op was 92 grams (range: 45–329). The mean resected volume was 76.5 grams (range: 20–327). The mean duration of catheterization was 1.6 days (range: 1–10). Length of stay was 1.2 day for all patients. 72% of patients had their catheter removed on post-op day #1. The average pre-HoLEP PSA was 6.9 and 0.5 at 3 months post-op. There was no significant difference between patients undergoing a secondary procedure compared to the entire cohort.

CONCLUSIONS: HoLEP as retreatment for BPH following prior transurethral surgery has excellent functional and quality of life outcomes with no significant impact on outcomes or increase in complications compared to first time HoLEP patients.

Source of Funding: none

MP03-07 LONG TERM IMPACT OF ROBOTIC ASSISTED RADICAL PROSTATECTOMY ON CONTINENCE AND LOWER URINARY TRACT SYMPTOMS (LUTS)

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INTRODUCTION AND OBJECTIVES: The primary goal of radical prostatectomy is cancer control. However, we must acknowledge that RP is also an incidental treatment for LUTS, whether men are at risk or not. Fundamentally after RARP, do IPSS and QOL systems remain stable or decline with time as in the general population. Intuitively, ablation of the prostate by radical prostatectomy should provide relief from obstructive prostatic symptoms, but at what cost to men with no LUTS. No studies to date have documented changes in AUA symptom scores (AUAs) in patients after long term RARP ~ 5 years.

METHODS: RARP was performed in 174 men, by one surgeon (TA) from 2002–2007, and AUAs and Bother scores collected for all men at preOP and Long term follow up (FU), at average FU of 5.8 years (Range 4.0–10.3 Yrs).
INTRODUCTION AND OBJECTIVES: Water vapor therapy and the Rezum™ system; low energy treatment of BPH using high energy water vapor (steam). It is being developed as a very rapid, outpatient or office-based treatment for clinical BPH.

RESULTS: Total AUAs for all men declined from baseline to 5 Years by 3.7 (8.5 to 4.8) while the bother score decreased by 0.5 (1.7 to 1.2), all p < .05. Average age was 61.8 (Range 43–80), average follow up was 5.8 years and Pad free continence at 5 years was 88%. Men with mild LUTS remained statistically and clinically unchanged at 5 years in respect to preoperative AUA scores, except for a small increase in urgency. In contrast, Individuals with moderate/severe preop LUTS markedly declined in AUA and QOL bother scores, all p < .05, except urgency.

Figure 1 demonstrates the decrease in individual AUA scores (improvement) for each of the 3 LUTS groups from preoperative AUA to 5 Year followup. Figure 2 shows the overall decrease in AUA scores between the 3 LUTS groups across the 5 year postoperative period.

CONCLUSIONS: Men with mild LUTS tend to maintain their baseline IPSS Scores at 5 years. For men with preoperative moderate/severe LUTS, 61% had significant QOL improvements, and 67% reduced their AUA scores to mild, persisting years after RARP. Men should be counseled that RARP confers a very significant long term benefit in men with mod/severe AUAs, improving LUTS QOL.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: The Rezum System™ is a novel transurethral therapy based on phase-change, convective heat transfer using high energy water vapor (steam). It is being developed as a very rapid, outpatient or office-based treatment for clinical BPH.

The objectives were to assess the serial effects on prostate volume, thermal lesion characteristics and to validate the principle of phase-change convective heating using high energy water vapor in the human prostate.

METHODS: IRB approval from 2 centers and informed consent was obtained in 30 men. (15 in the FIM trial and 15 in the Rezum 1 trial.) Both trials used the same standard entry criteria. The FIM trial used energy ranging from 190 to 289 calories per injection whereas, the Rezum 1 trial used a standardized dose of 208 calories per injection. One to 3 injections per lobe, including the median lobe, were delivered. Gadolinium-enhanced MRI’s were conducted at 1 week, 1, 3 and 6 months to assess the location of thermal lesions and perform volume measurements for total prostate, transition zone and thermal lesions. MRI’s were analyzed and calculated via T-1 and T-2 axial acquisitions using the Analyze® Image Acquisition System.

RESULTS: Thermal lesions were limited to the transition zone validating the principles of convective heat transfer in the human prostate.

Mean thermal lesion volume at 1 week (n = 30) was 10 cc (range 7–35 cc) and decreased by 93% at 3 months (n = 28) and 97% at 6 months (n = 28).

Mean total prostate volume at 1 week (n = 30) was 75 cc (range 29–169 cc) and decreased by 26% at 3 months (n = 28) and 33% at 6 months (n = 28).

CONCLUSIONS: MRI studies confirmed 1.) a significant volume of treated tissue, 2.) treatment within the transition zone validating the principle of convective heating, 3) rapid, near complete resolution by 3 months. and 4) reduction in total prostate volume supporting probable long term clinical benefit.

Source of Funding: NxThera Inc. Maple Grove, MN

INTRODUCTION AND OBJECTIVES: Transurethral resection of the prostate (TURP) is the historic gold standard surgical treatment for men suffering from symptomatic benign prostatic hyperplasia (BPH). In recent years, though, novel BPH therapies such as photoselective vaporization of the prostate (PVP) have become increasingly adopted. Indeed, epidemiologic evidence suggests that the utilization of TURP is declining and laser vaporization has become the fastest growing treatment modality. Consequently, there is concern that urology residents are not being trained in TURP techniques to the extent they once were – an issue of particular importance given the well described learning curve associated with TURP. We performed a study to characterize resident participation in TURP and PVP procedures.

METHODS: The American College of Surgeons’ National Surgical Quality Improvement Database (NSQIP) is a prospectively maintained, validated database of pre-operative to 30-day postoperative surgical outcomes that was designed to improve surgical care. We queried NSQIP for the years 2007–2011, using CPT codes 52601 (TURP) and 52648 (PVP) to identify the study cohort. Resident involvement was assessed and compared, both overall and then stratified by year as a proportion of total BPH cases.

RESULTS: A total of 6,077 BPH procedures were captured in NSQIP during the study period. Residents were involved in 1,378 procedures (22.7%). TURP was performed 3,764 times, with residents involved in 826 cases (21.9%). PVP was performed 2,313 times, with residents involved in 552 (23.8%). When stratified by year, both the total number of cases and the proportion of cases...
An Institutional Review Board approved prospec-
tive clinical trial to compare the safety and efficacy of
holmium laser enucleation of prostate and transurethral resection
of the prostate for surgical treatment of patients with bladder
outlet obstruction due to benign prostatic hyperplasia.

METHODS: From December 2009 to October 2010, 60 consecu-
tive patients with lower urinary tract obstruction (LUTs) due to
BPH were randomized to either surgical treatment with HoLEP
(group 1, n = 30) or standard TURP (group 2, N = 30). Preoperative
assessments included American Urological Association (AUA)
symptom score. Serum prostate-specific antigen, (PSA), post void
residual urine volume (PVR), transrectal ultrasound (TRUS) and
duoflowmetry. Perioperative parameters included total operating
time, resected tissue weight, hemoglobin loss, presence or ab-
sence of blood transfusion, time of catheter removal, duration of
hospital stay. Postoperative evaluations were conducted at 1,3,6,
and 12 months.

RESULTS: Patients in the HOLEP group had shorter catheteri-
tization time, and hospital stay, but longer operating time. Mean
hospital stay was 25.7 hours and mean postop catheterization time was 36.9 hours. All patients were able to void
after catheter removal. Pathology results revealed PCa in 2 patients
(1 with Gleason 3 + 4 = 7 in < 10%, 1 with Gleason 5 + 4 = 9 in 80%). At
6 month follow up, mean AUA SI was 17.8. The one patient with high
grade, high volume PCa had a PSA of 39.63 ng/mL. The remaining
patients had a mean PSA of 1.67 ng/mL. At 12 month follow up,
mean AUA SI was 14 and 7 patients reported incontinence.

CONCLUSIONS: A subset of patients who are treated with RT
for PCa will later develop BOO. This patient population is often
difficult to manage. As with HoLEP for treatment of BPH, HoLEP
after RT produces excellent relief of obstruction with low peri-
operative morbidity. However, AUA SI remain elevated up to one
year following surgery. Significant voiding symptoms and in-
continence are common postoperatively.

Source of Funding: None

MP03-11 A COMPARATIVE STUDY BETWEEN HOL-
MIUM LASER ENUCLEATION OF THE PROSTATE AND
TRANSURETHRAL RESECTION OF THE PROSTATE: 12
MONTH FOLLOW UP
Mohamed Etafy*, Gamal Morsi, Atef Hammouda,
M Hammouda, Assiut, Egypt, Enmar Habib, Cairo, Egypt

INTRODUCTION AND OBJECTIVES: This was a prospective randomized clinical trial to compare the safety and efficacy of
holmium laser enucleation of prostate and transurethral resection
of the prostate for surgical treatment of patients with bladder
outlet obstruction due to benign prostatic hyperplasia.

METHODS: From December 2009 to October 2010, 60 consecu-
tive patients with lower urinary tract obstruction (LUTs) due to
BPH were randomized to either surgical treatment with HoLEP
(group 1, n = 30) or standard TURP (group 2, N = 30). Preoperative
assessments included American Urological Association (AUA)
symptom score. Serum prostate-specific antigen, (PSA), post void
residual urine volume (PVR), transrectal ultrasound (TRUS) and
duoflowmetry. Perioperative parameters included total operating
time, resected tissue weight, hemoglobin loss, presence or ab-
sence of blood transfusion, time of catheter removal, duration of
hospital stay. Postoperative evaluations were conducted at 1,3,6,
and 12 months.

RESULTS: Patients in the HOLEP group had shorter catheteri-
tization time, and hospital stay, but longer operating time. Mean
hemoglobin loss was lower in the HOLEP group (0.900 g/dl versus 1.157 ± 0.918 g/dl). The follow up results up to 12 month
regarding AUA symptom score, PVR urine volume and Q-max
showed that both group were comparable. Complications were
similar with 2 procedure with no sign fiancé difference.

CONCLUSIONS: Conclusion: HOLEP proved to be safe and
highly effective technique for surgical treatment of bladder outlet
obstruction due to BPH.

Source of Funding: NONE

MP03-12 REGIONAL DIFFERENCE IN IPSS, PV, AND
PSA IN KOREAN MALE PATIENTS WITH LUTS
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Seong Uk Jeh, Jeong Seok Hwa, Jae Seog Hyun,
Jinju, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Lower urinary tract
symptom (LUTS) is a common symptom in middle-aged men.
Prostate volume (PV) is an important predictor of benign prostatic hyperplasia (BPH) progression. Prostate specific antigen (PSA) is a reliable factor predicting PV in men suffering from LUTS. This study aimed to investigate regional difference in international prostate symptom score (IPSS), PV, and PSA in men with LUTS.

**METHODS:** The study was conducted on 36,632 male patients aged 40~99 years who were suffering from LUTS from 2001 to 2010. The baseline PV and PSA were defined using standard description. In addition, the IPSS and quality of life (QoL) were collected via an interview. Data used in this study were collected from patients with PV ≤ 200 ml and baseline PSA = 0~10 ng/ml. Previous history of prostate surgery and status other than prostate cancer and BPH were excluded from the baseline data. As for discrimination of urban and rural areas, city or higher administrative areas were assigned to the urban group, whereas Eup, Myeon, and Ri were assigned to the rural group based on patient s address.

**RESULTS:** A total of 35,797 patients were analyzed. The patients had mean age 69.7±8.3 years, mean baseline PV 29.9±13.8 ml, mean PSA 1.47±1.5 ng/ml, and mean IPSS 15.4±8.4. The patients consisted of 25,967 patients living in the urban areas and 9,830 patients living in the rural areas. The mean age of the urban and rural groups were shown to be 69.12±8.8 years and 70.42±9.8 years, respectively, which showed a significant difference (p<0.05). The PSA was shown to be 2.62±10.2 ng/ml in the urban group and 2.11±9.06 ng/ml in the rural group, which showed a significant difference (p<0.05). The PV was shown to be 29.86±14.6 ml and 30.35±15.9 ml in the urban and rural groups, respectively, which showed a significant difference (p<0.05). The IPSS and QOL were significantly higher in the rural group than in the urban group (p<0.05). When the body mass index (BMI) was measured in the 931 patients of the urban group and 5,235 patients of the rural group, it was shown to be 31.32 and 24.41 in the urban and rural groups, respectively, which showed that it was significantly higher in the urban group than in the rural group.

**CONCLUSIONS:** Compared to the rural group, the urban group had the increased PSA but decreased PV. This result is likely to be attributable to the fact that the PSA increased rather than prostatic size by obesity. Thus, it is recommended to treat LUTS in a clinical practice, considering the results of this study.

**Source of Funding:** none

**MP03-14** LASER PROSTATECTOMY OF LARGE PROSTATES USING A NEW 1.9 μM THULIUM LASER: RESULTS AFTER 1 YEAR FOLLOW-UP

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**INTRODUCTION AND OBJECTIVES:** The aim of the study was to evaluate the treatment results including subjective and objective parameters one year after laser prostatectomy due to benign prostatic enlargement using a new 1.9μm thulium laser device.

**METHODS:** 222 patients were treated with the 1.9μm thulium laser device (Vela XL, StarMedTec, Germany) between 5/2010 and 05/2013. 70 of these patients (mean age 71±7.4 years) have completed a one year follow-up. In 62 patients a laser enucleation was performed, whereas in 8 patients the laser was used to vaporise the tissue. The patients were the first treated with the device in our department and therefore include the learning curve. Objective and subjective parameters were obtained prospectively and compared to preoperative values.

**RESULTS:** Mean operation time was 107±44 min (including morcellation) and the mean resection volume was 45.3±31.4 g. Mean prostatic volume was reduced from 85.7±41.9 cc to
Mean IPSS dropped from 19.4 ± 8.7 to 5.7 ± 4.6 (71%, p = 0.0001), mean QL improved from 4.0 ± 1.7 to 1.1 ± 1.3 (73%, p = 0.0001). Maximal flow rate increased from 8.3 ± 3.6 mL/s to 18.0 ± 8.0 mL/s (117%, p = 0.0001), while mean post void residual volume was reduced by 80% from 128.7 ± 137.5 mL to 25.4 ± 36.0 mL (p = 0.0001). Of the 26 patients in urinary retention preoperatively only 1 required a suprapubic catheter at the time of the follow-up due to urodynamically proven neurogenic insufficiency of the detrusor muscle. 3 patients reported a delayed gross hematuria within two months after surgery. 4 patients required re-intervention during the follow-up period due to urethral or bladder neck stricture (3 instrumental dilatation, 1 resection). Whereas no higher grade incontinence was observed, 6 patients (9%) reported mild incontinence (5 patients stress incontinence 1), 1 patient urge incontinence). 2 patients reported urge symptoms without incontinence that are treated with anticholinergic drugs.

CONCLUSIONS: One year after thulium laser prostatectomy both subjective and objective parameters showed highly significant improvements. Therefore, the 1.9 mm thulium laser constitutes an effective and safe device for laser prostatectomy due to benign prostatic enlargement.

Source of Funding: none

### MP03-15 THREE-YEAR PROSPECTIVE, RANDOMIZED COMPARISON OF THE BIPOLAR PLASMA VAPORIZATION OF THE PROSTATE, MONOPOLAR AND BIPOLAR RESECTION IN MEDIUM SIZE BPH PATIENTS

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**Introduction and Objectives:** A prospective, long-term, randomized trial was performed aiming to compare the bipolar plasma vaporization of the prostate (BPVP), the bipolar transurethral resection in saline (TURis) and the monopolar transurethral resection of the prostate (TURP) concerning the surgical efficacy, complication rate and follow-up results.

**Methods:** A total of 510 benign prostatic hyperplasia (BPH) patients with prostate volume between 30 and 80 mL, maximum flow rate (Qmax) below 10 mL/s and International Prostate Symptom Score (IPSS) over 19 were included in the trial. All cases were evaluated preoperatively as well as at 6 months’ intervals after surgery by IPSS, Qmax, quality of life score (QoL), postvoiding residual urinary volume (PVR), postoperative prostate volume and PSA level.

**Results:** The mean operation time (39.7 versus 52.1 and 55.6 minutes), catheterization period (23.5 versus 46.3 and 72.8 hours) and hospital stay (1.9 versus 3.1 and 4.2 days) were significantly shorter for BPVP patients. The mean hemoglobin drop (0.5 versus 1.2 and 1.6 g/dL), intraoperative bleeding (1.8% versus 8.2% and 13.5%) and capsular perforation (1.2% versus 7.1% and 9.4%) rates were significantly reduced in the BPVP group. The rate of early irritative symptoms was statistically similar in the 3 study arms (12.4% versus 11.2% and 10.6%, respectively). In the BPVP and TURis groups, significantly lower postoperative hematuria (2.9% and 4.7% versus 15.3%) and blood transfusion (1.2% and 1.8% versus 6.5%) rates were determined. During the long term follow-up, BPVP patients emphasized significantly superior parameters concerning IPSS and Qmax. On the other hand, the three-year evaluation protocol described statistically similar QoL score, PVR values, PSA level and the postoperative prostate volume in the 3 series of patients.

**Conclusions:** BPVP displayed superior surgical efficacy, reduced perioperative morbidity and faster postoperative recovery when compared to TURis and TURP. During the long term follow-up, the method provided significantly improved parameters regarding the symptom scores and voiding characteristics and similar BPH tissue removal capabilities.

Source of Funding: None

### MP03-16 DETRUSOR WALL THICKNESS AS A POSSIBLE PREDICTOR OF PERSISTENT URINARY URGENCY AFTER TRANSURETHRAL RESECTION OF PROSTATE

*Dong Soo Park*, Seung Ryeol Lee, Seongnam-si, Korea, Republic of Korea

**Introduction and Objectives:** We evaluated the voiding difficulty according to the detrusor wall thickness (DWT) before the transurethral resection of prostate (TURP) and the differences of DWT between the patients with and without persistent urgency after TURP.

**Methods:** We retrospectively reviewed the records of 79 patients who underwent TURP for symptomatic benign prostate hyperplasia between December 2010 and July 2012. Of these patients, 52 patients without a neurogenic cause underlying urinary urgency were selected. The patients completed the International Prostate Symptom Score (IPSS), uroflowmetry, and transrectal ultrasonography (TRUS). DWT was measured by performing TRUS at the anterior bladder wall in mid sagittal image. Patients were divided in two groups according to DWT (group 1: patients with DWT ≥ 2 mm, group 2: patients with DWT < 2 mm). After 6 months of TURP, patients were re-evaluated using the IPSS and uroflowmetry, and divided into two groups according to the urgency (group 3: patient with persistent urgency, group 4: patients without urgency). Urgency was defined when the score for question 4 of the IPSS was more than 3 points. Voiding symptom score was defined as the sum of scores for questions 1, 3, 5, and 6 of the IPSS. Bladder storage symptom score was defined as the sum of scores for questions 2, 4, and 7 of the IPSS.

**Results:** Of 52 patients, there were 43 patients in group 1 and 9 patients in group 2. Peak urinary flow rate was significantly lower in group 1 (7.2 ± 3.5 mL/s) than group 2 (11.1 ± 4.0, p = 0.026). There were no significant differences in residual urine volume, voiding symptom score, and bladder storage symptom score between group 1 and 2. Before TURP, 21 patients (40.4%) had urgency and the urgency disappeared after TURP in 14 patients. Seven patients (13.5%) who had persistent urgency after TURP. There were no significant differences in age, body mass index, prostate volume, preoperative peak urinary flow rate, and residual urine volume between group 3 (n = 7) and 4 (n = 4). However, DWT was significantly thicker in group 3 (2.4 ± 0.3 mm; range, 2.3–2.7) than group 4 (2.1 ± 0.4 mm; range, 1.2–2.7, p = 0.021).

**Conclusions:** Peak urinary flow rate was significantly lower in patients with DWT ≥ 2 mm and this demonstrates the possibility of bladder outlet obstruction in these patients. DWT was significantly thicker in patients with persistent urinary urgency after TURP. DWT may help to predict patients with persistent urgency after TURP.

Source of Funding: none
**MP03-17** GREEN LASER PROSTATIC LASER VAPORIZATION IN PATIENTS OLDER THAN 80 YEARS. IS IT SAFE?

Pablo Contreras*, Buenos Aires, Argentina, Francisco Lopez, Ramiro Castilla, Carlos Ameri, Gonzalo Vitagliano, Osvaldo Mazza, Ciudad Autónoma de Buenos Aires, Argentina

**INTRODUCTION AND OBJECTIVES:** Benign Prostatic Hyperplasia is a prevalent condition among elderly men. The growing presence of age-related comorbidities increases the surgical risk in this group of patients. The aim of the study was to evaluate the safety of Green Laser Prostatic VapORIZATION in patients older than 80 years.

**METHODS:** Between June 2007 and August 2012, 450 Green laser prostatic vaporization were made at our institution, 30 of them were older than 80 years. Intraoperative and perioperative complications were analyzed.

**RESULTS:** Medium patient’s age was 83.5 years (80–90 years). Average hospitalization was 1.4 days. Four patients had permanent bladder catheter at the time of surgery. Average prostate size was 48.7 cm³ (18–100 cm³). Three patients were anticoagulated. There were no intra or perioperative deaths. One patient required a longer hospitalization (three days) because of COPD reagudization and three patients due a concomitant procedure inn the bladder (Holmium lithotripsy). There were no readmissions or reoperations. Two patients (6.6%) presented an acute urinary retention after catheter removal, but after seven days of catheterisation achieved spontaneous micturition. Four patients presented advanced Prostate Cancer (13%), three (10%) bladder cancer and five (16.6%) colorectal cancer.

**CONCLUSIONS:** From our experience, Green Laser Prostatic VapORIZATION was a safe procedure for patients of 80 years and older with zero mortality and a low rate of minor complications.

**Source of Funding:** None

**MP03-18** DIODE LASER VAPORIZATION OF THE PROSTATE FOR BENIGN PROSTATIC HYPERPLASIA - COMPARING VAPORIZATION ALONE OR WITH VAPORIZATION PLUS SUBSEQUENT BIPOLAR TRANS-URETHRAL RESECTION AT 12 MONTHS FOLLOW-UP

Ferdinando De Marco*, Grottaferrata, Italy, Markus Rheinwald, Wessling, Germany, Thomas Bayer, Kempten, Germany

**INTRODUCTION AND OBJECTIVES:** Using diode lasers that emit light in the near infrared for vaporization of benign prostatic hyperplasia (BPH) leads to good hemostasis. Recent literature also proposes to add bipolar trans-urethral resection (b-TURP) after diode laser vaporization of the prostate for patients with larger prostates. The objective of the study was to compare the functional outcomes in patients with prostates larger than 70 grams between patients treated with a high power diode laser alone and patients treated with high power diode laser and subsequent b-TURP.

**METHODS:** Vaporization of prostatic tissue in BPH patients was performed using a high power diode laser operating at 940 nanometers and emitting a maximum power of 250 Watts in continuous wave mode. In some patients with prostates larger than 70 grams, particularly very large prostates, b-TURP was applied after laser vaporization. Before and for follow-up on 1, 3, 6, and 12 months after the operation, patients were assessed for their residual urine volume, maximum urine flow rate (Qmax) and International Prostate Symptom Score (IPSS).

**RESULTS:** 34 patients treated with vaporization alone (group 1) and 28 patients treated with vaporization and subsequent b-TURP (group 2) have reached 12 months of follow-up so far. At 12 months, compared to pre-operatively, the mean maximum flow rate increased from 10.0 ml/s to 21.3 ml/s in group 1 and from 8.0 ml/s to 23.9 ml/s in group 2; mean IPSS dropped from 19.0 to 8.0 in group 1 and from 19.6 to 7.1 in group 2; and mean residual urine volume dropped from 127.3 ml to 20.6 ml in group 1 and from 130.5 ml to 11.1 ml in group 2.

**CONCLUSIONS:** The treatment of BPH with the high power diode laser at 250 W, with laser vaporization alone or followed by TURP for large prostates, provides good clinical outcome regarding peri-operative bleeding and post-operative IPSS, maximal flow rate and residual urine in the follow-up of 12 months. Adding b-TURP subsequent to diode laser vaporization tends to further improve functional results during follow-up. Further studies with extended follow-up and patient numbers are needed to confirm these data.

**Source of Funding:** Laser and fibers: Dornier MedTech Laser

**MP03-19** A PROSPECTIVE MULTICENTER RANDOMIZED STUDY COMPARING GREENLIGHT™ LASER AND TRANSURETHRAL RESECTION OF THE PROSTATE FOR THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA

Alexander Bachmann*, Basel, Switzerland, Andrea Tubaro, Rome, Italy, Neil Barber, Cumberley Surrey, United Kingdom, Frank d’Ancona, Nijmegen, Netherlands, Gordon Muir, London, United Kingdom, Ulrich Witzsch, Frankfurt, Germany, Marc-Oliver Grimm, Jena, Germany, Joan Benejam, Manacor, Spain, Jens-Uwe Stolzenburg, Leipzig, Germany, Anthony Riddick, Edinburgh, United Kingdom, Sascha Paherrnik, Heidelberg, Germany, Johannes Hermanus Roelink, Almelo/Hengelo, Netherlands, Filip Ameye, Gent, Belgium, Christian Saussine, Strasbourg, France, Frank Bruyere, Tours, France, Wolfgang Loidl, Linz, Austria, Timothy Larner, Brighton, United Kingdom, Nirjan Gogoi, Deauville, United Kingdom, Richard Hindley, Hampshire, United Kingdom, Rolf Muschert, Rotenburg, Germany, Andrew Thorpe, Newcastle upon Tyne, United Kingdom, Nitin Shrotri, Kent, United Kingdom, Stuart Graham, London, United Kingdom, Moritz Franz Hamann, Kiel, Germany, Kurt Miller, Berlin, Germany, Martin Schostak, Magdeburg, Germany, Carlos Capitan, Madrid, Spain, Helmut Knispel, Berlin, Germany, James Andrew Thomas, Wales, United Kingdom

**INTRODUCTION AND OBJECTIVES:** Minimally invasive therapies are increasingly being used to treat benign prostatic hyperplasia (BPH) but there have been few prospective randomized trials that compare such procedures to trans urethral resection of the prostate (TURP). We conducted a trial to evaluate the non-inferiority of photo-selective vaporization (PVP) with the GreenLight XPS system and MoXy fiber compared to TURP.

**METHODS:** 291 patients were recruited at 29 European centers. Patients were randomized to XPS or TURP. The study was designed to assess non-inferiority for the primary end point of IPSS at 6 months. The study was also powered to show non-inferiority for Qmax and proportion of patients free of complications through 180 days post surgery. Demographics showed that the arms of the study were well balanced at baseline. Key inclusion/exclusion criteria included age between 40–80 years, IPSS > 12, Qmax < 15 cc/sec, prostate size < 100 mg, and no previous lower urinary tract surgery.

**RESULTS:** 34 patients treated with vaporization alone (group 1) and 28 patients treated with vaporization and subsequent b-TURP (group 2) have reached 12 months of follow-up so far. At 12 months, compared to pre-operatively, the mean maximum flow rate increased from 10.0 ml/s to 21.3 ml/s in group 1 and from 8.0 ml/s to 23.9 ml/s in group 2; mean IPSS dropped from 19.0 to 8.0 in group 1 and from 19.6 to 7.1 in group 2; and mean residual urine volume dropped from 127.3 ml to 20.6 ml in group 1 and from 130.5 ml to 11.1 ml in group 2.
RESULTS: There were 136 patients treated in the XPS arm and 133 in the TURP arm. It has been shown that on the IPSS a difference of 3 points is the smallest perceptible difference; thus, 3 was chosen as the margin for non-inferiority. At six months, mean IPSS scores were 6.8 ± 5.2 for the XPS and 5.6 ± 4.9 for the TURP arm and met the criterion for non-inferiority (p = 0.002). Similarly, there was no statistical difference in Qmax at 6 months with 23.3 ± 10.1 for XPS and 24.2 ± 11.4 for TURP, meeting the non-inferiority criterion for the pre-specified margin of 5 (p = 0.002). XPS was also non-inferior with respect to the proportion of patients that experienced a complication by 6 months. Mean length of catheterization (40.8 hours vs 59.5 hours), hospitalization (65.5 hours vs 96.9 hours) and time to stable health status (37.3 hours vs 63.5 hours) were all significantly shorter for XPS compared to TURP (p < 0.001 for each assessment). There were more XPS patients with UTI’s (22 vs 12). Grade III and IV bleeding events were more common in TURP patients (9 vs 4). Invasive or surgical re-interventions within 30 days were more common in TURP patients (13 vs 4 in XPS).

CONCLUSIONS: In this prospective randomized trial, Green-Light XPS PVP showed similar efficacy and safety to TURP with statistically significant improvements in catheterization time, length of hospitalization, and time to stable health status. Moreover, there were fewer serious bleeding complications and invasive or surgical re-interventions in the PVP arm compared to the TURP arm.

Source of Funding: American Medical Systems, Inc.

MP03-20 TRANSCURETHRAL ENUCLEATION WITH BIPOLAR (TUEB) FOR PROSTATES OVER 50 ML: A SINGLE CENTER EXPERIENCE

Hayato Takeda*, Hiroyuki Shimizu, Yasutomo Suzuki, Mamoru Oki, Jun Hasegawa, Yukihiro Kondo, Tokyo, Japan

INTRODUCTION AND OBJECTIVES: Transurethral Enucleation with Bipolar (TUEB) is an established and durable treatment modality for men with lower urinary tract symptoms (LUTS) due to benign prostate hyperplasia (BPH). Clinical outcomes of patients treated with TUEB with a prostate volume over 50 ml were evaluated.

METHODS: 126 consecutive patients who underwent TUEB between March 2008 and September 2012 were retrospectively reviewed, and patients with a prostate volume over 50 ml measured by suprapubic ultrasonography were identified. Using a conventional loop, incising into the mucosa at 0, 5, 7 o’clock from below the bladder neck to the urethral caruncle, the prostate is divided into 3 blocks. With the spatula, the prostate is detached and resected into small pieces with the conventional loop, without using the morecellator for bipolar transurethral vaporization.

RESULTS: Out of 126 patients, 83 patients were identified. Median age of the patients was 76.1 years old (range 59–81 years old). Postoperative median measured prostate volume was 76.6 ml (range 50–158 ml), mean resected prostate volume 42.1 g (range 12–129.3 g), and mean operation time was 116 min (range 60–235 min). The mean hemoglobin drop was 1.0 g/dl, with no cases of blood transfusion. The median postoperative catheterization period was 2.7 days. Mean preoperative and postoperative PSA decreasing rate was 82.2%. Complications and dysuria after catheter removal were, postoperative bleeding in 2 patients, urinary tract infection in 2 patients, urethral stricture in 1 patient, and 1 patient had abdominal pressure induced incontinence requiring 3 months for pad free.

CONCLUSIONS: Even for large prostatic volumes, reasonable outcomes can be achieved by TUEB for BPH, with significant improvement in emptying symptoms. Severe complications were not found.

Source of Funding: none

MP03-21 TISSUE EFFECTS RESULTING FROM ERA-SER LASER ENucleATION OF THE PROSTATE: IN VIVO INVESTIGATION

Lukas Lusuardi*, Martina Hager, Manuela Sieberer, Stephan Hruby, Birgit Kloss, Gunter Janetschek, Salzburg, Austria

INTRODUCTION AND OBJECTIVES: To describe the depth of the laser coagulation zone in vivo based on histological examinations and the functional outcome of a 1,318-nm diode laser for transurethral enucleation in benign prostatic enlargement (BPE).

METHODS: A total of 20 patients with BPE were treated by laser Eraser® enucleation of the prostate (ELEP). Prostatic tissue wedges were evaluated to assess the depth of the ELEP coagulation zones. Additionaly patients were assessed pre-operatively and 12 month postoperatively.

RESULTS: The coagulation zones were 0.36 ± 0.17 mm in epithelial tissue, 0.28 ± 0.15 mm in stromal tissue, and 0.25 ± 0.12 mm in glandular tissue. Severe complications were not found. In 3 patients, severe dysuria persisted for 3–7 days. On the second postoperative day, the average IPSS score was improved by 7.9 ± 1.3 points and the average Qmax was improved by 11.4 ± 5.2 ml/sec.

Table 1. Baseline Characteristics of the 20 Patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ELEP</th>
<th>SD</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>65.3</td>
<td>±5.2</td>
<td>56-72</td>
</tr>
<tr>
<td>QoL</td>
<td>5.2</td>
<td>±1.0</td>
<td>3-6</td>
</tr>
<tr>
<td>IPSS</td>
<td>24.4</td>
<td>±6.2</td>
<td>19-35</td>
</tr>
<tr>
<td>TRUS (ml)</td>
<td>56.8</td>
<td>±14.12</td>
<td>34-85</td>
</tr>
<tr>
<td>PSA</td>
<td>3.4</td>
<td>±1.3</td>
<td>0-9.5</td>
</tr>
<tr>
<td>Qmax (ml/sec)</td>
<td>6.6</td>
<td>±2.50</td>
<td>2-12</td>
</tr>
<tr>
<td>ASA</td>
<td>2.7</td>
<td>±0.69</td>
<td>2-4</td>
</tr>
<tr>
<td>Hb (g/L)</td>
<td>14.9</td>
<td>±0.99</td>
<td>12.4-15.0</td>
</tr>
<tr>
<td>PVR (ml)</td>
<td>160.5</td>
<td>±73.12</td>
<td>55-250</td>
</tr>
</tbody>
</table>

Table 2. Peri-operative Data for the 20 Patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ELEP</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative time</td>
<td>68.10</td>
<td>±9.33</td>
</tr>
<tr>
<td>Enucleation time (min)</td>
<td>45.80</td>
<td>±9.40</td>
</tr>
<tr>
<td>Morcellisation (min)</td>
<td>19.99</td>
<td>±5.59</td>
</tr>
<tr>
<td>Resected weight (gm)</td>
<td>31.30</td>
<td>±9.23</td>
</tr>
<tr>
<td>Retrieval rate (gm/min)</td>
<td>0.43</td>
<td>±0.68</td>
</tr>
<tr>
<td>Postop hemoglobin (gm/dl)</td>
<td>14.66</td>
<td>±0.95</td>
</tr>
<tr>
<td>Blood loss (ml)</td>
<td>115.54</td>
<td>±93.12</td>
</tr>
<tr>
<td>Hb loss (gm/dl)</td>
<td>0.29</td>
<td>±0.26</td>
</tr>
<tr>
<td>Blood loss/resected tissue (mg/gm)</td>
<td>6.17</td>
<td>±2.26</td>
</tr>
<tr>
<td>Bleeding velocity (ml/min)</td>
<td>3.81</td>
<td>±2.81</td>
</tr>
<tr>
<td>Catheter time (hours)</td>
<td>1.35</td>
<td>±0.30</td>
</tr>
<tr>
<td>Hospital time (hours)</td>
<td>1.89</td>
<td>±0.52</td>
</tr>
<tr>
<td>Intra-operative irrigation volume (ml)</td>
<td>22.45</td>
<td>±3.56</td>
</tr>
</tbody>
</table>
INTRODUCTION AND OBJECTIVES:

The source of funding was to identify the factors associated with occurrence of transient urinary incontinence (TI). The aims of this study were to evaluate the short-term efficacy of different α-adrenergic blockers on lower urinary tract symptoms in patients with symptomatic BPH. We evaluated the short-term efficacy of different α-adrenergic blockers on LUTS in patients with symptomatic BPH.

METHODS: The data from the 624 consecutive patients who underwent HoLEP for the symptomatic BPH between January 2010 and December 2011 were evaluated retrospectively. Data were analyzed to obtain prostate volume by transrectal ultrasound, serum prostate specific antigen (PSA), hospitalization time, time to catheter removal, enucleation and morcellation time, and weight of resected prostate. The follow up included the International Prostate Symptom Score (IPSS), quality of life (QoL) score, maximum urinary flow rate (Qmax), and postvoiding residual urine volume (PVR). Urinary incontinence was defined according to the International Continence Society and by the question ‘Do you have involuntary loss of urine?’

RESULTS: The patients’ mean age was 68.1 ± 7.6 years and mean prostate volume was 57.2 ± 30.3 g. Mean enucleation time was 56.6 ± 42.3 minutes, mean morcellation time was 12.3 ± 18.9 minutes, and the mean resected weight of the prostate was 21.4 ± 24.5 g. The mean catheter indwelling period was 36.3 ± 35.4 hours and mean hospital stay was 3.2 ± 2.5 days. TI occurred in 59 patients (9.5%) after HoLEP. The patient’s age, morcellation time and resected volume were associated with the occurrence of postoperative TI.

CONCLUSIONS: After HoLEP, some patients experienced TI and most of them showed recovery within 6 months. HoLEP is a safe and effective modality for treating symptomatic BPH despite of TI.

Source of Funding: none

MP03-22 FACTORS PREDICTING OCCURRENCE OF TRANSIENT URINARY INCONTINENCE AFTER HOLMIUM LASER ENucleATION OF THE PROSTATE

Dong Gil Shin*, Jeong Zoo Lee, Tae Gyeong Jeon, Tae Nam Kim, Busan, Korea, Republic of; Moon Kee Chung, Yangsan, Korea, Republic of; Chang Yell Lee, Busan, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Holmium laser enucleation of the prostate (HoLEP) is a recent step in enabling a true anatomical enucleation of prostatic tissue. The aims of this study was to identify the factors associated with occurrence of transient urinary incontinence (TI) after HoLEP for the surgical treatment of benign prostatic hyperplasia (BPH).

MP03-23 EVALUATION OF SHORT TERM EFFICACY OF DIFFERENT ALFA ADRENERGIC BLOCKERS ON LUTS IN PATIENTS WITH SYMPTOMATIC BPH

Arup Mandal*, Chandigarh, India, Sudheer Devana, Shrawan Singh, Ravimohan Mavuduru, Chandigarh, India

INTRODUCTION AND OBJECTIVES: An early improvement of lower urinary tract symptoms in patients with symptomatic BPH is desirable. Silodosin has been claimed to have rapid onset of action and hence improvement in LUTS. We evaluated the short term efficacy of different α-adrenergic blockers on LUTS in patients with symptomatic BPH.

METHODS: A total of 75 cases of symptomatic BPH aged 50–80 yrs with IPSS ≥8 or QOL score ≥2 were enrolled in this open labeled study. Patients with other causes of bladder outlet obstruction, prostate and bladder malignancy, renal failure, hepatic failure and prior history of prostatectomy were excluded. They were randomized into three groups. Group T received tamsulosin 0.4 mg/day, Group A received alfuzosin 10 mg/day and Group S received silodosin 8 mg/day. Patients were evaluated at baseline, 6 hrs, 24 hrs, 4th day, 7th day and 1 month of initiation of treatment for IPSS, QOL scores, Qmax, Qavg and PVR. Side effects of treatment were recorded after 1 week and one month of initiation of treatment.

RESULTS: The baseline characteristics of all three groups in terms of age, BMI, symptom duration, prostate volume, IPSS, QOL score, Qmax, Q avg and PVR were comparable. Significant improvement in IPSS and QOL scores were noted after 3rd dose in all three groups (p value 0.001). In group T and group A improvement in IPSS score ≥3 was observed in 24% of patients at 6 hrs and in 40% of patients at 24 hrs whereas in group S such improvement was observed in 12% at 6 hrs and 16% at 24 hrs. On intergroup comparison no significant difference was noted in IPSS, QOL scores, Qmax, Qavg and PVR at different time intervals following initiation of treatment. Dizziness was reported in 4% of group T and group A but none discontinued therapy. In

<table>
<thead>
<tr>
<th>Preoperative and Postoperative Parameters</th>
<th>Patients without TI (n=565)</th>
<th>Patients with TI (n=95)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>67.2 ± 7.7</td>
<td>70.8 ± 7.4</td>
<td>0.009</td>
</tr>
<tr>
<td>TRUS prostate volume (g)</td>
<td>49.1 ± 23.4</td>
<td>73.8 ± 44.8</td>
<td>0.025</td>
</tr>
<tr>
<td>PSA (ng/ml)</td>
<td>4.2 ± 8.1</td>
<td>6.5 ± 8.2</td>
<td>0.422</td>
</tr>
<tr>
<td>Enucleation time (minutes)</td>
<td>51.2 ± 27.4</td>
<td>67.5 ± 33.1</td>
<td>0.083</td>
</tr>
<tr>
<td>Morcellation time (minutes)</td>
<td>9.8 ± 13.3</td>
<td>19.6 ± 25.3</td>
<td>0.028</td>
</tr>
<tr>
<td>Resected volume (g)</td>
<td>17.0 ± 18.8</td>
<td>37.3 ± 36.1</td>
<td>0.032</td>
</tr>
<tr>
<td>Hospital period (days)</td>
<td>3.3 ± 2.7</td>
<td>3.2 ± 2.3</td>
<td>0.054</td>
</tr>
<tr>
<td>Indwelling catheter period (hours)</td>
<td>35.7 ± 35.1</td>
<td>38.1 ± 41.4</td>
<td>0.222</td>
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</tbody>
</table>

<table>
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<tr>
<th>Table 3. Patient Characteristics over 12 Months of Follow-up</th>
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<tbody>
<tr>
<td>N.</td>
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<tr>
<td>----</td>
</tr>
<tr>
<td>1 Month</td>
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<tr>
<td></td>
</tr>
<tr>
<td>6 Months</td>
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<tr>
<td></td>
</tr>
<tr>
<td>12 Months</td>
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</tbody>
</table>
group S 8% of patients experienced ejaculatory dysfunction but none complained of dizziness.

CONCLUSIONS: All the three αl adrenergic blockers (Tamsulosin, Alfuzosin and Silodosin) improve LUTS significantly in patients with symptomatic BPH. This improvement achieves significance after 3rd dose of treatment. The improvement in symptoms is not rapid with silodosin as compared to tamsulosin and alfuzosin.

Source of Funding: None

MP03-24 SAFETY AND EFFICACY OF REPEAT GREENLIGHT LASER THERAPY WITH THE XPS SYSTEM IN PATIENTS PREVIOUSLY TREATED WITH THE GREENLIGHT PV OR HPS SYSTEMS

Andrew Tracey*, Chris Wright, Shailja Mehta, Ravi Munver, Hackensack, NJ

INTRODUCTION AND OBJECTIVES: GreenLight laser therapy for BPH is gradually replacing transurethral resection of the prostate (TURP) due to decreased blood loss, shorter hospital stay, fewer side effects, and decreased complications, while maintaining excellent urinary outcomes. As more patients are treated with laser and other transurethral therapies, an increasing number will likely require additional therapy at a later date. We evaluated our experience in patients previously successfully treated with GreenLight laser therapy in which a second procedure was required due to obstructive urinary symptoms.

METHODS: A retrospective review was performed of all patients that underwent GreenLight laser therapy at our institution since 2003. Patients that were previously treated with GreenLight laser therapy met inclusion criteria for this study. Perioperative data for patients that underwent a second GreenLight procedure were analyzed.

RESULTS: A total of 9 patients were identified as having had previous treatment with GreenLight laser therapy at other institutions. The mean age was 69.5 (range 58–78 years) and body mass index of 26 (range 23–31). Patients were previously treated with the PV (n = 5) or HPS (n = 4) systems. The median time to retreatment was 6 years (range 2–10 years). Two patients presented with urinary retention at the time of the secondary treatment. Patients were treated on an outpatient basis (n = 7) or were discharged on the first postoperative day (n = 2). Seven patients had the foley catheter removed on POD #1, one on POD #5, and one on POD #14. There were no intraoperative or postoperative complications at a median follow-up of 10 months (range 2–24).

CONCLUSIONS: This is among the first reports of a series of patients that underwent a secondary GreenLight laser therapy procedure with the XPS system after having been initially treated with the PV or HPS systems. In the short term, a secondary GreenLight procedure appears safe and effective in patients that develop regrowth of prostate tissue that either fail medical therapy or elect for surgical therapy. As more patients are retreated with GreenLight laser therapy additional data will be collected and can be compared to the results of this study.

Source of Funding: None

MP03-25 INFLUENCE OF BODY MASS INDEX ON BENIGN PROSTATIC HYPERPLASIA-RELATED COMPLICATIONS IN PATIENTS UNDERGOING PROSTATECTOMY

Hisham Mosli*, Jeddah, Saudi Arabia

INTRODUCTION AND OBJECTIVES: Recent clinical evidence suggests a strong link between obesity and benign prostatic hyperplasia (BPH) related complications. This study aimed at examining the link between increased body mass index and benign prostatic hyperplasia (BPH) related complications, namely; acute urinary retention (AUR), bladder stones and bladder diverticula.

METHODS: Medical records of BPH patients who underwent prostatectomy during the period 2010–2012 were reviewed. Patients who underwent transurethral resection of prostate (TURP) or photo-sensitive vaporization of prostate (PVP), represented the 2 treatment groups within the study. This retrospective data review compared clinical parameters like age, prostate specific antigen (PSA) and prostate volume (PV) as measured by ultrasonography, patients’ weight and height; BPH related complications mainly AUR, bladder stones and bladder diverticulum; among obese and non obese patients in the 2 treatment groups. Patients were classified as obese or non-obese based upon the World Health Organization (WHO) classification of obesity. Chi-square test was used for comparison between groups where p-value was considered significant if <0.05 and ANOVA was used for comparison between multiple variables.

RESULTS: Of the 197 patients included in this study, 95 (48%) underwent TURP and 102 (52%) underwent PVP. The 2 groups were found to be similar in mean age and PSA and significantly different in prostate volume and operating room (O.R.) time. No major differences were observed in the frequency of BPH related complications (AUR, bladder stones and bladder diverticulum). No significant differences were noted in the development of AUR, bladder stone and diverticulum formation; between patients with increased BMI (overweight and obese) and those with normal BMI. Further studies are recommended to explore the influence of increased BMI on BPH-related complications.

Source of Funding: None
MP04 PERCUTANEOUS NEPHROLITHOTOMY I

MP04-01 WITHOUT STONE CULTURE, INFECTIOUS KIDNEY ORGANISMS ARE MISIDENTIFIED IN ALMOST 1/4 OF PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY

Jessica F Paonessa*, Naeem Bhojani, James C Williams, Jr., Indianapolis, IN, Jessica A Mandeville, Reading, MA, James E Lingeman, Indianapolis, IN

INTRODUCTION AND OBJECTIVES: One of the most significant complications of percutaneous nephrolithotomy (PCNL) is sepsis. In order to avoid this complication, preoperative urine cultures (UCx) are utilized to adequately treat patients before PCNL. Moreover, patients who are known to harbor struvite stones are carefully scrutinized when preparing for PCNL. However, it has been shown that non-struvite stone formers may harbor equally lethal bacteria. As well, peri-operative stone cultures (SCx) can harbor different bacteria than preop UCx. The objective of this study is to demonstrate the relationship between stone type, SCx and UCx in order to enable one to adequately treat and/or prevent sepsis post-PCNL.

METHODS: We performed a retrospective data analysis of PCNL patients treated at one institution from 1999 to 2009. Inclusion criteria for this study comprised patients who had results for both stone and urine cultures as well as stone mineral content.

RESULTS: The overall agreement between UCx and SCx occurred in 361 cases (72.7%) and the rate of discordance was similar in both the struvite and non-struvite stone forming groups (26.2% and 27.4% respectively). A positive SCx in the presence of sterile urine occurred in 10.5% of patients overall and this occurred most frequently in non-struvite stone formers (n=151), 67 or 44.4% (13.5% overall) were found to have different infectious organisms between the urine and stone cultures. Therefore, 24% of patients presenting with both a positive UCx and SCx (n=67) or 44.4% (13.5% overall) were found to have different infectious organisms between the urine and stone cultures. Therefore, 24% of patients presenting with both a positive UCx and SCx (n=151), 67 or 44.4% (13.5% overall) were found to have different infectious organisms between the stone than from urine (13.5%).

CONCLUSIONS: The simplification of the infection stone being synonymous with struvite stone may have negative consequences in the clinical treatment and management of stone disease. As well, the utilization of UCx alone will often lead to

<table>
<thead>
<tr>
<th>Stone Mineral Content</th>
<th>Both Negative (%)</th>
<th>Only Positive Urine Culture (%)</th>
<th>Only Positive Stone Culture (%)</th>
<th>Both Urine and Stone Culture Positive (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Struvite</td>
<td>9 (14.8)</td>
<td>31 (18.0)</td>
<td>5 (8.2)</td>
<td>36 (59.0)</td>
<td>65 (100)</td>
</tr>
<tr>
<td>Other</td>
<td>201 (46.2)</td>
<td>72 (16.6)</td>
<td>47 (10.8)</td>
<td>115 (28.4)</td>
<td>439 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>210 (42.3)</td>
<td>103 (16.7)</td>
<td>52 (10.5)</td>
<td>151 (30.4)</td>
<td>496 (100)</td>
</tr>
</tbody>
</table>
MP04-02 MINI-PERC USING A 16 F PEEL-AWAY SHEATH

James Borin*, Jared Cohen, Janae Preece, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Standard percutaneous nephrolithotomy (PCNL) requires tract dilation to 30 F which can result in bleeding and postoperative pain. In some cases, a large tract may be unnecessary, for example in patients with an obstructing ureteral calculus previously decompressed with a nephrostomy tube, during a second look PCNL for small volume residual stones, or in patients with significant medical comorbidities, bleeding diathesis, or other upper tract pathology such as urothelial carcinoma or ureteral stricture. In these patients, a mini-perc may provide adequate renal and ureteral access with less morbidity.

METHODS: Three patients underwent 5 mini-perc procedures using a 16 F x 12 cm peel-away sheath. A 15 F flexible cystoscope was used to perform antegrade endoscopy with laser lithotripsy or biopsy of urothelial tumors (see figure). All patients had pre-existing nephrostomy tubes prior to mini-perc.

RESULTS: Two patients initially presented with an obstructing proximal ureteral stone (2.1 x 1.8 cm, 2.0 x 1.5 cm) requiring emergent decompression with a nephrostomy tube. Both were subsequently rendered stone free after 1 and 2 procedures, respectively. Stones were composed of calcium oxalate/phosphate mixture. Mean OR time was 134 minutes and there were no complications. One patient with urothelial carcinoma in a solitary, obstructed kidney underwent antegrade renal endoscopy with biopsy and fulguration of tumors on 2 occasions. Mean OR time was 86 minutes with no complications. 4 procedures were performed in Galdakao-modified supine Valdivia position, one in prone position. All patients were discharged home within 23 hours.

CONCLUSIONS: Mini-perc with a 16 F peel-away sheath facilitates treatment of ureteral stones and other renal pathologies which may not require and would not benefit from a 30 F sheath. This method is particularly useful for patients with pre-existing nephrostomy tubes. Visualization is excellent using a 15 F flexible cystoscope. The smaller sheath results in minimal pain and bleeding so patients may be discharged home the same day or within 23 hours.

Source of Funding: none

MP04-03 PERCUTANEOUS NEPHROLITHOTOMY ACCESS TRACT DILATION USING THE “VISUAL DILATOR SYSTEM”: AN INITIAL CLINICAL REPORT

Arvind K. Shah*, Kewei Xu, Jian Huang, Tianxin Lin, Hao Liu, Hai Huang, Chun Jiang, Guangzhou, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: Ultrasound-guidance during percutaneous nephrolithotomy has emerged as a reasonable alternative to the fluoroscopy-guidance due to the potential radiation hazards. However, due to poor ecogenicity of dilator and amplatz sheath, the percutaneous tract dilation under solo ultrasound-guidance can be especially challenging. It can be difficult to prevent over-dilation causing collecting system perforation and vascular injury or under-dilation making the establishment of access tract in a single attempt strenuous. Here, we present our initial clinical experience in using the novel technique of visual dilator system to obtain visual confirmation of accuracy during percutaneous tract dilation.

METHODS: Between February 2012 and July 2012, the visual dilator system was used during percutaneous tract dilation in 33 PCNL cases. In initial 9 cases, dilation using this technique was controlled under fluoroscopy to establish its feasibility and accuracy.

RESULTS: All tracts were successfully dilated in a single attempt. The intervening tissue layers, approach into target calyx as well as the access sheath placement could be visually monitored to confirm accuracy in dilation. Mean dilation time was 5.2 ± 1.2 mins, decrease in hemoglobin was 1.2±0.3 g/dL, primary stone-free rate and that after auxiliary treatment were 84.8% and 93.9% respectively. Fluoroscopy during dilation with the visual dilator system in the initial 9 clinical cases confirmed the dilator location as it progressed from skin into the renal collecting system. No complications like collecting system perforation, loss of access, transfusion and surrounding organ injury was experienced. Limited case number and the lack of comparison with other dilator modalities were major drawbacks of the study.

Source of Funding: None

FIG. 1. Diagramatic representation of dilation steps using visual dilator system. (a) initial dilation of subcutaneous tissue and muscle layers with fascial dilator, (b) dilation into the target calyx, (c) working sheath positioned into the target calyx

FIG. 2. Intraoperative view of the dilation through the visual dilator system. (a) dilation through perirenal fat layer, (b) prior to the entry into the collecting system, (c) view inside the target calyx with calculi
CONCLUSIONS: PCNL access tract dilation using the “visual dilator system” is a clinically feasible technique. It provides a real-time visual monitoring and confirmation of accuracy in dilation. It may improve the overall safety and efficacy of the PCNL procedure.

Source of Funding: none

MP04-04 CURRENT PRACTICES IN PERCUTANEOUS NEPHROLITHOTOMY AMONG ENDOUROLOGISTS
Sri Sivalingam*, Shannon Cannon, Stephen Nakada, Madison, WI

INTRODUCTION AND OBJECTIVES: Our objective was to characterize current practices among endourologists to quantify variations in procedural techniques in relation to practice setting, experience and fellowship training.

METHODS: A web-based survey was administered to active endourology society members. Responses were grouped based on demographic information pertaining to setting of practice, number of years practiced and fellowship training in endourology. PCNL technique details were evaluated and compared by each group. Statistical analysis was performed using SPSS.

RESULTS: Two hundred ninety three completed responses of 2000 were received. There was a significant difference in the experience level among respondents (P<0.001), with a relatively greater proportion being 11–20 years in practice. The majority of respondents were academic urologists (74%), with 18% being within a group-based private practice. 77% of respondents obtained their own access while 19% had access by interventional radiologists; this was similar across all practice settings and experience levels. 62% were endourology fellowship trained, and fellows were significantly more likely to obtain their own access (82% versus 71%, \( p = 0.022 \)). 86% used the prone position to obtain access, 10% used supine and 4% used lateral decubitus. An antegrade approach was preferred by 68%, while 18.5% used a retrograde, and 12% used a combined approach. These trends held true across all demographic sub-groups. Overall, 76% placed a nephrostomy tube for post-operative drainage; a ureteral stent or catheter was left in place by 28% or 11% of respondents, respectively, and only 6 respondents (2%) performed a “tubeless” procedure without any drainage. Urologists in practice > 20 years were less inclined to use ureteral catheters compared to those in practice < 20 years (5% vs 13%, \( p = 0.007 \)) for post-operative drainage.

CONCLUSIONS: The majority of urologists performing PCNLs who responded obtain their own access, and there is an even higher proportion of self-obtained access in endourology fellowship trained urologists. Prostate positioning is predominant, tubeless approaches are rare, and more than 75% of respondents leave a nephrostomy tube post-operatively.

Source of Funding: None

MP04-05 DOES IV ACETAMINOPHEN GIVEN DURING PERCUTANEOUS NEPHROLITHOTOMY REDUCE POST-OPERATIVE PAIN?
Brian T. Kadow*, Yaniv Shilo, Julie M. Riley, Stephen V. Jackman, Timothy D. Averch, Pittsburgh, PA

INTRODUCTION AND OBJECTIVES: Adequate post-operative pain control is an important goal in the treatment of patients undergoing percutaneous nephrolithotomy (PCNL). Although many different analgesic combinations are used to alleviate post-PCNL pain, no specific combination has been shown to be superior. Recently, IV Acetaminophen has been increasingly used in the anesthesia armamentarium to reduce post-operative pain. We have sought to determine the efficacy of IV acetaminophen to control pain in the post-operative period of patients undergoing PCNL.

METHODS: We retrospectively reviewed the medical records of 66 patients who underwent PCNL at a single institution between 2011 and 2012. Group 1 (28 patients) received a single dose of 1000 mg of IV acetaminophen at the completion of the procedure, whereas group 2 did not (38 patients). The patients’ subjective maximal pain scores and analgesic use on the day of surgery were compared. Other parameters that were reviewed included medical comorbidities, stone characteristics, presence of nephrostomy tubes and ureteral stents and post-operative complications. Overall narcotic requirement was assessed by calculating the IV hydromorphone equivalence.

RESULTS: There were no differences between the groups in regard to age, medical comorbidities, stone burden, procedure length, nephrostomy and ureteral stent presence, and post-operative complications. There was no statistical difference in the maximal pain score and the overall opioid use between groups 1 and 2 (5.7 vs. 5.8 out of 10 and 6.4 mg vs. 3.8 mg hydromorphone equivalence, respectively, \( p = 0.89 \)). Maximal systolic and diastolic blood pressure, and heart rate were significantly higher in group 2 (144 vs. 133 mmHg, 83 vs. 71 mmHg and 98 vs. 87 BPM, respectively, \( p < 0.05 \)).

CONCLUSIONS: Our data suggest that the use of a single dose of perioperative IV acetaminophen does not improve post-operative pain levels following PCNL, nor does it decrease overall narcotic usage. A prospective randomized trial in a larger cohort is imperative to further evaluate the efficacy of IV acetaminophen in these patients.

Source of Funding: None

MP04-06 FACTORS EFFECTING DEVELOPMENT OF SYSTEMIC INFLAMMATORY RESPONSE SYNDROME AFTER PERCUTANEOUS NEPHROLITHOTOMY
Emrah Yuruk, Murat Binbay*, Istanbul, Turkey, Mahir Seyrek, Canakkale, Turkey, Tolga Akman, Yalcin Berberoglu, Ahmet Mulsmanoglu, Istanbul, Turkey

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PNL) is considered a safe and effective procedure for treatment of kidney stones and recommended as first line treatment option in EAU guidelines. Infections and fever in any form are one of the most frequent complications and needs close observation and prompt treatment. Systemic inflammatory response syndrome (SIRS) criteria provide objective and consistent assessment of inflammation. We herein performed this prospective study to demonstrate factors affecting development of SIRS after PNL and predict in which patients an infectious complication will develop.

METHODS: Between February 2010 and June 2011, 241 patients eligible to inclusion criteria of study underwent PNL for kidney stones. Patients with prulent urine obtained from calyceal access were also excluded. Antibiotic prophylaxis was performed either with cefuroxime or ampicillin-sulbactam. Operative data as well as postoperative findings were noted. Patients were assessed according to the SIRS criteria (body temperature <36°C or
operation (in 25 patients, 16 (64.0%) developed SIRS, p < 0.0001) increased development of SIRS. Both presence of bleeding during operation (in 25 patients, 16 (64.0%) developed SIRS, p < 0.0001) and need for transfusion (in 26 patients, 17 (65.4%) developed SIRS, p < 0.0001) increased development of SIRS. Presence of solitary kidney (7 patients) or collecting system perforation (9 patients) did not increase risk of SIRS.

CONCLUSIONS: After all preventive measurements SIRS may still develop after PNL especially in patients who need multiple or intercostal access to collecting system and have bleeding during operation or need blood transfusion. Therefore caution must be given in this high risk group and patients should be informed about possible complications.

Source of Funding: None

MP04-07 INTERVENTIONAL RADIOLOGIST-DIRECTED PERCUTANEOUS RENAL ACCESS PERFORMED AT AN OUTSIDE INSTITUTION IS RARELY ACCEPTABLE FOR PERCUTANEOUS NEPHROLITHOTOMY

Andrew Callen*, Thomas Chi, Joe Miller, Marshall Stoller, San Francisco, CA

INTRODUCTION AND OBJECTIVES: While most patients undergoing percutaneous nephrolithotomy (PNL) have renal access performed at the time of their intervention, some require nephrostomy tube placement prior to definitive surgery. The goal of this study was to identify predictors for which of these percutaneous renal access tracts was appropriate for PNL.

METHODS: PNL cases consecutively performed at our institution between 2005 and 2012 were identified. Patients who required nephrostomy tube placement at an outside institution prior to surgery were identified. Patient clinical data was examined including what type of physician (interventional radiologist versus urologist) had placed the percutaneous drainage tube and this tract was appropriate and used for renal access. Primary outcome measures included change in hematocrit, GFR, length of stay, fever, and complication rates.

RESULTS: 68 patients (18% of total) were identified who had required percutaneous drainage prior to surgery. Patients with a previously placed percutaneous nephrostomy tube had a significantly smaller drop in hematocrit 24 hours after their surgery (–4.1 vs –6.0 points, p < 0.05) but no difference in other primary outcomes. Of those previously placed nephrostomy tubes, 33 had their existing tract dilated during PNL, and 35 were deemed to be inappropriate and not used. For these 35 cases requiring a new percutaneous access, a higher rate of post-operative fever (23% vs 6% p < 0.05) and a greater drop in GFR 24 hours post-procedure (–8.61 vs 1.28, p > 0.05) were seen. In patients with preexisting drainage tubes in place, the majority (75%) of their tubes had been placed by interventional radiologists, while the remaining 25% of tubes were placed by urologists. More than half of the tubes (55%) placed by interventional radiology were inappropriate and unusable for percutaneous renal access and patients underwent a new percutaneous access to perform PNL at the time of their surgery. In contrast, 59% of percutaneous access obtained by prior urologists were appropriate for dilation and renal access (p < 0.05).

CONCLUSIONS: While patients with pre-existing nephrostomy tubes prior to PNL may have lower rates of bleeding compared to those patients requiring a new puncture, renal access tracts must be carefully evaluated and selected for dilation at the time of PNL. Interventional radiologist-directed renal access results in lower rates of appropriately placed nephrostomy tubes useable for PNL when compared to urologist-placed tubes.

Source of Funding: None

MP04-08 LOW TRANSFUSION RATE ASSOCIATED WITH PERCUTANEOUS NEPHROLITHOTOMY

Andrew Callen*, Thomas Chi, Joe Miller, Marshall Stoller, San Francisco, CA

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PNL) is generally accepted as definitive treatment for renal stone disease. Patients and endourologists are concerned with potential for blood loss and complication rates related to the procedure compared to less invasive procedures. Previous studies have reported an increased rate of postoperative complications in patients with a higher Charlson Comorbidity Index score, larger stone size or the use of multiple access tracts. The aim of this study was to provide a contemporary update on the complication rates of percutaneous nephrolithotomy, and to elucidate factors contributing to blood loss.

METHODS: We identified 507 consecutively performed PNL’s at our institution by a single surgeon between 2005–2012. After excluding patients with incomplete clinical data, we examined clinical characteristics for 384 patients in this cohort. Our primary outcome was a bleeding complication as measured by both decrease in hematocrit and frequency of blood transfusion. Secondary outcomes including change in creatinine, occurrence of post-operative fever, and length of stay were also included in the analysis.

RESULTS: The mean patient age was 52.2 ± 14.7 years. 48% were male and the mean BMI of the patient population was 31.4. 51% of patients had undergone a previous intervention for nephrolithiasis. The mean age-adjusted Charlson Comorbidity Index was 2.58 ± 2.04. The mean maximum stone diameter was 3.1 ± 2.1 cm. 46% of cases were performed on the right kidney, 53% on the left, and 1% bilaterally. All percutaneous renal access was performed by urologists. The majority of punctures were directed into the posterior lower pole (71%) followed by upper pole calyces (21%). The average hematocrit decrease was 5.6 ± 3.7 points. Eight patients (2%) required blood transfusion postoperatively. The median length of stay was 2 days. Sixty-one patients (16%) experienced a transient fever over 38.5°C postoperatively. Seventeen patients (4%) experienced an intra- or post-operative complication, the most common being sepsis (five patients, who required intensive care unit monitoring).

CONCLUSIONS: Percutaneous nephrolithotomy can be performed with minimal need for blood transfusion (<2%) at a tertiary referral center. As such, we do not routinely type and cross patients for this procedure unless a special hematologic consideration (ie bleeding diatheses) is present. Practitioners should be aware of contemporary rates of transfusion and complications related to this procedure to counsel patients effectively.

Source of Funding: None
**MP04-09** ANALYSIS OF THE UTILITY OF STONE GRAM STAIN IN INFECTED UROLITHIASIS TREATED WITH PERCUTANEOUS NEPHROLITHOTOMY

Patrick Cockerill*, Marcelino Rivera, Amy Krambeck, Rochester, MN

**INTRODUCTION AND OBJECTIVES:** Positive stone culture obtained at percutaneous nephrolithotomy has proven to be a predictor of the systemic inflammatory response syndrome and sepsis post operatively. Stone cultures may take one week or longer to incubate, so early prediction of culture positive stones is clinically useful to identify high risk patients. The predictive value of stone gram stain on final stone culture results has not been reported in the literature. We sought to define the sensitivity and specificity of stone gram stain for infected urolithiasis.

**METHODS:** Percutaneous nephrolithotomies performed by a single surgeon at our institution were analyzed between January 2009 and May 2013. Stone fragments obtained through the percutaneous tract at the time of the procedure using a no touch technique were sent for anaerobic, aerobic, and fungal cultures. A gram stain and fungal smear were performed on the stones and reported within 24 hours of collection, before stone culture results were finalized.

**RESULTS:** A total of 228 patients, 127 female and 101 male, underwent 248 percutaneous nephrolithotomies from January 2009 to May 2013. Median age at surgery was 58. Of 248 stones, 80 (32%) had a positive stone culture. Stone gram stain was positive in 29 cases and negative in 51. There were 168 negative stone cultures, and in these cases, gram stain was positive in six and negative in 162. The calculated sensitivity and specificity of stone gram stain were 36% and 96%. The positive predictive and negative predictive values were 83% and 76%. The false positive rate of stone gram stain was 4% and the false negative rate was 64%. In the subset of 16 patients with positive stone fungal cultures, fungal smear was performed in 12, and was positive in 4, giving fungal smear a sensitivity of 33%. 

**CONCLUSIONS:** The results of this study suggest that stone gram stain cannot be relied upon to detect a positive stone culture, and may fail to detect up to 64% of infected stones. However, when positive, gram stain accurately predicts a positive stone culture in 83% of cases.

**Source of Funding:** none

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**MP04-10** ENDOSCOPIC-GUIDED PERCUTANEOUS NEPHROLITHOTOMY: A TECHNIQUE TO REDUCE RADIATION Dose

Andrea G. Lantz*, Padraic O’Malley, Michael Ordon, Jason Y. Lee, Toronto, Canada

**INTRODUCTION AND OBJECTIVES:** Percutaneous nephrolithotomy (PCNL) is associated with ionizing radiation exposure. Endoscopic-guided PCNL (ePCNL), a relatively uncommon approach to PCNL, may result in less radiation exposure than standard PCNL techniques. This study determines the radiation exposure (fluoroscopy time [FT], effective dose of radiation [EDR]) associated with the ePCNL technique and provides a comparison to published literature for standard fluoroscopic-guided PCNL.

**METHODS:** A retrospective review of all ePCNL procedures performed at our institution from Nov 2011 to Mar 2013 was conducted. Patient demographics, stone characteristics, operative details and total FT were recorded; radiation dosage (EDR) was calculated using standard conversions. Pearson and Spearman correlation were used to assess for variables correlated with increased radiation exposure.

**RESULTS:** A total of 37 ePCNL cases were included in the review. Mean age was 59 ± 17 yrs, mean BMI was 30.2 ± 6.9 kg/m² and mean stone size was 3.2 ± 2.0 cm. Four cases (11%) involved complete staghorn stones, and 51% involved upper pole punctures. Mean FT was 3.7 ± 2.2 min, mean EDR was 2.6 ± 2.0 mSv. Treatment success rate was 83% at 1-week postoperatively; 8.6% required ancillary procedures. Overall complication rate was 33% but most (10/12) were minor. Longer FT correlated with increased stone size (p < 0.01), longer operative time (p = 0.02), and need for ancillary procedures (p < 0.01); higher EDR correlated with increased skin-to-stone distance (SSD; p < 0.01).

**CONCLUSIONS:** The ePCNL technique may be associated with decreased radiation dosage compared to standard PCNL techniques, with comparable stone-free and complication rates.

**Source of Funding:** None

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**MP04-11** COMPLICATIONS AND ANALGESIC USE FOLLOWING UPPER POLE ACCESS FOR PERCUTANEOUS NEPHROLITHOTOMY

Caleb Ng, Caroline L Wallner, Gene O Huang, Steven R Engebretsen, Roger Li, Michelle A Lightfoot*, Don C Arnold II, Gaudencio Olgin, Muhannad M Alsyouf, Javier I Arenas, D Duane Baldwin, Loma Linda, CA

**INTRODUCTION AND OBJECTIVES:** Although upper pole access may optimize working angles during percutaneous nephrolithotomy (PCNL), many surgeons are hesitant to employ upper pole access due to higher reported complication rates. At our institution, selective use of ultrasound guidance and strict placement of upper pole access below the 11th rib has been utilized to reduce the morbidity of supracostal access. The purpose of this study is to compare the complication rates, pain, and other outcomes for upper pole access with other sites of renal access.

**METHODS:** A retrospective review of 325 PCNL patients at a single academic institution between 2002 and 2012 was performed. Patient demographics, stone burden, operative time, fluoroscopy time, length of hospital stay, transfusion rate, stone-
free rate, post-operative analgesic requirements and perioperative Clavien-Dindo complication score were recorded. Upper pole and middle or lower pole access groups were compared using univariate and logistic regression analyses.

RESULTS: A total of 154 patients had upper pole access while 171 patients had either middle or lower pole access. Baseline characteristics between groups were similar except for age; patients with upper pole access were older (mean 52 versus 47 years-old, p = 0.002). Stone burden (p = 0.976), operative time (p = 0.751), and stone-free rate (p = 0.420) were not different between groups. There was no significant difference in complication rates between groups (upper pole 25% and middle or lower pole 18%, p = 0.137).

Additionally, morphine-equivalent analgesic requirements were similar on post-operative day 1 (p = 0.185) and 2 (p = 0.559). Patients in the upper pole access group required less use of fluoroscopy intra-operatively (mean 94.6 versus 136.3 sec, p = 0.029). Logistic regression revealed that complication rate and access location were not significantly related (p = 0.085).

CONCLUSIONS: Complication rates and post-operative analgesic requirements were not significantly higher in patients with upper pole renal access. Upper pole access patients required significantly less fluoroscopy intra-operatively, potentially due to improved angles of access to the entire collecting system. Selected patients a few hours following PCNL has not been widely adopted for safe upper pole access without increased pain or complications.

Source of Funding: None

MP04-12 PIONEERING OUTPATIENT PCNL: THE QUEEN'S/MCGILL EXPERIENCE
Darren Beiko*, Andrea Kokorovic, Gregory Roberts, Kingston, Canada, Mohamed Elkoushy, Sero Andonian, Montreal, Canada

INTRODUCTION AND OBJECTIVES: Traditionally, patients are admitted following PCNL. The concept of discharging a patient a few hours following PCNL has not been widely adopted and in fact has been seen by some thought leaders as substandard care. Consequently, there remains a paucity of studies on outpatient PCNL. The purpose of this study is to challenge tradition by assessing the safety and efficacy of outpatient PCNL in two “early adopter” Canadian centres.

METHODS: A retrospective review of all outpatient PCNL cases between March 2007 and May 2013 at McGill and Queen’s Universities was performed, including collection of preoperative, intraoperative and postoperative data. Strict criteria were used in the selection of candidates for outpatient PCNL: ASA class 1 or 2; no intraoperative complications; minimal intraoperative bleeding; no collecting system perforation; no obvious residual stones; hemodynamically stable postoperatively; adequate pain control; reliable patient with supportive family.

RESULTS: Forty-five outpatient PCNL cases were performed, including 2 calyceal diverticula. All patients were discharged the same day, within hours of PCNL. No patients were admitted overnight in a 23/24-hour short stay ambulatory unit. With the exception of 1 of the calyceal diverticulum patients who received a nephrostomy, all PCNL cases were performed using a tubeless technique. Presently, complete follow-up is available on 42 of 45 patients, as follow up on the 3 most recent patients is pending. Five patients (11.9%) returned to the emergency room within the first 7 postoperative days. Three patients had flank pain/stent colic and were discharged and 2 patients (4.8%) were admitted – 1 with multiresistant E. coli and 1 with uncomplicated flank pain. Stone-free rate was 95.2% (40/42 patients). Importantly, there were no major complications or deaths.

CONCLUSIONS: This study represents the largest series to date of outpatient PCNL cases. In properly selected patients, outpatient PCNL is feasible. With a postoperative readmission rate of less than 5% and a stone-free rate of greater than 95%, outpatient PCNL appears to be safe and effective, respectively. Furthermore, same day discharge following PCNL could potentially add value to the healthcare system through significant cost savings. Prospective studies comparing standard PCNL to outpatient PCNL are warranted.

Source of Funding: none

MP04-13 ANTIMICROBIAL USAGE IN PERCUtANEOUS NEPHROLITHOTOMY: INFECTIOUS AND ANTI-BIOTIC RELATED COMPLICATIONS
Boyd Viern*, Amy Krambeck, Rochester, MN

INTRODUCTION AND OBJECTIVES: Approximately one-third of upper urinary tract stones harbor virulent microorganisms. Current guidelines recommend perioperative antimicrobial agents up to 24 hours at the time of percutaneous renal surgery to limit drug related adverse events. Our goal is to evaluate perioperative infectious and antibiotic associated complications in patients receiving extended antimicrobial therapy at percutaneous nephrolithotomy (PCNL).

METHODS: Between 2009 and 2012, 100 consecutive PCNL patients were prospectively followed. Preoperative urine culture and stone culture at PCNL were obtained. Positive urine or stone cultures received extended microbe directed therapy. All others received 1 week of empiric therapy pre and postoperatively. Antibiotic related adverse events and infectious outcomes were recorded.

RESULTS: There were 29 (31.9%) infected stones and 30 (30%) patients with positive preoperative urine cultures. Mean duration of preoperative antibiotic therapy was 10.9 and 14.9 days and postoperative therapy 10.5 and 57.3 days for sterile and infected stones, respectively. Pre, 51 (51%), 16 (16%), 16 (16%), and postoperatively 41 (41%), 13 (13%), 17 (17%) received Macrobid, Bactrim or Ciprofloxacin, respectively. Twenty-one (21%) patients had infectious complications including 10 (10%) on antibiotic therapy and 11 (11%) after therapy: 1 (1%) urosepsis, 4 (4%) SIRS, 0 (0%) C. diff colitis, 3 (3%) pneumonia, 8 (8%) UTI, 3 (3%) candidiasis and 2 (2%) other. There were 7 (7%) antibiotic associated complications: 3 (3%) drug rash, 2 (2%) facial swelling, 1 (1%) gastrointestinal upset and 1 (1%) shortness of breath. There was no significant difference in antibiotic or infectious related complications based on pre (P = 0.833 and 0.059) and postoperative (P = 0.852 and 0.066) type of therapy or pre (P = 0.330 and 0.134) and postoperative (P = 0.902 and 0.566) duration of therapy, respectively. Diabetic/immunocompromised (P = 0.356 and 0.923), infected stones (P = 0.676 and 0.516) and preoperative UTI (P = 0.218 and 0.347) were not significant predictors of infectious or antibiotic related complications, respectively.

CONCLUSIONS: Despite a prolonged course of antibiotic therapy, our data demonstrates a low rate of postoperative infection and antibiotic related complications in a high risk PCNL cohort. Choice of antibiotic therapy did not influence results. Furthermore no significant predictors of perioperative complications could be identified.

Source of Funding: none
**MP04-14 DESCRIPTION AND EVALUATION OF A NOVEL LASER-GUIDED PERCUTANEOUS ACCESS TECHNIQUE IN A BENCHTOP MODEL**

Jacob A Martin, Michael J Lee, Janna M Vassanachart, Gaudencio Olgin, Steven R Engebretsen, Gene O Huang, Michelle A Lightfoot*, Don C Arnold II, Jason C Smith, D Duane Baldwin, Loma Linda, CA

**INTRODUCTION AND OBJECTIVES:** The most commonly employed technique for percutaneous access prior to percutaneous nephrolithotomy (PCNL) utilizes continuous fluoroscopy and accounts for a substantial percentage of the procedural radiation exposure. In an attempt to minimize radiation dose during percutaneous access, we have developed a novel laser-guided technique. The purpose of this paper is to compare this technique to the conventional “bullseye” technique using a benchtop model.

**METHODS:** In the novel laser-guided technique, fluoroscopy was only used for selecting the skin site above the calyx with the C-arm rotated at 30° towards the operator. The access needle was placed so that the tip was at the site where the laser contacted the skin and the hub was in-line with the laser beam. The needle was inserted with tactile sensation to the appropriate depth, which was then confirmed with a pulse of fluoroscopy at 30° away from the operator. This novel technique was then compared to the conventional “bullseye” technique in a randomized controlled benchtop model. Eleven subjects of varying experience level obtained access into the upper, middle, or lower pole. Endpoints included: insertion time, puncture attempts, course corrections, fluoroscopy time, and a subjective procedural difficulty (1–10). Paired samples and the Wilcoxon Signed Rank Tests were used for statistical analysis with alpha set to 0.05.

**RESULTS:** A total of 66 attempts were recorded (33 conventional and 33 laser-guided) and all were successful. No statistical difference was seen between techniques in regard to insertion time (p = 0.509), puncture attempts (p = 0.705), or course corrections (p = 0.520). However, the novel laser technique displayed a significantly lower average fluoroscopy time (6.3 vs. 18.7 seconds; p < 0.001) and was rated as significantly easier to perform (2.8 vs. 4.4; p = 0.002).

**CONCLUSIONS:** This novel laser-guided technique for percutaneous access reduced radiation exposure by 66% and was significantly easier to perform and is therefore a promising new option for renal access.

**Source of Funding:** None

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**MP04-15 MULTICENTER VALIDATION OF S.T.O.N.E. NEPHROLITHOMETRY**


**INTRODUCTION AND OBJECTIVES:** The STONE nephrolithometry was previously developed as a stone complexity scoring system and prospectively validated in a single center percutaneous nephrolithotomy (PCNL) cohort. We sought to validate the nephrolithometry score in a multicenter database of patients undergoing PCNL.

**METHODS:** We performed a multicenter retrospective study of patients undergoing PCNL. Preoperative CT images were reviewed and STONE score was assigned to each patient. The association of STONE score with patient demographics, stone characteristics and surgical outcomes was performed.

**RESULTS:** Of the 425 patients who underwent PCNL in 4 institutions between 2009 and 2012, 197 (46%) had complete data and were included in the analysis. Patient demographics are provided in

**TABLE 1: Patient Demographics and Clinical Characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Native cohort N (%) or Mean (SD)</th>
<th>Residual stone N (%) or Mean (SD)</th>
<th>No residual stone N (%) or Mean (SD)</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td>197 (100)</td>
<td>61 (31)</td>
<td>136 (69)</td>
<td>0.450</td>
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<td>Age (years)</td>
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<td>54.2 (14.8)</td>
<td>56.1 (17.3)</td>
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<td>Gender:</td>
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<td></td>
<td></td>
<td>0.530</td>
</tr>
<tr>
<td>Male/ Female</td>
<td>97 (49)/100 (51)</td>
<td>28 (46)/33 (54)</td>
<td>60 (51)/67 (49)</td>
<td>0.726</td>
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<tr>
<td>BMI (kg/m2)</td>
<td>31.4 (8.5)</td>
<td>31.7 (8.3)</td>
<td>31.3 (8.3)</td>
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<tr>
<td>ASA Score</td>
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<tr>
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<td>Laterality Left/Right</td>
<td>198 (65/87)</td>
<td>33 (51)/28 (44)</td>
<td>75 (56)/59 (64)</td>
<td>0.807</td>
</tr>
<tr>
<td>Number of calyces</td>
<td>2.1 (1.4)</td>
<td>2.9 (1.8)</td>
<td>1.7 (1.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stone volume (cm3)</td>
<td>523.9 (606.6)</td>
<td>485.8 (811.4)</td>
<td>379.5 (606.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hydronephrosis: Absent/ Present</td>
<td>88 (50)/98 (50)</td>
<td>35 (41)/36 (50)</td>
<td>71 (54)/64 (46)</td>
<td>0.699</td>
</tr>
<tr>
<td>Density (Hounsfield)</td>
<td>467 (506)</td>
<td>479 (504)</td>
<td>463 (500)</td>
<td>0.875</td>
</tr>
<tr>
<td>Stone-stone distance (cm)</td>
<td>121.1 (32.8)</td>
<td>125.8 (37.4)</td>
<td>118.9 (29.7)</td>
<td>0.165</td>
</tr>
<tr>
<td>Number of punctures</td>
<td>1.3 (0.6)</td>
<td>1.4 (0.7)</td>
<td>1.3 (0.6)</td>
<td>0.554</td>
</tr>
<tr>
<td>Number of tracts</td>
<td>1.2 (0.6)</td>
<td>1.3 (0.8)</td>
<td>1.2 (0.8)</td>
<td>0.293</td>
</tr>
<tr>
<td>OR time (min)</td>
<td>100.0 (44.4)</td>
<td>122.8 (54.3)</td>
<td>88.7 (33.8)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fluoroscopy time (sec)</td>
<td>776.4 (756.8)</td>
<td>955.3 (937.6)</td>
<td>691.3 (2421.5)</td>
<td>0.547</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>3.4 (3.8)</td>
<td>3.7 (2.8)</td>
<td>3.3 (3.1)</td>
<td>0.432</td>
</tr>
</tbody>
</table>

**TABLE 2: Association of STONE Nephrolithometry Score and PCNL Outcomes**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>OR or Coefficient</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone-free rate</td>
<td>OR = 0.60</td>
<td>0.45-0.72</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>OR = 1.32</td>
<td>1.06-1.66</td>
<td>0.015</td>
</tr>
<tr>
<td>Postoperative fever</td>
<td>OR = 1.10</td>
<td>0.72-1.69</td>
<td>0.657</td>
</tr>
<tr>
<td>Postoperative sepsis</td>
<td>OR = 1.24</td>
<td>0.72-1.80</td>
<td>0.579</td>
</tr>
<tr>
<td>Transfusion</td>
<td>OR = 1.03</td>
<td>0.78-1.37</td>
<td>0.829</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>Coefficient = 0.19</td>
<td>-0.36-0.42</td>
<td>0.097</td>
</tr>
<tr>
<td>OR time (min)</td>
<td>Coefficient = 10.5</td>
<td>7.3-13.7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fluoroscopy time (sec)</td>
<td>Coefficient = 264.0</td>
<td>49.5-478.4</td>
<td>0.016</td>
</tr>
<tr>
<td>Estimated blood loss (ml)</td>
<td>Coefficient = 23.1</td>
<td>7.4-26.2</td>
<td>0.003</td>
</tr>
</tbody>
</table>
Table 1. The mean overall nephrolithotomy score was 8.3 (SD = 1.8). Overall stone-free rate after was 69%. STONE score was significantly associated with postoperative stone-free status ($P < 0.001$). Stone-free patients had statistically significant lower STONE scores than patients with residual stones (mean STONE score = 7.8 vs. 9.4, respectively; $P < 0.001$). There were 29 (17%) complications including postoperative sepsis and bleeding, the most frequent ones. STONE score was significantly associated with overall complication rate ($P = 0.015$), estimated blood loss ($P = 0.003$), operative time ($P < 0.001$), and fluoroscopy time ($P = 0.016$, Table 2).

CONCLUSIONS: In a multicenter study including data from multiple surgeons, STONE nephrolithometry accurately predicted surgical outcomes following PCNL, including stone-free rate and complications. The easy-to-use STONE scoring system obtained from computed tomography imaging may be utilized in preoperative patient counseling, surgical planning, and as a standardized measure to evaluate surgical outcomes across different studies and institutions.

Source of Funding: none

MP04-16 GUY’S STONE SCORE: PREDICTING OUTCOMES AND COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY

Fabio C. Vicentini, Giovanni S. Marchini*, Eduardo Mazzucchelli, Joaquim F. A. Claro, Miguel Srougi, São Paulo, Brazil

INTRODUCTION AND OBJECTIVES: We classified renal stones treated with percutaneous nephrolithotomy (PCNL) according to the Guy’s stone score (G) in order to determine if this system is associated with surgical outcomes and complications. METHODS: A total of 147 consecutive patients (155 renal units) who underwent PCNL in a complete supine position from 2008 to 2012 were prospectively evaluated. A single experienced surgeon (FCV) performed all procedures in two institutions. All patients underwent a non-contrast computed tomography (NCCT) preoperatively; kidney calculi were classified according to the Guy’s score. Surgical complications were graded according to Clavien criteria. Success rate was evaluated based on NCCT findings (defined as fragments $< 4$ mm) on PO day 1 (immediate) and on last follow-up visit (final). One-way analysis of Variance (ANOVA) was used to compare numeric variables; Chi-square/Fisher exact test was used for categorical variables. Significance was set at $p < 0.05$.

RESULTS: Of the 155 PCNL, 27% (42) were classified as G1, 28.4% (44) as G2, 27% (43) as G3 and 17.6% (27) as G4. Demographic data was similar among groups, with the exception of stone diameter (G1-21.4 mm, G2-26.5 mm, G3-31.4 mm and G4-50.5 mm; $p < 0.001$). After stratification according to the Guy’s stone score, groups were statistically different regarding operative time (Mean ± SD - G1 = 63 ± 28.5, G2 = 101.4 ± 40.8, G3 = 127.6 ± 47.6 and G4 = 153.3 ± 56 min; $p < 0.001$), tubeless rate (G1 = 54.8%, G2 = 45.4%, G3 = 28.6% and G4 = 7.4%; $p < 0.001$), blood transfusion rate (G1 = 0%, G2 = 2.3%, G3 = 4.8% and G4 = 22.2%; $p = 0.01$), complications (G1 = 4.8%, G2 = 9.1%, G3 = 26.2% and G4 = 44.4%; $p < 0.001$), immediate success rate (G1 = 95.2%, G2 = 79.5%, G3 = 59.5% and G4 = 40.7%; $p < 0.001$) and auxiliary procedures (G1 = 0.05 ± 0.32, G2 = 0.28 ± 0.6, G3 = 0.35 ± 0.66 and G4 = 0.43 ± 0.59; $p = 0.031$) (Table 1). The final success rate after auxiliary procedures was similar among the groups (G1 = 97.6%, G2 = 86.4%, G3 = 90.5% and G4 = 74.5%, $p = 0.19$).

CONCLUSIONS: The Guy’s stone score accurately predicts success rates and complications following PCNL for large renal stones. The score is effortless to be applied and should be incorporated to routine PCNL planning.

Source of Funding: None

MP04-17 PREVALENCE OF MULTIDRUG RESISTANT BACTERURIA IN PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY

Omer Raheem*, San Diego, PA, William Shi, San Diego, CA, Craig Schallhorn, Lindsay Kiyawa, David Wenzler, Charles Lakin, Roger Sur, San Diego, CA

INTRODUCTION AND OBJECTIVES: American Urological Association (AUA) Best Practice Statement exist to minimize infectious complications from percutaneous nephrolithotomy (PCNL). However, multidrug resistance bacteruria (MDR bacteruria) is becoming an evolving problem in patients undergoing PCNL and contribute to significant co-morbidity at our institution.

We sought to document the prevalence of MDR bacteruria in patients whom underwent PCNL at our institution.

METHODS: We retrospectively reviewed all subjects who underwent PCNL in 2011 performed by single surgeon (RLS). A detailed analysis of patients’ preoperative and postoperative urine cultures, microbial resistances and antibiotics treatment was performed. Multi-drug resistance was defined as resistance to three or more of the AUA Best Practice Statement antimicrobial treatment for PCNL.*

RESULTS: A total of 27 PCNL subjects were analyzed with 15 males and median age 50. Ten (37%) subjects developed MDR bacteruria (9 pre op MDR and 3 post op MDR). There was a total of 21 different type of MDR pathogens. The most common MDR pathogens were E. Coli (6/21, 29%), Proteus Mirabilis (2/21, 10%) and coagulase negative Staphylococcus (2/21, 10%). 7/9 preoperative MDR patients did not develop MDR bacteruria post-

operatively. One patient without pre-operative MDR bacteruria developed MDR bacteruria post-operatively. Ciprofloxacin resistance was noted in all MDR patients. CONCLUSIONS: This study demonstrates the relatively high prevalence of MDR bacteruria in our PCNL population. It reinforces the need for identification of pre-operative bacteruria as well as the appropriate management of the bacteruria. Resistance to common antimicrobials is a serious concern for the kidney stone population and warrants further investigations.

Source of Funding: None.

**MP04-18 IMPACT OF PERIOPERATIVE ANTI-COAGULATION ON INCIDENCE OF BLEEDING COMPLICATIONS IN PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY**

Elizabeth Johnson, Lebanon, NH, Seth Bechis*, Sameer Deshmukh, Boston, MA, Paholo Barborgio-Romo, Lebanon, NH, Brian Eisner, Boston, MA, Vernon Pais, Lebanon, NH

**INTRODUCTION AND OBJECTIVES:** Percutaneous nephrolithotomy (PCNL) is often the best treatment option for patients with large renal stones. Many patients have comorbid conditions or new postoperative conditions that require anticoagulant therapy.

**METHODS:** Charts of consecutive patients who underwent PCNL at 2 tertiary centers were reviewed. Information was collected on stone size and characteristics, number and location of percutaneous accesses, duration of procedure, length of stay, anticoagulant regimen (agent, time held pre- and post-op), and occurrence of bleeding complications (defined as requiring transfusion or intervention for bleeding).

**RESULTS:** A total of 278 patients underwent PCNL at the 2 institutions. Of those, 224 did not receive anticoagulation in the perioperative period and 54 received aspirin, clopidogrel, heparin, enoxaparin, or warfarin. Timing of cessation of anticoagulant therapy.

**CONCLUSIONS:** The incidence of bleeding complications compared to the non-anticoagulated patients. Of 3 patients who received therapeutic doses of anticoagulation on postoperative day #1 or in patients continued on therapy throughout their surgery. When aspirin was held preoperatively, there was no increased risk of bleeding complications compared to the non-anticoagulated patients.

Source of Funding: None

**MP04-19 SEOUL NATIONAL UNIVERSITY RENAL STONE COMPLEXITY SCORE FOR PREDICTING STONE-FREE RATE AFTER PERCUTANEOUS NEPHROLITHOTOMY**

Min Soo Choo*, Chang Wook Jeong, Seoul, Korea, Republic of, Jin-Woo Jung, Byung Ki Lee, Yong Hyun Park, Sangchul Lee, Seong Jin Jeong, Seok-Soo Byun, Sang Eun Lee, Seongnam, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** Currently, no standardized method is available to predict success rate after percutaneous nephrolithotomy. We devised and validated the Seoul National University Renal Stone Complexity (S-ReSC) scoring system for predicting the stone-free rate after single-tract percutaneous nephrolithotomy (sPCNL).

**METHODS:** The data of 155 consecutive patients who underwent sPCNL were retrospectively analyzed. Preoperative computed tomography images were reviewed. The S-ReSC score was assigned from 1 to 9 based on the number of sites involved in the renal pelvis (#1), superior and inferior major calyceal groups (#2–3), and anterior and posterior minor calyceal groups of the superior (#4–5), middle (#6–7), and inferior calyx (#8–9) (Fig. 1). The inter- and intra-observer agreements were assessed using the weighted kappa (κ). The stone-free rate and complication rate were evaluated according to the S-ReSC score. The predictive accuracy of the S-ReSC score was assessed using the area under the receiver operating characteristic curve (AUC).

**RESULTS:** The overall SFR was 72.3%. The mean S-ReSC score was 3.15 ± 2.1. The weighted kappas for the inter- and intra-observer agreements were 0.832 and 0.982, respectively. The SFRs in low (1 and 2), medium (3 and 4), and high (5 or higher) S-ReSC scores were 96.0%, 69.0%, and 28.9%, respectively (p < 0.001). The predictive accuracy was very high (AUC 0.860). After adjusting for other variables, the S-ReSC score was still a significant predictor of the SFR by multiple logistic regression. The complication rates were increased to low (18.7%), medium (28.6%), and high (34.2%) (p = 0.166).

**CONCLUSIONS:** The S-ReSC scoring system is easy to use and reproducible. This score accurately predicts the stone-free rate after sPCNL. Furthermore, this score represents the complexity of surgery.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) is traditionally followed by placement of a nephrostomy tube. Recently, tubeless approaches have been gaining popularity. All are based on the surgeon’s assessment that the patient is stone-free and secondary PCNL is not required. However, the accuracy of the surgeon’s estimation has hardly been investigated. The aim of this prospective study was to compare the surgeon’s estimation at the end of surgery to the postoperative imaging findings.

METHODS: Data of 100 consecutive PCNL procedures was collected from prospective database. The surgeon’s estimation of the stone free status (stone free, insignificant fragment <3 mm, residual stone >3 mm), based on fluoroscopy and routine flexible nephroscopy, was registered at the end of the procedure. In-hospital imaging studies, including abdominal radiographs (KUB) and nephrostograms for calcified stones or non-contrast computed tomography (NCCT) scans for radiolucent stone, as well as follow-up studies (ultrasound and KUB), were analyzed by a senior radiologist blinded to the patient data. The surgeon’s estimation and the radiologist’s interpretation were compared.

RESULTS: The clinical and demographic data are presented in table 1.

The surgeon’s estimation of the stone-free status and the imaging results for the PCNL procedures are shown in table 2.

Complete imaging data were available for 96 cases. In 16 patients (16.7%) the surgeon did not recognize significant residual stone. Multivariate analysis comparing the group in which the surgeon estimation was accurate with the group in which a residual stone was missed, did not yield any predictive parameters. The sensitivity and specificity of the surgeon’s estimation of stone-free status are 98.6% and 27.3% respectively. The Accuracy was calculated to be 82.3%.

CONCLUSIONS: Despite the use of flexible nephroscopy and fluoroscopy at the end of PCNL the surgeon can still miss some clinically significant residual stones. This should be discussed with the patient when a tubeless approach is considered.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: The overall incidence of infectious complications of percutaneous nephrolithotomy (PNT) gets to 33%, being urosepsis at the same time rare (<1%) and encumbered by elevated mortality rates (80%). The prevention of infectious complications and the early postoperative identification of a septic condition is thus crucial in the clinical management of such patients. Therefore we defined a multimodal protocol for the maximal prevention of infectious complications of percutaneous surgery.

METHODS: All patients who underwent PNT for urolithiasis from 04/2011 to 04/2013 strictly followed the following protocol: 1) Preoperative preparation: negative urine culture; preoperative correction of risk factors for infectious complications. 2) Intraoperative management: wide spectrum intravenous antibiotic prophylaxis just before PNT (second generation cephalosporin and amikacin, adequate for weight and renal function), continued for 24 hours; forced diuresis; urine culture from upper urinary tract; maintenance of low intrarenal pressures using nephroscopes 4 Fr less than the Amplatz sheath diameter; no pressurized irrigation; limited use of elevated irrigation bags; maximum two hours of surgery (one in children); interruption of the procedure if purulent urines exit after puncture (pyelostomy application, specific antibiotic therapy for 7–14 days, new date for PNT). 3) Postoperative follow up: monitoring of vital parameters, diuresis, with blood count and coagulation tests 1 and 6 hours after PNT. In case of fever: dosage of procalcitonin, blood cultures; antibiotic prophylaxis becomes wide spectrum therapy, forced diuresis, abundant hydration.

RESULTS: In our 113 patients (57 males, 56 females, range of age 19 months –83 years; ASA score 1 40%, 2 55%, 3 5%; 25% obese/morbidly obese) there were no urosepsis (0%); 6 transient fevers (maximum 38°C) during the first 48 hours after PNT (5.3%), only 3 (2.6%) with elevated procalcitonin, leukocytosis, positive blood cultures (same infection of the urine culture from the renal puncture), promptly regressed with the above mentioned measures and modified antibiotic therapy.
CONCLUSIONS: Preoperative identification and correction of predisposing risk factors, maximal intraoperative reduction of pyelovenous/tubular/lymphatic reflux, a valid antibiotic prophylaxis and the early identification of a postoperative septic condition are fundamental in order to limit infectious complications of PNL.

Source of Funding: None

MP04-22 RETROSPECTIVE REVIEW OF THORACIC COMPLICATIONS FOLLOWING PERCUTANEOUS NEPHROLITHOTOMY PROCEDURES

Deirdre Connolly*, Joseph Caputo, Justina Tam, Crista Cerrone, Jonathan Melquist, Kevin Gioia, David Schulsinger, Stony Brook, NY

INTRODUCTION AND OBJECTIVES: Percutaneous renal access is commonly utilized for the treatment of calculi (PCNL) as well as ureteropelvic junction obstruction (endopyelotomy). While it is generally regarded as a safe procedure in experienced hands, the risk of thoracic complication is well known. Nevertheless, risk factors of such an event are little described in the literature. We present a single center experience over 5 years.

METHODS: We retrospectively reviewed the charts of 250 cases of percutaneous nephroscopy for stone extraction or endopyelotomy at a single academic center from 2007 to 2012. Percutaneous access was gained by interventional radiologists typically one day prior to percutaneous nephroscopy using traditional methods. Thoracic complications were defined as a hydro-, hemo- or pneumothorax or pleural effusion. Pre- and post-operative chest radiographs (CXR) were reviewed. A non-contrast CT of the chest was performed in all patients with suspicious post-operative CXR. Patients were stratified according to Clavien Grading System.

RESULTS: A total of 14 of 250 (5.6%) patients developed Clavien Grade III/IV effusion requiring surgical drainage (tube thoracostomy or thoracentesis). 39 patients were found to have effusions requiring no intervention (Clavien Grade I/II). Various risk factors were associated with the development of Clavien grade III and IV effusions. Statistically-significant positive correlations include: non-obesity, staghorn calculus, struvite stone composition, additional intra-operative attempts at access, and supra-costal approach (above 12th rib).

CONCLUSIONS: Significant thoracic complications (Clavien grade III/IV) requiring intervention with surgical drainage occurred 5.6% of the time, which is consistent with current literature. There were several factors associated with this adverse event. The risk of pleural violation increased with higher levels of intercostal access, however, there was no association with the renal polar approach (upper-, mid-, lower-pole) in our data set.

Source of Funding: None

MP04-23 EXPERIENCE WITH ‘ULTRA-MINI’ PCNL

Madhu Agrawal*, Agra, India

INTRODUCTION AND OBJECTIVES: Recent years have seen a steady search for ways to reduce the morbidity and invasiveness of PCNL, including attempts at reducing the size of the tract. We present our experience of ‘Ultra-mini’ PCNL using sheath of size 11 F.

METHODS: From July 2012 to April 2013, 20 patients with single and simple kidney stone, size between 0.8–1.2 cm, underwent PCNL using a novel device named ‘Ultra-mini’ PCNL system. This system uses a 1 mm (3 F) telescope, 7.5 F nephroscope inner sheath and 11 F cannula, in lieu of Amplatz sheath (Fig 1). Patients with anatomical defects, history of previous surgery, or untreated urinary infection were excluded. Stone fragmentation was done with Holmium laser (Lumenis) using a 365 micron end-firing optical fiber, using laser power up to 30 W (1.5 J/pulse, 20 pulses/sec). All procedures were done as ‘tubeless’ PCNL, leaving only a ureteric catheter indwelling till next morning. Factors evaluated included operating time, stone clearance rates,
postoperative pain & analgesia requirement, morbidity, hospital stay, and time to recovery.

**RESULTS:** 18 out of 20 patients had complete fragmentation of stone on operation table with the ‘Ultra-mini’ PCNL, while 2 patients required conversion to ‘Mini-PCNL’ using 12.5 F nephroscope and 15F Amplatz sheath. The mean operating time was 28 $\pm$ 11.2 minutes. All patients had complete clearance confirmed by post-operative plain X-ray and non-contrast CT scan done at 2 weeks postoperatively. Postoperative pain and analgesia requirement in these patients was minimal. In the first 24 hours postoperatively, the mean analgesia requirement of tramadol was 48.4 mg as compared to 81.3 mg in historic controls. There was no significant blood loss and no postoperative infections in any of the patients. Most patients were discharged from the hospital on the first post-operative day, the average hospital stay being 22.4 $\pm$ 3.7 hours. Majority of patients reported back to work within 5–7 days. There were no significant late complications in the short follow up.

**CONCLUSIONS:** The initial results of ‘Ultra-mini’ PCNL demonstrate the feasibility and efficacy of a minimally invasive approach to percutaneous renal stone removal in a carefully selected stone population.

**Source of Funding:** none

**MP04-24 EFFECTS OF SEMI-FLANK POSITION PERCUTANEOUS NEPHROLITHOTOMY: COMPARISON WITH PRONE POSITION PROCEDURE**

Jae Young Choi*, Bum Soo Kim, Jun Nyung Lee, Se Yun Kwon, Hyun Tae Kim, Tae-Hwan Kim, Eun Sang Yoo, Tae Gyun Kwon, Sung Kwang Chung, Bup Wan Kim, Yoon Kyu Park, Jae Soo Kim, Daegu, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** Percutaneous nephrolithotomy (PCNL) has been traditionally performed in the prone position which increases the anesthesia-related cardiopulmonary complications and the position changes during operation lengthen the operation time. Recently, supine and flank PCNL has been performed, but there were some disadvantages. We analyzed perioperative outcomes of PCNL performed in semi-flank position and compared with prone position PCNL.

**METHODS:** Between January 2011 and June 2012, 100 patients with renal stones who underwent PCNL were retrospectively enrolled in this study. Of 100 patients, 24 patients underwent semi-flank PCNL and 76 patients underwent prone position PCNL. All surgeries were performed by a single surgeon via a single nephrostomy tract. All patients performed preoperative CT, and the size of stone was calculated as the sum of the all areas of the whole stone shown in the CT. The stone free were defined as no remnant stone or remnant stones less than 4 mm without symptom at 4 weeks after operation. We considered bleeding as a complication when the transfusion is necessary. Urine leakage was considered as a complication when urine leakage continued after removing of nephrostomy catheter and ureteral stenting was needed. We compared operation time, blood loss, hospitalization, complication and the stone free rate between semi-flank and prone PCNL groups.

**RESULTS:** Patients demographic and preoperative characteristics were not significantly different between the two groups. Although stone free rate and overall complication rate were not statistically different, hospital stay was significantly decreased in semi-flank PCNL group compared to prone position PCNL group (Table 1).

**CONCLUSIONS:** This study demonstrated that semi-flank PCNL can be performed safely and effectively while maintaining the advantages of prone position PCNL. Semi-flank PCNL can be expected to reduce cardio-pulmonary burden during operation and induce faster recovery.

**Source of Funding:** none

**MP04-25 A LOW-CALIBER PERCUTANEOUS NEPHROLITHOTOMY SYSTEM (MICROPERC) FOR THE TREATMENT OF KIDNEY STONES**

Ugur Boylu*, Cem Basatac, Abdurrahman Inkaya, Fikret Fatih Onol, Eyup Gumus, Istanbul, Turkey

**Table 1. Comparison of Characteristics and Surgical Outcomes Between Semi-Flank and Prone Position PCNL Groups**

<table>
<thead>
<tr>
<th></th>
<th>Semi-flank (n=24)</th>
<th>Prone (n=76)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>51.3 (36-79)</td>
<td>49.6 (22-75)</td>
<td>0.522</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>16/8</td>
<td>45/33</td>
<td>0.385</td>
</tr>
<tr>
<td>Stone type (%)</td>
<td></td>
<td></td>
<td>0.267</td>
</tr>
<tr>
<td>Complete Staghorn</td>
<td>3 (12.5)</td>
<td>18 (23.6)</td>
<td></td>
</tr>
<tr>
<td>Partial Staghorn</td>
<td>6 (25.0)</td>
<td>20 (26.3)</td>
<td></td>
</tr>
<tr>
<td>Renal pelvis</td>
<td>3 (12.5)</td>
<td>16 (21.3)</td>
<td></td>
</tr>
<tr>
<td>Calyx</td>
<td>12 (50.0)</td>
<td>15 (19.8)</td>
<td></td>
</tr>
<tr>
<td>Upper ureter</td>
<td>0 (0.0)</td>
<td>7 (9.1)</td>
<td></td>
</tr>
<tr>
<td>Stone size (mm2)</td>
<td>300.0±288.8</td>
<td>323.3±231.0</td>
<td>0.244</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>23.5±3.7</td>
<td>24.2±2.8</td>
<td>0.402</td>
</tr>
<tr>
<td>Laterality (%)</td>
<td></td>
<td></td>
<td>0.187</td>
</tr>
<tr>
<td>Right</td>
<td>12 (50.0)</td>
<td>37 (48.7)</td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>12 (50.0)</td>
<td>39 (51.3)</td>
<td></td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>9.0±4.2</td>
<td>11.3±5.9</td>
<td>0.017</td>
</tr>
<tr>
<td>Operative time (min)</td>
<td>90.2±34.2</td>
<td>105.6±38.8</td>
<td>0.167</td>
</tr>
<tr>
<td>Stone-free rate (%)</td>
<td>17 (70.8)</td>
<td>49 (64.5)</td>
<td>0.565</td>
</tr>
<tr>
<td>Estimated blood loss (ml)</td>
<td>515.8±334.6</td>
<td>502.2±319.2</td>
<td>0.822</td>
</tr>
<tr>
<td>Complication (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bleeding</td>
<td>4 (16.7)</td>
<td>7 (9.2)</td>
<td>0.314</td>
</tr>
<tr>
<td>Acute pyelonephritis</td>
<td>1 (4.2)</td>
<td>5 (6.6)</td>
<td>0.688</td>
</tr>
<tr>
<td>Urine leakage</td>
<td>2 (8.3)</td>
<td>9 (11.8)</td>
<td>0.636</td>
</tr>
<tr>
<td>Pulmonary comp.</td>
<td>2 (8.3)</td>
<td>10 (13.2)</td>
<td>0.531</td>
</tr>
<tr>
<td>Cardiac comp.</td>
<td>1 (4.2)</td>
<td>5 (6.6)</td>
<td>0.668</td>
</tr>
<tr>
<td>Others*</td>
<td>2 (8.3)</td>
<td>5 (6.6)</td>
<td>0.668</td>
</tr>
<tr>
<td>Stone composition (%)</td>
<td></td>
<td></td>
<td>0.889</td>
</tr>
<tr>
<td>Calcium carbonate</td>
<td>10 (41.7)</td>
<td>34 (44.7)</td>
<td></td>
</tr>
<tr>
<td>Calcium phosphate</td>
<td>6 (25.0)</td>
<td>13 (17.3)</td>
<td></td>
</tr>
<tr>
<td>Struvite</td>
<td>3 (12.5)</td>
<td>7 (9.1)</td>
<td></td>
</tr>
<tr>
<td>Uric acid</td>
<td>5 (20.8)</td>
<td>20 (16.3)</td>
<td></td>
</tr>
<tr>
<td>Cystine</td>
<td>0 (0.0)</td>
<td>2 (2.6)</td>
<td></td>
</tr>
</tbody>
</table>

BMI: body mass index, Others*: Paralytic ileus (5), Ureter injury (1), Ureter stricture (3).
INTRODUCTION AND OBJECTIVES: To evaluate the initial surgical outcomes of percutaneous nephrolithotomy using a novel 4.8 F low-caliber percutaneous nephrolithotomy system with a matching fiberoptic telescope.

METHODS: Between January 2012 and June 2012, 10 patients who underwent percutaneous nephrolithotomy using a low-caliber percutaneous nephrolithotomy system were included in this study. Data including patient demographics, operative time, fluoroscopy time, blood loss, length of hospital stay, analgesic requirements were recorded prospectively. All complications were graded according to modified Clavien-Dindo classification system.

RESULTS: The mean age and body mass index were 37 years and 26.3 ± 2.2 kg/m². The mean stone size was 16 ± 3.5 mm (range = 11–22). All access tracts were achieved using this system. The mean operation time was 99 ± 30 min and the mean fluoroscopy time was 0.8 ± 0.3 min. The mean decline in hematocrit was 1.1% ± 0.3 and only one patient had analgesic requirement. The mean length of hospital stay was 1.6 ± 0.8 days. None of the patients have postoperative nephrostomy tube. No complication has occurred intraoperatively. However, ureterorenoscopy and JJ stent placement was performed in one patient at postoperative day one due to an obstructing proximal ureteral stone. The stone free rate was %90.

CONCLUSIONS: With an acceptable stone-free rate and very low morbidity, Microperc is a safe and effective treatment modality in select patients with kidney stones.

Source of Funding: None

MP04-26 COMPLICATIONS OF PCNL ACCORDING TO MODIFIED CLAVIEN-DINDO SYSTEM

Guido Giusti*, Silvia Proietti, Roberto Peschechera, Davide Giraudo, Gianluigi Taverna, Pierpaolo Grazioti, Rozzano (MI), Italy

INTRODUCTION AND OBJECTIVES: According to EAU Guidelines, PCNL represents the first line approach for renal stones larger than 2 cm of diameter. It is a safe and effective procedure with relatively low rate of specific complications. Recently, CROES has reclassified the complications of PCNL according to Dindo-modified Clavien system, improving reliability in reporting adverse events related to the procedure. Aim of this retrospective study was to classify the complications of our series of PCNL according to this new validation of Clavien-Dindo system.

METHODS: From June 1999, 619 PCNL have been performed, 344 in prone position while the remaining 275 in supine position. Among them, 251 have been carried out in tubeless fashion. Demographic and stone characteristics are shown in Table 1.

RESULTS: Complications reclassified according to Dindo-modified Clavien system are reported in Table 2.

CONCLUSIONS: In our study, complications classified according to Clavien-Dindo system and CROES validation are similar to those reported in literature. There are no statistical differences between the two positions. This classification enables comparison of PCNL outcomes in the same center and among different institutions, providing undeniable scientific advantages for all urological community. Moreover, the assignment of complications according to Clavien score system standardizes and improves the reliability of reporting of adverse outcomes of PCNL.

Source of Funding: None.

| Source of Funding: None |

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Supine PCNL</th>
<th>Prone PCNL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N° of patients</td>
<td>275</td>
<td>344</td>
</tr>
<tr>
<td>Mean age (yrs)</td>
<td>49.7 (19–77)</td>
<td>50.9 (23–71)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>26.9 (21–30)</td>
<td>25.1 (22–29)</td>
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<tr>
<td>Stone burden (cm²)</td>
<td>6.1 (2.1–17.0)</td>
<td>5.9 (2.2–23.2)</td>
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</table>

Table 2

<table>
<thead>
<tr>
<th>Clavien score</th>
<th>Supine PCNL</th>
<th>Prone PCNL</th>
<th>p</th>
<th>Total PCNL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 0</td>
<td>227 (78.6%)</td>
<td>203 (76.6%)</td>
<td>p=NS</td>
<td>430 (76.5%)</td>
</tr>
<tr>
<td>Grade I</td>
<td>31 (11.3%)</td>
<td>46 (15.9%)</td>
<td>p=NS</td>
<td>77 (13.5%)</td>
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<tr>
<td>Grade II</td>
<td>10 (3.6%)</td>
<td>13 (3.8%)</td>
<td>p=NS</td>
<td>23 (3.7%)</td>
</tr>
<tr>
<td>Grade IIIA</td>
<td>9 (3.2%)</td>
<td>11 (3.8%)</td>
<td>p=NS</td>
<td>20 (3.2%)</td>
</tr>
<tr>
<td>Grade IIIB</td>
<td>7 (2.5%)</td>
<td>5 (1.9%)</td>
<td>p=NS</td>
<td>12 (2.0%)</td>
</tr>
<tr>
<td>Grade IVa</td>
<td>1 (0.4%)</td>
<td>2 (0.6%)</td>
<td>p=NS</td>
<td>3 (0.5%)</td>
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<tr>
<td>Grade IVb</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Grade V</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
14.6% positive predictive value, 100% negative predictive value for the detection of nodal metastasis [Table 1].

CONCLUSIONS: Fluorescence-enhanced robotic radical prostatectomy utilizing percutaneous injection of ICG is safe, feasible, and allows for identification of sentinel lymphatic drainage in the majority of patients with high sensitivity for detection of nodal metastasis.

Source of Funding: none

MP05-02 A NOVEL APPROACH FOR THE TREATMENT OF RADIATION-INDUCED HEMORRHAGIC CYSTITIS WITH THE GREENLIGHT XCELERATED PERFORMANCE SYSTEM (XPS) LASER: A LITERATURE REVIEW AND CASE SERIES

Daniel Martinez*, Cesar Ercole, Justin Parker, Bryan Allen, Mary K. Hall, Tampa, FL

INTRODUCTION AND OBJECTIVES: The treatment of pelvic malignancies with radiotherapy can develop severe sequelae, especially radiation-induced hemorrhagic cystitis. It is a progressive disease that can lead to the need for hospitalizations and surgical interventions. Historically, treatments have included bladder irrigation with clot evacuation and fulguration with electrocautery, oral and intravesical agents, hyperbaric oxygen, and ultimately cystectomy with urinary diversion. These treatments have been successful to varying degrees. We evaluated the role of the GreenLight XPS with TruCoag in the treatment of radiation-induced hemorrhagic cystitis.

METHODS: After Institutional Review Board (IRB) approval, a retrospective chart review from January 2010 to January 2012 was performed, and an extensive PubMed literature search, and cross reference of pertinent citations; no manuscript was identified regarding the usage of the GreenLight laser for the treatment of hemorrhagic cystitis. Our series consists of four male patients, mean age of 81 years, with hemorrhagic cystitis secondary to receiving radiotherapy (>10 years ago) for pelvic malignancies (3 prostate cancer, 1 rectal cancer). All four were treated with the GreenLight laser after unsuccessful treatment with current therapies described.

RESULTS: All four patients treated with the GreenLight laser had resolution of their hematuria after one treatment and were discharged from the hospital with clear urine. At current follow-up, none of the four have had a recurrent episode of hematuria.

CONCLUSIONS: After a thorough review of the literature no manuscripts could be found describing the usage of the GreenLight laser for the treatment of hemorrhagic cystitis. In our limited case series, we have demonstrated that in the fight against such a devastating condition Urologist now have another treatment modality added to its armamentarium. The GreenLight XPS laser shows promising results for the treatment of patients with radiation-induced hemorrhagic cystitis, and deserves further evaluation and validation, especially since there is limited data available in the literature regarding the use of this technology for the treatment of other conditions besides benign prostatic hypertrophy.

Source of Funding: none

MP05-03 NATURAL HISTORY OF SMALL INDEX LESIONS IDENTIFIED ON MULTIPARAMETRIC PROSTATE MRI: RECOMMENDATIONS FOR INTERVAL IMAGING FOLLOW-UP

Soroush Rais-Bahrami*, Baris Turkbey, Arshedz Hosein, Annerlein Walton-Diaz, Anthony Hoang, M. Minhaj Siddiqui, Lambros Stamatakis, Hong Truong, Jeffrey Nix, Srinivas Yougantia, Kirzya Grant, Maria Merino, Bradford Wood, Peter Choyke, Peter Pinto, Bethesda, MD

INTRODUCTION AND OBJECTIVES: To determine the natural history of small index lesions identified on multiparametric prostate MRI (MP-MRI) by evaluating lesion-specific pathology and interval growth on serial MP-MRI.

METHODS: Retrospective review of 153 patients who underwent a minimum of two MP-MRI sessions on an IRB approved protocol was performed. MRI index lesions are defined as the lesion(s) with the highest MP-MRI-assigned cancer suspicion score in an individual patient on initial MP-MRI irrespective of size. Two study cohorts of patients were identified: (1) patients with no MRI index lesion or index lesion(s) ≤7 mm and (2) a subset with no index lesion or index lesion(s) ≤5 mm. Index lesions underwent MR/US fusion-guided biopsy and lesion-specific pathology was analyzed. Lesional growth rates were calculated based upon MP-MRI follow-up.

RESULTS: Patients with small MP-MRI index lesions measuring up to 7 mm or a subset with lesions up to 5 mm demonstrated either benign findings (86.2 and 87.5%, respectively) or low grade Gleason 6 PCa (13.8% and 12.5%, respectively) on lesion-specific
targeted biopsies. These lesions demonstrated no significant change in size ($p=0.93$ and $p=0.36$) over a mean total imaging interval of $2.31 \pm 1.56$ and $2.40 \pm 1.77$ years for $\leq 7\text{mm}$ and $\leq 5\text{mm}$ index lesion thresholds, respectively (Table 1). These findings held true on subset analyses of patients who had a minimum of 2 year interval follow-up with MP-MRI (Table 2).

CONCLUSIONS: Patients with small MRI index lesions of the prostate are pathologically benign or occasionally low-grade cancers. Slow growth rates of these small index lesions on serial MP-MRI suggest a surveillance interval of at least 2 years without significant change.

Source of Funding: This research was supported by the Intramural Research Program of the National Institutes of Health, National Cancer Institute, Center for Cancer Research.

### Table 1. Interval Change Noted in Index Lesions on Serial MP-MRI Studies for all Patients with Small Index Lesions and Multiple MP-MRI Sessions

<table>
<thead>
<tr>
<th>Index Lesion Size</th>
<th>$\leq 7\text{mm}$ Index Lesion(s)</th>
<th>$\leq 5\text{mm}$ Index Lesion(s)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients, n</td>
<td>42</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>Number of Index Lesions, n</td>
<td>58</td>
<td>-</td>
<td>24</td>
</tr>
</tbody>
</table>

CONCLUSIONS: Patients with small MRI index lesions of the prostate are pathologically benign or occasionally low-grade cancers. Slow growth rates of these small index lesions on serial MP-MRI suggest a surveillance interval of at least 2 years without significant change.

### Table 2. Interval Change Noted in Index Lesions on Serial MP-MRI Studies for all Patients with Small Index Lesions and Multiple MP-MRI Sessions with Imaging Spanning a Minimum 2 year Interval

<table>
<thead>
<tr>
<th>Index Lesion Size</th>
<th>$\leq 7\text{mm}$ Index Lesion(s)</th>
<th>$\leq 5\text{mm}$ Index Lesion(s)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients, n</td>
<td>20</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Number of Index Lesions, n</td>
<td>27</td>
<td>-</td>
<td>11</td>
</tr>
</tbody>
</table>

CONCLUSIONS: Patients with small MRI index lesions of the prostate are pathologically benign or occasionally low-grade cancers. Slow growth rates of these small index lesions on serial MP-MRI suggest a surveillance interval of at least 2 years without significant change.

Source of Funding: None
MP05-05  LONG-TERM OUTCOMES FOR PARALLEL URETERAL STENTS IN PATIENTS WITH URETERAL OBSTRUCTION SECONDARY TO PELVIC MALIGNANCY

Bailey Zampella*, Yungkhan Tan, Natasha Leigh, Crystal Castaneda, Mantu Gupta, New York, NY

INTRODUCTION AND OBJECTIVES: The ideal management of ureteric compression in patients with pelvic malignancies remains a challenge. Single stent placement is often unsuccessful, necessitating more invasive forms of urinary diversion such as percutaneous nephrostomy, which is associated with increased patient discomfort and morbidity. We initially described our experience with the simultaneous placement of two polyurethane ureteral stents in 5 patients in 2001. We now report on the long-term outcomes of a larger patient cohort.

METHODS: Patients with unilateral ureteral obstruction from pelvic malignancy who failed primary drainage with routine or metallic stent placement were managed with double stent placement. The entire ureter was balloon dilated and two parallel polyurethane stents were placed. Mean patient age was 55.6 years (33–75 years). Primary malignancies were cervical (3), colorectal (2), bladder (1), desmoid (1), and metastatic breast (1). In addition, 4 out of 8 patients received prior pelvic radiation. Patients were followed postoperatively with serum creatinine and serial renal ultrasound scans to assess renal function and presence of hydronephrosis, respectively. Treatment success was defined as tolerable symptoms, stable renal function, or absence of progressive hydronephrosis.

RESULTS: Eight patients with 10 renal units were managed with parallel ureteral stents after failing initial management with a single ureteral stent. At a median follow-up of 29.9 months, 6 out of 8 patients had stable (n=2) or improving (n=4) renal function without need for alternative means of urinary drainage. One patient had a rising post-operative creatinine levels due to chemotherapy and progression of malignancy. In addition, one patient had unavailable labs and was lost to follow-up. On average, stents were exchanged every 5.1 months (0–19 months). There were no treatment related complications, and no patient required stent removal for bothersome symptoms. Overall, patients tolerated the double parallel stents with less irritation and a lower incidence of gross hematuria, thus substantiating this is a viable alternative to percutaneous nephrostomy.

CONCLUSIONS: The simultaneous placement of parallel ureteral stents to relieve obstruction caused by pelvic malignancy is a durable and well tolerated option for patients failing single ureteral stent placement.

Source of Funding: None

MP05-06  IMPROVING THE EFFICACY OF LASER FLEXIBLE CYSTOSCOPY LISTS FOR NON-MUSCLE INVASIVE BLADDER CANCER

Tharsika Karunakaran*, Jacques Roux, Stuart Graham, London, United Kingdom

INTRODUCTION AND OBJECTIVES: Non-muscle-invasive bladder tumours can be treated under local anaesthetic using laser flexible cystoscopy (LFC). LFC spares patients the burden of general anaesthesia and transurethral resection of bladder tumour (TURBT). This is of particular benefit in elderly patients who may be high risk for general anaesthesia. Patients should be moved from laser lists to surveillance lists if they are found to be clear of recurrence as this avoids unnecessary use of therapeutic slots and saves money since LFC is more costly than diagnostic flexible cystoscopy (DFC).

METHODS: 5 years of LFC and DFC data were audited retrospectively for 24 patients at Whips Cross University Hospital, London, England. Each cystoscopy was analysed in terms of appropriateness for time and type according to the European Association of Urology guidelines for surveillance of non-muscle-invasive bladder tumours. Patients found to have a recurrence on DFC suitable for LFC should be put on the next available LFC list. If a patient does not have a recurrence they should remain on a surveillance list.

RESULTS: A total of 102 LFCs and 71 DFCs were assessed for appropriateness. 65% of patients were aged between 75–90 years. 66% of DFCs were appropriate, whilst 15% were sooner and 15% later. Only 44% of the LFCs were appropriate; 30% of these should have been a flexible cystoscopy as the previous appointment showed no recurrences, and 28% were done later than preferred due to lack of laser list capacity. None of these patients progressed requiring a full TURBT. Nine patients (40%) had greater than 3 recurrences on an individual cystoscopy and 2 of these subsequently had mitomycin.

CONCLUSIONS: LFCs are an effective treatment for non-muscle invasive bladder cancers, with none of the patients in this study requiring repeat TURBT. LFCs should be more rigorously allocated as they are more expensive than DFC and patients are having delayed treatment as a result of insufficient capacity. A standardised protocol for referral to LFC lists has been agreed and a plan put in place to increase the frequency of LFC lists. These findings have been presented locally and will be re-audited.

Source of Funding: None

MP05-07  LOW AND CONVENTIONAL-DOSE COMPUTED TOMOGRAPHY FOR THE DETECTION OF URIC ACID STONES

Gaudencio Olgin*, Jason C Smith, Caroline L Wallner, Steven R Engebretsen, Gene O Huang, David J Culpepper, Andrew T Mai, Caleb C Ng, Jonathan D Creech, Christopher S Chung, Don C Arnold II, D Duane Baldwin, Loma Linda, CA

INTRODUCTION AND OBJECTIVES: The gold standard for evaluating urinary calculi is non-contrast computed tomography (CT), yet this modality results in significant patient radiation exposure. Although low-dose CT protocols have been shown to have excellent detection for dense calcium oxalate ureteral stones,
the ability of low-dose CT to diagnose less dense uric acid stones has not been well characterized. The purpose of this study is to determine the sensitivity and specificity of low-dose CT for detection of uric acid ureteral stones.

**METHODS:** Uric acid stones ranging from 3–7 mm were prospectively placed into seven intact urinary systems creating 523 total scanned stones. The intact urinary tracts were placed into a male cadaver (BMI 27.1 kg/m²) and CT imaging was performed at various settings ranging from 140 to 5 milliampere-seconds (mAs), while holding all other imaging parameters constant. CT images were reviewed by a single blinded radiologist. Sensitivity and specificity were compared between different settings using the Wilson score method.

**RESULTS:** Overall sensitivity and specificity were 89% and 91%, respectively. Imaging using 140, 70, 50, 30, 15, 7.5, and 5 mAs settings resulted in 97%, 97%, 96%, 93%, 83%, 83% and 70% sensitivity, and 92%, 92%, 91%, 89%, 88%, 91% and 94% specificity, respectively (Figure 1). False negatives were more frequent among 3 mm stones compared to 5 and 7 mm stones (p=0.01). False negatives for 3 mm stones occurred 0.5%, 0.5%, 1.1%, 1.1%, 4.4%, 3.8%, and 5.5% at 140, 70, 50, 30, 15, 7.5, and 5 mAs, respectively.

**CONCLUSIONS:** Both low and conventional-dose CT demonstrate excellent sensitivity and specificity for the detection of uric acid ureteral stones. Detection of 3 mm uric acid stones is compromised at ultra low-dose (<30 mAs) settings.

*Source of Funding: None*

**MP05-09 TRANRECTAL ULTRASOUND VERSUS CT SCAN IN THE ESTIMATION OF PROSTATIC VOLUME**

Igor Sorokin*, Robert Tartaglione, Allen Herr, Paul Feustel, Laura Chang-Kit, Albany, NY

**INTRODUCTION AND OBJECTIVES:** The estimation of prostate volume by imaging is very important for surgical planning. Contemporary series have shown that transrectal ultrasound (TRUS) underestimates and computerized tomography (CT) scan overestimates prostate volume. However, no studies exist directly comparing CT scan prostate volume measurements to surgical specimen volume. We compared prostate volumes measured with TRUS and CT with the radical prostatectomy surgical specimen volume.

**METHODS:** We performed a retrospective chart review from 2006–2012 of patients with prostate cancer who had both TRUS and CT scan imaging within 6 months of radical prostatectomy. CT scans were independently reviewed by a radiologist blinded to TRUS and surgical specimen volume. TRUS and CT scan prostate volumes were calculated using the prostate ellipsoid formula (0.524 × height × width × length). Surgical specimen volume was derived from the weight of the radical prostatectomy specimen using previously published tissue density of 1.05 g/cm³. A Bland-Altman analysis was used to compare TRUS and CT to surgical specimen volume.

**RESULTS:** Of the 423 patients who had radical prostatectomies, 57 met the inclusion criteria. CT had no significant bias estimating volume at 2.2 cm³ (5%) greater than surgical specimen volume, however there was a trend (p<0.05) to overestimate large and underestimate small sized prostates by 0.47 cm³ for every increase in size of 1 cm per unit. TRUS significantly (p<0.001) underestimated volume by 12.4 cm³ (28%) relative to surgical specimen volume. There was no significant trend dependent upon size.

**CONCLUSIONS:** This is the first study comparing CT prostate measurements to prostate specimen measurements. CT scan was shown to overestimate larger prostates and underestimate smaller sized prostates. TRUS consistently underestimated prostate volume. CT scans may be helpful in assessing prostate

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**FIG. 1.** Sensitivity and specificity of uric acid stone detection at various mAs settings.
MP05-11 RADIATION EXPOSURE DURING IMAGE-GUIDED ABLATION OF SMALL RENAL MASSES: A MULTICENTER CHARACTERIZATION OF RISK FACTORS

Chad R. Tracy*, Amit Gupta, Iowa City, IA, Jeffrey Gahan, Dallas, TX, Zhamshid Okhunov, South Orange, CA, Sammy E Elsamra, Nithin Theckumparampil, New Hyde Park, NY, Maurilio Garcia-Gil, Dallas, TX, Shiliang Sun, Iowa City, IA, Igor Lubko, New Hyde Park, NY, Sandy Lall, South Orange, CA, Louis R. Kavoussi, New Hyde Park, NY, Jaime Landman, South Orange, CA, Jeffrey A. Cadeddu, Dallas, TX

INTRODUCTION AND OBJECTIVES: Despite the widespread utilization of CT-guidance for performance of percutaneous renal ablation, the total dosage of radiation per patient has not been evaluated. We sought to define the typical radiation exposure that occurs during percutaneous ablation of renal tumors and to determine the factors that may influence these levels.

METHODS: A multicenter retrospective study of all patients undergoing percutaneous ablation of a renal mass by either cryoablation (CA) or radiofrequency ablation (RFA) was performed. The analysis included 123 patients with a solitary renal mass ≤4 cm who underwent treatment between 1/2010 and 5/2013 at four large academic centers and had radiation exposure data available for review. Total effective abdominal radiation exposure expressed in milliSIEVERTS (mSv) was calculated directly through conversion of the dose-length product (DLP) using published conversion coefficients. Effective dose was compared amongst multiple variables that may effect exposure.

RESULTS: The mean age was 70 years and 69% of the patients were male. The mean BMI and tumor size were 29.4 and 2.2 cm, respectively. The average nephrometry score was 6.5, with 52% categorized as low (4–6), 42% as moderate (7–9) and 6% as high (10–12) complexity lesions. The median radiation dose per ablation was 35 mSv. Large variations were seen between institutions (10–12) complexity lesions. The median radiation dose per ablation was 35 mSv. Large variations were seen between institutions and median exposure varied from 6.3 to 52.4 mSv (p<0.001; figure 1). On multivariate linear regression analysis, institution and BMI predicted the total radiation exposure (p<0.001 for both). Other characteristics such as tumor size, location and depth, proximity to collecting system, nephrometry score, age and gender did not predict radiation exposure.

CONCLUSIONS: The median radiation dose delivered during percutaneous ablation of a small renal mass is 35 mSv. Total exposure is more dependent on institution and patient BMI than on
MP05-12 NOVEL USE OF INDOCYANINE GREEN FOR IDENTIFICATION OF SENTINEL LYMPH NODES AND MESENTERIC ANGIOGRAPHY TO ASSESS BOWEL VASCULARITY DURING ROBOTIC RADICAL CYSTECTOMY WITH INTRACORPOREAL URINARY DIVERSION

Ted Manny*, Ashok Hemal, Winston-Salem, NC

INTRODUCTION AND OBJECTIVES: Indocyanine green (ICG) has been described in the urologic literature during partial nephrectomy. Further urologic applications of the dye exist based on its ability to act as an intravenous contrast agent to perform real-time fluorescence angiography and interstitial injection to perform real-time fluorescence lymphangiography. We describe the first clinical series of fluorescence enhanced robotic radical cystectomy (FERRC) in which we perform real-time interstitial injection for lymph node mapping and intravenous injection to assess bowel vascularity during intracorporeal urinary diversion.

METHODS: Ten patients with high-grade bladder cancer underwent FERRC. Before robot docking rigid cystoscopy was performed during which a 2.5 mg/mL ICG solution was injected in the bladder submucosa and detrusor circumferentially around the tumor. After robot docking, parameters describing the time course of tissue fluorescence and pelvic lymphangiography were systematically recorded. Lymphatic packets containing hyperfluorescent lymph nodes were considered the sentinel drainage. After cystectomy an ileal segment was marked for urinary diversion and an additional 5 mg of ICG was given intravenously. Real-time fluorescence mesenteric angiography was then performed to visualize the vascular arcades of the conduit segment and guide endoscopic stapling.

RESULTS: Potential sentinel lymphatic drainage was visualized in 90% (9/10) patients at a median 30 minutes post-injection (Fig 1). During intracorporeal urinary diversion, hyperfluorescent mesenteric arcades were visible in all patients (Fig 2).

CONCLUSIONS: Fluorescence-enhanced robotic radical cystectomy utilizing combined percutaneous and intravenous injection of ICG is safe and feasible. FERRC allows for reliable bladder tumor marking, identification of sentinel lymphatic drainage, and identification of mesenteric vasculature in the majority of patients.

Source of Funding: none

MP05-13 DEFINING THE ROLE OF INTRAOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHY DURING INFERIOR VENA CAVA TUMOR THROMBECTOMY IN RENAL CELL CARCINOMA

Mark Ball*, Vivek Arora, Mary Beth Brady, Ashish Shah, James Black, Mohamad Allaf, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Previous reports describing the use of TEE in patients undergoing inferior vena cava (IVC) tumor thrombectomy and radical nephrectomy (RN) for renal cell carcinoma (RCC) have demonstrated the feasibility of the technique, but data to support its utility for surgical decision making is lacking. Here we present a retrospective review of patients with RCC undergoing nephrectomy and IVC tumor thrombectomy and define the impact of TEE on their intraoperative surgical management.

METHODS: Our departmental renal mass database was queried for patients undergoing RN and IVC thrombectomy from 2007 to 2012. IVC thrombus extension was classified as level I: renal vein, level II: subhepatic IVC, level III: retrohepatic IVC and level IV: right atrium. Level I cases were excluded from analysis. Cases in which intraoperative TEE was used were reviewed, and impact on surgical management was determined from the operative records and TEE report. Changes in management were defined when TEE determined new extent of thrombus, identified incomplete resection, identified new pulmonary embolus (PE), or identified propagation of PE. Changes in surgical approach were defined as need to initiate cardiopulmonary bypass (CPB), need to re-initiate CPB, or ability to avoid CPB.

RESULTS: A total of 36 cases of RCC with IVC involvement were identified. Of these cases, 9 had level II, 19 had level III and 8 had level IV involvement. A comprehensive intra-operative TEE Table 1. Diagnostic Utility and Surgical Impact of Intraoperative TEE

<table>
<thead>
<tr>
<th>Diagnostic Utility</th>
<th>Level II</th>
<th>Level III</th>
<th>Level IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient with TEE (%)</td>
<td>33</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>New Extent of Thrombus</td>
<td>0*</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Match/Diagnose PE</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Identif. Residual Tumor</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total No of new findings</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>New Dilation per group</td>
<td>10.8</td>
<td>7.5</td>
<td>8</td>
</tr>
<tr>
<td>New Information per group (%)</td>
<td>31%</td>
<td>67%</td>
<td>100%</td>
</tr>
<tr>
<td>Surgical Impact</td>
<td></td>
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<tr>
<td>Initial CPB</td>
<td>0</td>
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<td>1</td>
</tr>
<tr>
<td>Respiratory CPB</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Avoid CPB</td>
<td>0</td>
<td>1*</td>
<td>2</td>
</tr>
<tr>
<td>Impact per group (%)</td>
<td>0</td>
<td>5%</td>
<td>62%</td>
</tr>
</tbody>
</table>

*On intra-op TEE tumor thrombus noted to be intra-caval, removed via cryosurgery

Table 1: Diagnostic Utility and Surgical Impact of Intraoperative TEE
CONCLUSIONS: Intraoperative TEE provides real-time information regarding the presence and extent of IVC involvement. The diagnostic yield of TEE increases in patients with greater IVC tumor thrombus extension and the information obtained has a significant impact on surgical decision making particularly in patients with intracardiac tumor extension. TEE is a safe and useful modality that should be considered in all IVC thrombectomies.

Source of Funding: none

MP05-14 ONCOLOGIC RESULTS OF PERCUTANEOUS RENAL CRYOABLATION AT A MEDIAN FOLLOW-UP OF 24 MONTHS
Anees Fazli*, Tiffany Lee, Sriram Venigalla, Louis Eichel, Rochester, NY

INTRODUCTION AND OBJECTIVES: Percutaneous renal cryoablation is becoming increasingly offered for patients with suspicious renal lesions who are poor surgical candidates, yet there are few large studies that have examined its long-term efficacy. The purpose of the present study was to examine the oncologic outcomes of percutaneous renal cryoablations over an 8 year period at our institution.

METHODS: We retrospectively reviewed the charts of all patients who underwent a percutaneous renal cryoablation at our institution from April 2005 to February 2013. This included 139 patients being treated by 7 urologists and 4 interventional radiologists. Follow-up data was available on 125 patients. Post-ablation follow-up imaging was reviewed for areas of contrast enhancement concerning for residual or recurrent disease. Residual disease was defined as enhancement on follow-up imaging within the initial 3 months following treatment. Recurrence was defined as new enhancement found on imaging after this 3 month period. Indications for percutaneous cryoablation as well as immediate and long-term complications of the procedure were also noted.

RESULTS: Mean and median follow-up were 28 and 24 months, respectively (range 1-85). Mean tumor size was 2.60 cm (range 1-5). Although 27/123 patients (22%) experienced a complication from the procedure, only 2 patients (1.6%) experienced a high grade complication. Biopsies were performed on 44 patients, and revealed 28 patients with renal cell carcinoma, 2 with oncocytic neoplasms, 6 with oncocytomas, and 8 with biopsies negative for malignancy. Nine patients (7.3%) had residual disease, and another 9 patients ultimately had recurrence of disease. Among these 18 patients, 12 underwent repeat percutaneous cryoablation, which was successful in 8 patients; 4 underwent radical nephrectomy; and 4 were ultimately referred to medical oncology for metastatic disease. Mean tumor size was not statistically different between patients who remained disease free and those patients who experienced residual or recurrent disease (2.55 vs. 2.68 cm, p = 0.59). Patients with endophytic tumors had a statistically significant increased risk of having residual or recurrent disease compared to those with exophytic tumors (50.0% vs. 12.2%, p = 0.016).

CONCLUSIONS: Percutaneous renal cryoablation remains a safe and effective method of local tumor control in properly selected patient populations. Endophytic tumor status was associated with an increased risk of treatment failure.

Source of Funding: None

MP05-15 REPEAT PERCUTANEOUS CT-GUIDED CRYOABLATION FOR LOCALLY RECURRENT RENAL CELL CARCINOMA

INTRODUCTION AND OBJECTIVES: The management of local recurrence after cryoablation for renal cell carcinoma (RCC) remains a dilemma. We report our experience with repeat percutaneous cryoablation (PCA) for local recurrence following prior renal cryoablation.

METHODS: We performed a retrospective review of prospectively established databases of patients who underwent cryoablation for RCC at two academic institutions. Patients who underwent repeat PCA for local recurrence following primary cryoablation were included in the study. Perioperative complications and oncologic outcomes were evaluated.

RESULTS: A total 250 patients underwent primary cryoablation for RCC and 20 (8%) patients were identified who underwent repeat PCA for 21 recurrent tumors. Sixteen patients failed PCA and four failed laparoscopic cryoablation (LCA). There were 14 males (70%) and 6 (30%) females with the mean age of 64.8 (range 47-82). Nine patients with ASA grade II and 11 with ASA grade III. Seven (33%) tumors were located in the upper pole, 7 (33%) inter-polar, and 7 (33%) in the lower pole. Seven (33%) tumors were located anteriorly and 14 (67%) posteriorly. Biopsy at the time of repeat CA procedure revealed clear cell RCC in 14 patients, 3 papillary RCC, 1 chromophobe RCC and 3 were non-diagnostic. All repeat cryoablation procedures were completed successfully. There were no major complications or deaths associated with the procedure. Only one patient was identified to have perirenal hematoma in the postoperative period. No embolization or transfusion was required.

Of the 18 biopsy proven RCC patients, with the median follow-up of 30 months (range 7-63), 3 (16%) were identified to have local recurrence. One patient was identified to have enhancing lesion at 13 months following repeat PCA which was managed with a third PCA. Additional, two patients had recurrence at 6 and 35 months, after LCA. Both patients successfully underwent laparoscopic partial nephrectomy. No patient developed local or distant metastasis.

CONCLUSIONS: Repeat percutaneous renal cryoablation for locally recurrent disease is technically feasible, has a low complication rate, and demonstrates acceptable short-term oncologic outcomes in this challenging population. Further studies with larger number of patients and durable follow-up are required to elucidate the role of PCA in this patient population.

Source of Funding: none
MP05-16 DEVELOPMENT OF A TARGETTED PHOTOIMMUNOTHERAPY PLATFORM IN THE MANAGEMENT OF BLADDER CANCER

Srinivas Vourganti*, Michael Weintraub, Quentin Li, Piyush Agarwal, Bethesda, MD

INTRODUCTION AND OBJECTIVES: We have developed a novel precision medicine based photoimmunotherapy (PIT) platform to treat patients with bladder cancer. This technique involves the conjugation of specifically chosen targeted monoclonal antibodies to a phthalocyanine dye, IR700, which is activated by near-infrared light. When activated by light, IR700 dye rapidly destroys cells though the production of reactive oxygen species.

METHODS: Using flow cytometry immunostaining, we characterized the expression profile of bladder cancer cell line UMUC5 and confirmed strong expression of EGFR. Panitumumab (human monoclonal anti-EGFR; PAN) was conjugated to IR700 photosensitiser dye in order to specifically target the cytotoxic effect to overexpressors of the receptor. Cells were treated in the following treatment arms: 1) Control; 2) Unconjugated PAN; 3) Conjugated PAN-IR700; 4) and blocking condition of initial treatment with unconjugated PAN subsequently treated with conjugate PAN-IR700. An additional 4 treatment arms were exposed to 4) of near infrared light: 5) Light alone; 6) PAN with Light; 7) Conjugated PAN-IR700 with Light; and 8) blocking condition as above with Light. Cytotoxicity was evaluated with flow cytometric detection of calcein acetomethoxy derivate viability surface staining and propidium iodide as well utilizing raw hemacytometer counts of trypan blue exclusion. Treatments were repeated using an EGFR negative control cell line Balb3T3.

RESULTS: Within 15 minutes of light exposure, PIT resulted in profound cytotoxic effect in cells treated by PAN-IR700 conjugate (98% of cells nonviable). This effect was reversed by pretreatment by unconjugated antibody (92% viable). Light exposure alone resulted in minimal toxicity (96% viable). For negative control EGFR negative Balb3T3, no cytotoxic effect was noted (between 94 and 97% viability in all conditions). Of UMUC5 cells detected viable on flow cytometry, IR700 binding (as detected on the FL4 channel) was significantly lower than in those cells detected as nonviable.

CONCLUSIONS: PIT represents a targeted, precision medicine approach to tailoring cytotoxic therapy to specific bladder cancer markers utilizing commercially available antibody therapeutics. Our group is currently developing in vivo orthotopic rodent models of this platform in the hopes to fast track this technology into Phase I clinical trials in humans.

Source of Funding: NIH Intramural Funding

MP05-17 INTEROBSERVER RELIABILITY AND REPRODUCIBILITY OF S.T.O.N.E. NEPHROLITHOMETRY FOR RENAL CALCULI

Zhamshid Okhunov*, Orange, CA, Alberto Perez-Lanzac, Mohammad Helmy, Ashleigh Menhadji, Philip Bucur, Orange, CA, Surendra Kolla, Orange, CA, Jane Cho, Kathy Osann, Achim Lusch, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Objective: The STONE nephrolithometry was previously developed as a stone complexity scoring system and prospectively validated in a single center percutaneous nephrolithotomy (PCNL) cohort. In this study we assess the reliability of the S.T.O.N.E nephrolithometry the scoring system by testing its reproducibility between different observers.

METHODS: Preoperative images of 58 subjects that underwent PCNL were reviewed. Medical students, urology residents, one fellow and a urology attending independently reviewed all images and scored the renal stones. Interobserver reliabilities of the total score for all categories and each component were evaluated by the intraclass correlation (ICC) and a Kappa coefficient.

RESULTS: The interobserver reliability for the total score demonstrated high correlations for all components and total score (ICC = S, T, O, N, E and total 0.80, 0.97, 0.89, 0.84, 0.91 and 0.87 respectively). Kappa rates for individual components between 2 medical students were 0.36, 1, 0.31, 0.45, 0.33 and 0.30 for the S, T, O, N, E components and total score, respectively. Kappa values between the two urology residents were 0.71, 1, 0.92, 0.79, 0.93 and 0.67 for S, T, O, N, E components and total score respectively. Kappa values between the urology fellow and an attending physician were 0.95, 1, 0.88, 0.94, 0.89 and 0.87 for S, T, O, N, E components and total score respectively. P value for all the scoring components was <0.05, indicating that the estimated kappa was not a result of chance.

CONCLUSIONS: The S.T.O.N.E nephrolithometry has excellent interobserver reliability. Quantifying the S and N metrics were the most challenging and least reliable. Standardized protocols to measure these components should be considered to improve accuracy and reproducibility of the scoring system.

Source of Funding: none

MP05-18 ENDOVASCULAR COIL OCCLUSION (ECO) - THE REAL ALTERNATIVE METHOD FOR VENOUS LEAK CORRECTION

Dmitry Kurbatov*, Alexandr Lepetukhin, Ivan Sitkin, Sergey Dubsky, Moscow, Russian Federation
INTRODUCTION AND OBJECTIVES: Pathological venous drainage (PVD) can be the basic or accompanying symptom at 20–60% of patients with erectile dysfunctions (ED). It is known that PVD includes three types: distal, proximal, and mixed, that courses the choice the method of the surgery. Since 2009 we applied the safe and highly effective alternative technique - endovascular coil occlusion (ECO) for proximal/mixed type of venous leak correction.

METHODS: 1649 pts with complaints on ED were examined during the 2009–2012. 1053 pts (63%) age of 18–59 yrs suffered vascular ED and 117 pts (11%) of them were with isolated veno-occlusive ED of proximal/mixed types of PVD. All 117 pts received initially maximal dozes of inhibitors PDE-5 not less than 3 months but were not responded. Conventional diagnostic test included hormonal tests, Doppler Duplex Sonography, Dynamic Infusion Cavernosometry and Cavernosography. All patients had normal arterial blood inflow, testosterone, prolactine, TSH, were not smoking and underwent ECO. After pathological venous leak visualization by angiographic technique via penile deep dorsal vein intraluminal coil/coils were inserted in the Santoriny’s venous plexus. The surgery time duration was 10–40 min.

RESULTS: ECO is out-patient operation or need one day hospitalization with minimal complications. The follow-up was 34 ± 21 (2–36) months. Totally 114 pts (97.4%) – restored the erectile function. 105 pts (89% ) – do not use PDE-5 inhibitors further and 9 pts (7.8%) use low dose PDE 5 inhibitors on demand. 3 pts (2.5%) had negative results due to cavernous fibrosis and underwent penile prostheses implantation.

CONCLUSIONS: ECO might be seen as the method of choice and the last chance for patient suffering veno-occlusive ED before penile prosthesis implantation.

Source of Funding: self funding

MP05-19 MR FUSION PROSTATE BIOPSIES ARE FEASIBLE AND USEFUL IN A BUSY UROLOGIC PRACTICE

David Hatcher*, Joshua Cohn, Chicago, IL, Robert Silvers, Michael McGuire, Evanston, IL

INTRODUCTION AND OBJECTIVES: Magnetic resonance imaging-transrectal ultrasound fusion (MR fusion) techniques may have improved diagnostic reliability as compared with traditional transrectal ultrasound-guided (TRUS) biopsies in select patients. Its utilization to date has been primarily in research centers; we investigated its usage in a busy clinical urology practice.

METHODS: We reviewed men undergoing MR fusion biopsy between October 2012 and May 2013. Selection for MR fusion biopsy was based upon enrollment in active surveillance (AS), persistently elevated PSA with negative biopsy history, or patient preference. Transabdominal 3-tesla multiparametric prostate MRI was performed on all patients at least 1 week prior to clinic biopsy visit. One staff radiologist (RS) identified all suspicious lesions, and fusion images were generated and uploaded to the Biojet (Geo Scan, Lakewood Ranch, FL) fusion machine. Biopsies were targeted at MRI-identified regions of interest (ROI) as well as normal-appearing prostate (non-ROI). All biopsies were performed by a single urologist (MSM) with the assistance of one medical assistant. Analysis was performed to compare targeted and non-targeted biopsy results.

RESULTS: 38 patients met inclusion criteria. Mean age was 66 years [95% CI 63-68] and median PSA 6.2 ng/mL [IQR 4.4-12.3]. 50% of men were enrolled in AS and 74% had undergone previous TRUS biopsy (mean 2.6 prior biopsies [95% CI 2.0-3.2]). The mean number of ROI and non-ROI cores sampled was 3.3 [95% CI 2.4-4.3] and 8.5 [95% CI 7.4-9.6], respectively (p < 0.001). Mean Gleason score of identified cancers on targeted MR fusion biopsy was significantly higher than those found on prior non-targeted TRUS biopsy (7.2 [95% CI 5.8-8.4] vs. 6.1 [95% CI 5.7-6.4]). Mean urologist time required for biopsy completion was 11 minutes [range 8-15].

CONCLUSIONS: MR fusion biopsy can be done effectively and efficiently in the busy urologist’s office. Given these findings and that MR fusion technology may increase the likelihood of diagnosing more aggressive cancers, more widespread use of this modality is warranted.

Source of Funding: none

MP05-20 COMPARISON OF RELIABILITY OF THE RENAL NEPHROMETRY SCORE BETWEEN RADIOLOGISTS AND UROLOGISTS

Samay Jain*, Khaled Shahrour, Toledo, OH

INTRODUCTION AND OBJECTIVES: The RENAL nephrometry score was developed to help categorize and standardize renal tumor complexity as seen on cross sectional imaging. For such scoring system to be useful, it not only needs to be simple but also reliable and reproducible. Previous studies have shown high reliability in assigning a RENAL score between urologists, but none have reported on the inter-observer reliability between urologists and radiologists. The purpose of this study was to test the hypothesis that the RENAL score is a reliable and reproducible measure between urologists and radiologists. The purpose of this study was to test the hypothesis that the RENAL score is a reliable and reproducible measure between urologists and radiologists.

METHODS: In this institutional review board-approved study, a retrospective review of computerized tomography (CT) scans of patients with renal masses who had presented to our institution within the past five years was reviewed. Masses were excluded in patients with congenital renal anomalies such as APCKD, horseshoe, etc. Masses on CT scans that met the inclusion criteria were assigned a RENAL nephrometry score by 5 full-time faculty members; 3 radiologists and 2 urologists. They were provided with a standardized description of the RENAL score and its application at the beginning of the study. Each observer documented detailed RENAL score for each mass independently using CT software (PACS, GE). The Krippendorff’s alpha coefficient was used to detect inter-rater reliability of ratings done by the different examiners. Paired t-test was used to compare between radiologists and urologists groups.

RESULTS: A total of 64 patients and 72 distinct renal tumors were analyzed in this study. Mean RENAL nephrometry score was 7.8 ± 2.0 and 8.4 ± 2.1 by the radiologists and urologists, respectively. Mean difference between both groups was 0.60 points (p < 0.05, Confidence Interval 0.39–0.80). Reliability coefficient for each component of the RENAL score and total score were 0.89 (R), 0.41 (E), 0.58 (N), 0.43 (A), 0.65 (L), and 0.77 respectively. Reliability coefficients for both groups were high but that between radiologists was higher than that between urologists (0.81 vs. 0.73).

CONCLUSIONS: The RENAL nephrometry scoring system is a reliable tool that should be used by both urologists and radiologists when reporting renal masses found on CT. Higher interobserver correlation among radiologists than among urologists is evidence that adoption of such score by radiology is feasible as a means of standardizing the reporting of renal masses.

Source of Funding: None
**MP05-21** COMBINED PATIENT AND STONE MORPHOMETRY ENHANCE PREDICTION OF STONE COMPOSITION

Kara L Watts*, Tian C Zhou, Joseph Divito, David M Hoenig, Bronx, NY

INTRODUCTION AND OBJECTIVES: The use of Hounsfield units (HU) on CT imaging for prediction of stone composition has been reported. Uric acid (UA) calculi have a much lower average attenuation compared to calcium oxalate calculi, with reported averages ranging from <300–400 HU and >650–800, respectively. We have previously demonstrated a significant association of visceral fat area (VFA), as calculated on CT imaging, with UA stone formation. We sought to determine if the use of a region of interest (ROI) pixel analysis of calculi, in combination with VFA measurements, would enhance the prediction of stone composition.

METHODS: Retrospective review of an IRB-approved database of 219 patients undergoing PCNL was performed. Twenty patients with predominantly UA stone composition (>80%) were identified and compared to 20 patients with >90% calcium oxalate (CaOx) monohydrate or dihydrate calculi. ROI HU ranges were obtained for each patient from a single axial CT slice containing the largest cross-sectional stone image. VFA was also calculated from a single axial CT slice at the level of the umbilicus for each patient (TerraRecon Inc Aquarius iNuition, version 4.4.6.100.2862). These values were compared using simple 2-sided t-tests.

RESULTS: Stone ROI analysis revealed a significantly lower average minimum and maximum HU range for UA compared to UA group, 243 kg/m² vs 129 kg/m² (p<0.00001). Average HU was also significantly higher among CaOx stone formers versus UA stone formers, 962 vs 448 (p<0.000001). Finally, VFA was significantly higher among the UA group, 243 kg/m² vs 129 kg/m² (p<0.00001).

CONCLUSIONS: ROI pixel-by-pixel analysis of HU attenuation for UA and CaOx stones yielded higher average HU attenuations compared to those previously reported. In addition, the range of HU values for each stone was wide (larger in CaOx stones), with the average minimum and maximum HU units for each stone type much lower than or higher than previously reported average values, respectively. The use of an ROI HU range for stone prediction may, therefore, offer a more comprehensive and accurate method of predicting stone composition compared to single point HU analysis. In addition, the use of VFA calculation may also further enhance prediction of stone composition, with higher VFA values associated with UA stones versus CaOx stones. The combination of ROI pixel analysis with VFA calculation suggests the possibility of enhanced prediction of predominantly-uric acid stones, including nomogram creation.

Source of Funding: none

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**MP05-22** PREOPERATIVE PLANNING WITH NON-CONTRAST COMPUTED TOMOGRAPHY IN THE PRONE AND SUPINE POSITION FOR PERCUTANEOUS NEPHROLITHOTOMY: A PRACTICAL OVERVIEW

Giovanni S. Marchini*, Fernanda Berto, Fabio C. Vicentini, Eduardo Mazzucchi, Miguel Srougi, Sao Paulo, Brazil

INTRODUCTION AND OBJECTIVES: Preoperative planning for PCNL usually comprises a NCCT with the patient in the supine position; however, most PCNLs are performed in the prone decubitus worldwide; the purpose of our study was to systematically evaluate if the supine NCCT allows accurate prediction of surgical parameters when the patient is turned prone.

METHODS: After IRB approval, patients scheduled for PCNL were prospectively enrolled in the study. All patients underwent a NCCT in the supine position and subsequently a NCCT in the prone position with boosters by the shoulders and abdomen. The primary end-point was to compare between positions two imaginary lines as previously defined by Prassopoulos et al for each posterior calyx (upper; mid – renal hilum level; lower pole) of both kidneys: Line I was drawn horizontally in the coronal plane in contact with the posterior edge of the kidney; line II from the antero-lateral edge of the vertebra through the middle of the calyces (ideal puncture line). Organs crossed or posterior to Lines I/II were considered at risk. Secondary end-points were: distance between Line I and anterior extremity of the vertebra (renal depth) and maximum access angle (vertex in the calyx, one line in the first adjacent organ; another in the lateral border of the paraspinal muscle). The Student T Test and Chi-square/Fisher exact test were used. Significance was set at p<0.05.

RESULTS: From May/2012 and March/2013, 37 patients met the inclusion criteria and were considered in the analysis; 21 (56.7%) were female with mean BMI of 28.3 – 4.9 (16.8–42.0) Kg/m². For the right kidney, supine position was associated with more organs crossed by Line I and II in the upper calyx (table 1); For the right kidney, a significant difference was only found for Line II in the upper calyx (p = 0.03). Both kidneys showed a tendency to be deeper in the supine position, while the supine decubitus usually provided a wider access angle.

CONCLUSIONS: The supine NCCT is not accurate to plan PCNL access in the prone position. Prone decubitus is associated with more potential organ injuries mainly in the upper pole when considering an ideal tract line. Although tract length is expected to be longer in the supine position, it may be compensated by a wider access angle.

Source of Funding: None

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**MP05-23** THE FIRST UNITED STATES SERIES USING THE TRANURETHRAL SUPRAPUBIC ENDO-CYSTOSTOMY DEVICE FOR SUPRAPUBIC CATHETER INSERTION

Robert Larke*, Vassilis Siomos, Brian Flynn, Aurora, CO

INTRODUCTION AND OBJECTIVES: The suprapubic transurethral suprapubic endo-cystostomy approach for catheter insertion is a widely used technique. This study reports the first United States series of the use of this approach in the treatment of patients requiring prolonged temporary urinary diversion.

METHODS: From January 2016 to December 2017, 16 patients underwent transurethral suprapubic catheter insertion using the transurethral suprapubic endo-cystostomy device (Tumdyn Dd, Design4Medical, Salt Lake City, UT). The study endpoints were the feasibility, safety, and patient satisfaction of the transurethral suprapubic endo-cystostomy device for catheter insertion.

RESULTS: All patients completed the study. There were no instances of technical failure, complications, or device-related issues during the procedure. Patient satisfaction was excellent, with all patients reporting that the procedure was comfortable and easy to tolerate.

CONCLUSIONS: The transurethral suprapubic endo-cystostomy device is a safe and effective method for catheter insertion in the United States.

Source of Funding: None
RESULTS: Of the 67 renal calculi identified on CT imaging, 23/67 results. excluded as they did not have any plain imaging. All XRs were inclusion included having both a XR and CT. 16 patients were colic to our institute between April 2011 and July 2010. Criteria for METHODS: We identified 83 patients who presented with renal CT in our institute. We compared the radio-opacity rates and stone size for XR versus 63–77%. This is of relevance in deciding how to follow up stones.

CONCLUSIONS: Our study shows that plain radiographs and CT respectively.

Source of Funding: None

MP05-24 RENAL CALCULI AND PLAIN IMAGING-RADIOLUCENT OR RADIO OPAQUE?

Paul Healy*, Dublin, Ireland, Saraswathy Suresh Babu, Leicester, United Kingdom, Priya Kumar, Preston, United Kingdom, Masood Khan, Leicester, United Kingdom

INTRODUCTION AND OBJECTIVES: It is traditionally taught that up to 90% of urinary tract calculi are visible on plain abdominal radiographs (XR). In studies comparing XR with computed tomography (CT) the radio-opacity rates vary from 63–77%. This is of relevance in deciding how to follow up stones. We compared the radio-opacity rates and stone size for XR versus CT in our institute.

METHODS: We identified 83 patients who presented with renal colic to our institute between April 2011 and July 2010. Criteria for inclusion included having both a XR and CT. 16 patients were excluded as they did not have any plain imaging. All XRs were reviewed by an independent radiologist who was blinded to the results.

RESULTS: Of the 67 renal calculi identified on CT imaging, 23/67 (34%) had calculi visualised on plain XR. The mean stone size was 5.7 mm (2–13 mm) and 4.6 mm (1–16 mm) for stones on plain XR and CT respectively.

CONCLUSIONS: Our study shows that plain radiographs identified only 34% of renal calculi subsequently highlighted by CT imaging – a much lower figure than conventionally thought. Plain film alone is not therefore universally reliable to follow up all stones.

Source of Funding: none

MP05-25 PERCUTANEOUS NEPHROSTOMY MADE EASY: ELECTROMAGNETIC NEEDLE GUIDANCE WITH TRACKED ULTRASOUND SNAPSHOTS IN A SIMULATION MODEL

Michael Fuoco*, Tamas Ungi, Rob Siemens, Gabor Fichtinger, Darren Beiko, Kingston, Canada

INTRODUCTION AND OBJECTIVES: Percutaneous nephrostomy (PCN) is often required urgently in the context of acute renal failure or urosepsis, and may be performed electively for percutaneous nephrolithotomy (PCNL). Many urologists continue to use fluoroscopic guidance for renal access during PCNL despite the hazardous and cumulative radiation dose. Electromagnetic tracking with tracked ultrasound snapshot (TUS$^{\text{TM}}$) guidance has been shown to improve success rates and reduce procedure time in spinal facet joint injections. The objective of this study was to investigate the possible benefit of TUS$^{\text{TM}}$ technology in a simulation model in novice trainees performing PCN.

METHODS: Four urology residents with minimal or no prior experience in US-guided PCN participated in this study as operators, using an augmented reality training system called Perk Tutor. Each operator performed two TUS$^{\text{TM}}$-navigated procedures and two conventional US-guided procedures in an alternating pattern, with the latter serving as a control. Two operators started with TUS$^{\text{TM}}$ guidance and two started with US guidance. Data was obtained for total needle motion in tissue, needle insertion attempts, total procedure time, and needle time in tissue.

RESULTS: TUS$^{\text{TM}}$-guided PCN was found to have significantly decreased amount of needle motion in tissue (mean 315 vs 965 mm, p = 0.04) and number of attempts (mean 1.13 vs 2.75, p = 0.02) when compared to conventional US guided PCN. TUS$^{\text{TM}}$-guided PCN also had less needle time in tissue (mean 41 vs 77 seconds, p = 0.16) and a shorter procedure time (mean 105 vs 223 seconds, p = 0.14), though it was not statistically significant.

CONCLUSIONS: Electromagnetic needle guidance with TUS$^{\text{TM}}$ decreases needle motion and number of attempts during PCN in novice trainees. Although not statistically significant likely due to the limited study size, TUS$^{\text{TM}}$ guidance was associated with shorter procedure time and shorter needle time in tissue compared to conventional US guidance. TUS$^{\text{TM}}$ may lead to fewer complications in clinical scenarios. Residents inexperienced in US guidance were able to use TUS$^{\text{TM}}$ effectively, suggesting TUS$^{\text{TM}}$ adoption would enable a wider range of operators to perform PCN clinically. Further studies are needed with more operators and attempts to fully assess the potential clinical impact of TUS$^{\text{TM}}$-guided PCN.

Source of Funding: None

MP05-26 INCIDENCE AND DIAGNOSIS OF RENAL ARTERY PSEUDOANEURYSM FOLLOWING LAPAROSCOPIC AND ROBOT-ASSISTED PARTIAL NEPHRECTOMY: A SYSTEMATIC REVIEW OF THE LITERATURE

Samay Jain, Toledo, OH, Andrew Tracey*, Nina Harkhani, Jennifer Yates, Ravi Munver, Hackensack, NJ

INTRODUCTION AND OBJECTIVES: The Transurethral Suprapubic endo-Cystostomy Device (T-SpC® device) is a new device used for introducing a suprapubic catheter via a retro-urethral (inside-to-out) approach. This device can be compared to a Lowesly retractor, however the T-SpC® device adjusts to compensate for abdominal girth and is disposable. An early Canadian series of four patients demonstrated the device to be safe and efficient. The objective of this study is to review our early experience using the T-SpC® device.

METHODS: After receiving patient consent, urology patients at the University of Colorado Hospital underwent placement of a suprapubic catheter via the T-SpC® device by a single surgeon.

RESULTS: Thirty-five 18 F suprapubic catheters were successfully placed in patients using the T-SpC® device. The indications for placement were: neurogenic bladder, urethral stricture, urinary retention, or for urethral rest as a part of complex genitourinary reconstruction. Thirty of the patients were female. Thirty-three patients underwent general anesthesia, one with sedation, and another with strictly local anesthetic. The mean patient age was 56 (range 41–90) and the mean BMI was 29 kg/m² (range 17–50). The average skin to bladder distance was 6.6 cm (range 4–11). The mean operative time was 4.2 minutes (range 3–5.5). There were no intra-operative complications and all patients had successful placement of a suprapubic catheter. The capture housing was missed twice following activation of the trocar, but this did not affect the outcome. There were no post-operative complications within 30 days of the procedures, such as urinary tract infection or wound infection. Three urinary tract infections were reported within 60 days of procedure. One patient required a urethral catheter due to recurrent catheter obstruction from urinary sediment and another patient pulled out her suprapubic catheter.

CONCLUSIONS: Our series demonstrates that the T-SpC® device can be placed safely, efficiently, and effectively in patients requiring long-term or temporary suprapubic tube placement.

Source of Funding: Swan Valley Medical donated the first 25 devices

MP05-26 MP05-26 INCIDENCE AND DIAGNOSIS OF RENAL ARTERY PSEUDOANEURYSM FOLLOWING LAPAROSCOPIC AND ROBOT-ASSISTED PARTIAL NEPHRECTOMY: A SYSTEMATIC REVIEW OF THE LITERATURE

Samay Jain, Toledo, OH, Andrew Tracey*, Nina Harkhani, Jennifer Yates, Ravi Munver, Hackensack, NJ

INTRODUCTION AND OBJECTIVES: Percutaneous nephrostomy (PCN) is often required urgently in the context of acute renal failure or urosepsis, and may be performed electively for percutaneous nephrolithotomy (PCNL). Many urologists continue to use fluoroscopic guidance for renal access during PCNL despite the hazardous and cumulative radiation dose. Electromagnetic tracking with tracked ultrasound snapshot (TUS$^{\text{TM}}$) guidance has been shown to improve success rates and reduce procedure time in spinal facet joint injections. The objective of this study was to investigate the possible benefit of TUS$^{\text{TM}}$ technology in a simulation model in novice trainees performing PCN.

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Source of Funding: None
INTRODUCTION AND OBJECTIVES: Laparoscopic and robot-assisted partial nephrectomy are being performed more commonly for patients with renal masses as a means of preserving renal function. A potential complication of partial nephrectomy (PN) is renal artery pseudoaneurysm (RAP). The aim of this study is to report the incidence, diagnosis, and management of RAP after minimally invasive (laparoscopic or robot-assisted) partial nephrectomy (MIPN).

METHODS: The Ovid Medline and PubMed Databases were queried to locate published reports of RAP after PN. Studies met inclusion criteria for statistical analysis if they were in English, reported the number of RAPs and total number of PN procedures performed, as well as perioperative complications. All statistical analyses were performed using a chi-squared test.

RESULTS: A total of 30 published series and case reports were reviewed, which represented a total of 77 RAPs diagnosed in 5229 patients (1.47% incidence) after PN. A total of 13 series met inclusion criteria in which PN was performed via a minimally invasive approach. The included studies represented a total of 2735 patients who underwent MIPN, and in which 52 pseudoaneurysms were reported (1.90% incidence). Ninety-seven percent of these patients were symptomatic at the time of presentation. Patients diagnosed with a RAP presented at a mean of 14.9 days after surgery and 87.3% had gross hematuria at initial presentation. Of the patients with RAP, 58% were diagnosed with CT or CT angiography and 42% were diagnosed with ultrasound, MRI, or percutaneous angiography. All patients were treated with percutaneous angioembolization with a 96% success rate.

CONCLUSIONS: This is the first meta-analysis describing the incidence of renal artery pseudoaneurysm after minimally invasive partial nephrectomy. Despite a comprehensive literature review, the pathophysiology and risk factors of RAP formation after PN were not fully elucidated. While RAP after PN remains uncommon, it is a significant potential complication of the procedure. As more MIPN procedures are performed and data is prospectively collected, additional information may serve to assist in identifying patients that are at risk for developing this complication.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: Modern technologies such as near infrared (NIR) indocyanine green (ICG) fluorescence imaging represent potentially useful tools to facilitate intraoperative assessment of vascularization and tissue perfusion. We describe surgical technique of robot-assisted partial nephrectomies (RAPNs) and other procedures performed with use of fluorescence, in order to assess the results and the impact of this tool on surgical decisions.

METHODS: A retrospective review of medical records of 16 patients who underwent RAPN with use of fluorescence for renal parenchymal tumors at our centre from June 2011 to June 2012 was performed. RAPN with use of fluorescence was performed in all cases with a standardized technique using the “Da Vinci surgical system” with the integrated Firefly™ Fluorescence imaging mode. A test of selective clamping of the tumor-feeding artery/ies was always attempted after injection of 10 mg of ICG to assess the adequacy of tumor ischemia. The perfusion of renal parenchyma was also checked with ICG fluorescence after completion of the renorrhaphy. Furthermore, we incidentally used ICG to assess tissue vascularization in redo-pyeloplasty and creation of an ileal conduit.

Intraoperative variables, postoperative complications and outcomes of RAPN were assessed. The impact of the use of NIR ICG fluorescence on surgical decisions and outcomes was evaluated. A descriptive statistical analysis was performed.

RESULTS: The test of selective clamping with use of NIR ICG fluorescence showed adequate tumor ischemia in 9 cases. Clamping of the main renal artery was carried out in 7 cases due to incomplete tumor ischemia at the test. No significant subjective differences in fluorescence intensity between tumoral tissue and normal renal parenchyma was observed. Hypoperfusion of the renal healthy tissue after renorrhaphy was observed in one case and resolved after partial release of the sutures. No side effects of ICG injection occurred. No significant differences between preoperative and postoperative renal functional outcomes were observed.

CONCLUSIONS: Intraoperative NIR ICG fluorescence imaging represents a useful tool to support surgical decisions during RAPN. Further studies are needed to confirm our findings and to show whether its use can improve postoperative functional outcomes. More experience is needed to conclude what role its use might have in other applications.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: The surgeons assessment of a gross negative surgical margin is of paramount importance in a robotic partial nephrectomy. We describe our experience of resection of a gross positive surgical margin with a step by step explanation of the technical nuances involved in performing the surgery.

METHODS: A 37-year-old man with VHL presented with bilateral multiple hypervascular, heterogeneously enhancing
lesions on Contrast enhanced CT of sizes 3.8×2.3 & 3.1×2.1 cm on the right and 1.6×1.9 cm on the left respectively. Following a biopsy showing Clear cell renal cell carcinoma a course of sorafenib was given which he could not complete due to ADRs. A right Robotic partial nephrectomy was planned. The patient’s BMI was 19.50 kg/m², S. Creatinine was 0.75 mg/dL and eGFR was 109 mL/min. Standard five-port RPW was begun using three 8-mm ports for robotic instruments and two 12-mm ports. The segmental arterial branch supplying the lower pole tumor was secured and cut thus avoiding global renal ischemia. The lower pole tumor was excised with electrocautery. Thereafter the renal artery was clamped and the posteriorly placed upper pole tumor was excised. Due to excessive hemorrhage, an inadvertent incision caused a gross positive surgical margin. On further dissection an accessory upper polar renal artery was discovered which had not been noted on the preoperative CT. Frozen section sent from the tumor bed turned out to be positive. The robot was redocked and reresection of the tumor bed was performed with an adequate rim of normal renal parenchyma.

RESULTS: Total warm ischemia time was 23.5 minutes, 10 minutes for the first resection and 13.5 minutes for the reresection. Operative time was 234 minutes with EBL of 380 mL. Patient had no postoperative complications. Histopathology report showed pT1b Nx, Clear cell renal cell carcinoma, Fuhrman grade I, with negative surgical margin for the reresected rim of renal parenchyma. Hospital stay was 4 days. The eGFR at 1 month was 102 mL/min (drop of 7 mL/min, 6.43%) with a Serum Creatinine of 0.80 mg/dL. Patient is asymptomatic at 2 months followup. We were thus able to achieve the 3 key trifecta outcomes of negative cancer margin, minimal renal functional decrease and no urological complications.

CONCLUSIONS: Reresection of a gross positive surgical margin during RPN can be performed safely and successfully. A well done CT angiography is of paramount importance in planning before RPN. The application of the robotic surgical platform enables technically challenging and complex resections to be performed with ease to achieve “Trifecta” outcome in RPN.

Source of Funding: none

V01-03 “ZERO ISCHEMIA” ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR TUMORS WITH HIGH NEPHROMETRY SCORE

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INTRODUCTION AND OBJECTIVES: To demonstrate feasibility and effectiveness of “Zero Ischemia” Robotic assisted partial nephrectomy for tumors with high nephrometry score.

METHODS: The video shows two cases of renal tumors with high nephrometry scores treated with “Zero Ischemia” Robotic assisted partial nephrectomy.

The former is a case of a 4.3 cm left renal tumor dislocating urinary collecting system, the latter is a case of a totally endophytic right renal tumor.

RESULTS: Operative time was 90 minutes for the first case and 110 minutes for the second one. Intraoperative blood loss were 200 mL and 300 mL, respectively. Patients were discharged on 3rd postoperative.

CONCLUSIONS: Robotic approach simplified surgical procedure and allowed us to expand indications to partial nephrectomy to tumors with high nephrometry score.

Source of Funding: None
V01-05 MANAGEMENT OF DOUBLE COLLECTING SYSTEM WITH BOTH UPJ OBSTRUCTION AND URETERAL STONE
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INTRODUCTION AND OBJECTIVES: A duplex or duplicated system describes a renal unit in which the kidney has two pelviccalyceal systems. It may include a kidney with single or bifid ureters or two ureters that drain separately into the bladder. A bifid system has two pelviccalyceal systems that join at the pelviureteric junction or two ureters (bifid ureters) joining before entering the bladder. This represents a partial duplication. The incidence of duplex kidneys in post-mortem series is between 0.5–1.25%. To investigate the feasibility and safety of robot-assisted laparoscopic pyeloplasty and upper ureteral stone removal in a patient with duplex system (bifid ureters) with a lower UPJ obstruction and upper pole ureteral stone.

METHODS: Patient was placed in left flank position and a transperitoneal approach was chosen. A stonecone (Boston Scientific Corp, Natick, MA) device was placed prior to the surgery for prevention of stone migration to the collecting system. An Anderson-Hynes Dismembered pyeloplasty technique was performed for the lower collecting system repair followed by the upper ureteral stone removal.

RESULTS: The console time was 120 minutes and estimated blood loss was 100 ml. The patient was discharged postoperative day 3.

CONCLUSIONS: Our initial experience with this procedure showed promising outcomes. Robot assistance seems ideal for this surgically demanding cases.

Source of Funding: none

V01-06 ROBOT-ASSISTED LAPAROSCOPIC HEMINEPHRECTOMY FOR A NON-FUNCTIONING UPPER MOIETY: LESSONS LEARNT FROM 3 CASES
Paul Sturch*, Matt Bultitude, Declan Cahill, Prokar Dasgupta, Ben Challacombe, London, United Kingdom

INTRODUCTION AND OBJECTIVES: Duplex ureter or kidney is one of the commonest urogenital abnormalities and while the majority of cases are asymptomatic surgical intervention is indicated in the setting of recurrent UTI and/or loin pain. Open laparoscopic heminephrectomy techniques are established, but only small series of robot-assisted cases are reported in the literature. We discuss several points-of-technique learnt from 3 robot-assisted laparoscopic upper moiety heminephrectomies (RALH).

METHODS: RALH was carried out in 3 consecutive patients by one console surgeon for painful and infected non-functioning upper pole moieties of duplex systems (2 right and 1 left). The lower pole ureter was retrogradely stented prior to surgery and a transperitoneal approach with 5 port access was used in all cases. Total operation time, warm ischaemia time (WIT) and estimated blood loss (EBL) were recorded.

RESULTS: Points of technique learnt included:
- Stenting of the lower ureter made intraoperative identification easier
- Full mobilisation of the kidney and ureters is required,
- Use of the robot facilitated meticulous dissection of hilar vessels which are usually complex and multiple.
- Only selected upper vessel clamping was necessary and oversewing of the cut edge was facilitated by the da Vinci robot.
- The distal end of the ureter was left unclipped and open to prevent infection.

Mean operative time was 200 mins (150 mins-240 mins), Warm ischaemia time was 20 mins (11–35 mins) and estimated blood loss was 200 mls (100–300 mls). No blood transfusion, open conversions or total nephrectomie were necessary.

CONCLUSIONS: Robot-assisted laparoscopic heminephrectomy permits precise dissection and excision of the upper pole moieties in the setting of obstructed duplex kidneys.

Source of Funding: none

V01-07 ROBOT-ASSISTED PARTIAL CYSTECTOMY IN TREATMENT OF A BLADDER PARAGANGLIOMA OF THE URINARY BLADDER
Michael Weintraub*, Minhaj Siddiqui, Srinivas Vourganti, Brian Shuch, Jeffrey Nix, Chris Ricketts, W. Marston Linehan, Piyush K. Agarwal, Bethesda, MD

INTRODUCTION AND OBJECTIVES: Urinary bladder paragangliomas (UBPgl) (also commonly called “bladder pheochromocytomas”) account for 0.06% of bladder tumors but may occur more frequently with familial syndromes, in particular von Hippel-Lindau (VHL) syndrome and succinate dehydrogenase B (SDHB) mutations. We characterize the management of UBPgl and provide an example of a pediatric patient treated with a robot-assisted partial cystectomy.

METHODS: A robot-assisted partial cystectomy of a left anterior wall UBPgl was performed in a 14 year old male with a history of VHL. Transmural illumination via intraoperative cystoscopy was used to aid in lesion localization. Following excision, cystoscopic examination of the excision site was performed and leak testing via cystoscope confirmed proper closure. Subsequently a retrospective review was performed of all cases of UBPgl treated by the Urologic Oncology Branch at the National Institutes of Health (NIH) Clinical Center from 1989–2013.

RESULTS: Diagnosis of UBPgl in this patient was suspected based on micturition-related symptoms and confirmed by catecholamine testing and imaging with MIBG scintigraphy and MRI. Preoperative blockade was given and a robot-assisted partial cystectomy with cystoscopic lesion localization was performed as demonstrated in the video. The patient had an uneventful recovery with complete resolution of symptoms. Review of previous cases of UBPgl treated at our institution revealed eight patients diagnosed with UBPgl during the study period. Mean age of diagnosis was 21.6 years old (range 6–42 years). Five of the cases (62.5%) had familial syndromes. Familial BP tended to be smaller than sporadic cases (mean 4 cubic centimeter (cc) vs. 33 cc tumor volume). BP detected in pediatric patients (< 18 years old) were generally small (9.8 cc versus 17.7 cc for patients > 18 years old). All patients with suspected UBPgl received a preoperative blockade. TURBT was sufficient for management in three of the patients (mean tumor volume 2.2 cc), partial cystectomy for four of the patients (mean tumor volume 11.6 cc), and a radical cystectomy for one patient (tumor volume 63 cc).

CONCLUSIONS: Surgical management of UBPgl includes TURBT, partial cystectomy, and radical cystectomy and is largely dictated by the extent of disease. Robot-assisted partial cystectomy with cystoscopic lesion localization is an option in patients with small tumors, including pediatric patients.

Source of Funding: National Institutes of Health
V01-09 ROBOTIC PARTIAL NEPHRECTOMY IN A PELVIC KIDNEY MASS: SURMOUNTING ANATOMIC CHALLENGES

Vikram Narayan*, Joseph Ellen, Christopher Nelsen, Li-Ming Su, Gainesville, FL

INTRODUCTION AND OBJECTIVES: Surgical management of renal tumors arising in ectopic kidneys are often complicated by the presence of supernumerary arteries and veins. In our case, we present our experience with a 59-year-old male, who had an incidental finding of a left pelvic kidney and underwent a robotic-assisted partial nephrectomy to excise an upper pole, posterior located renal mass with 5 renal arteries.

METHODS: The patient presented with abdominal pain and on CT was found to have a 2 cm solid renal mass in a left pelvic kidney. He was counseled on the options of partial nephrectomy, ablative therapies, and surveillance, and opted for a robotic partial nephrectomy. Trocars were placed in an inverted U-shaped configuration similar to a robotic prostatectomy setup. The patient was noted to have multiple anomalous vessels: a large artery emanating from the aortic bifurcation, two additional arteries stemming from this large artery, a 4th artery off the left common iliac, and a 5th artery off the retroperitoneum. The mass was identified at the superior aspect of the kidney and skeletonized. Because the kidney was attached to the retroperitoneum by the 5th posterior artery, we were unable to rotate the kidney to gain better exposure of the mass. Laparoscopic ultrasonography was used to delineate the tumor margins. 12.5 g of mannitol were administered intravenously and arteries supplying the upper pole of the kidney were selectively occluded using laparoscopic bulldog clamps. The 4th and 5th arteries were left unclamped to allow perfusion to the lower pole of the kidney. The mass was excised with visually clean margins and the defect closed in a two-layered fashion. After completion of the renorrhaphy, the bulldog clamps were removed with excellent pulsations noted in all arteries as well as perfusion to the upper pole of the kidney.

RESULTS: Total OR time was 90 minutes, and estimated blood loss of 100 cc. The patient was discharged on postoperative day 1 after removal of the Foley catheter and closed-suction drain. The ureteral stent was removed in the office after 4 weeks. She had no complications as of her last follow-up at 7 weeks post-operatively. She remains free of renal colic and antegrade placement of a ureteral stent.

CONCLUSIONS: The key steps of our technique for the successful robotic repair of a retrocaval ureter include modified flank positioning, ureteral identification inferior to the IVC, and a tension-free anastomosis anterior to the IVC.

V01-10 ROBOTIC RIGHT ADRENALECTOMY FOR LARGE PHEOCHROMOCYTOMA

Gautam Jayram*, Petra Szima-Cotter, Mohamad Allaf, Misop Han, Baltimore, MD

INTRODUCTION AND OBJECTIVES: A 40 year old male presenting with abdominal pain and hypertension found to have a large right pheochromocytoma, confirmed with biochemical studies.

METHODS: Utilizing a standard 5 port robotic right adrenal approach, the adrenal mass was delicately removed with care not to manipulate or enter the mass.

RESULTS: Total operative time was 90 minutes, and estimated blood loss was 50 ml. The patient was discharged uneventfully on POD#2. Final pathology revealed a 7.5 cm pheochromocytoma, with negative margins.

CONCLUSIONS: Robotic Adrenalectomy for large mass pheochromocytomas can be feasible utilizing the same anesthetic and surgical principles as for open or laparoscopic adrenalectomy.

V01-11 COMPARATIVE TECHNIQUES FOR MAINTAINING HEMOSTASIS DURING LAPAROSCOPIC/ROBOTIC ASSISTED PARTIAL NEPHRECTOMY

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INTRODUCTION AND OBJECTIVES: Partial nephrectomies have shown to have superior long-term renal function outcomes when compared to radical nephrectomies and have consequently become the standard of care for small renal tumors. Ischemic time is the most modifiable risk factor associated with renal function loss. This video illustrates different methods of vascular control during and after tumor resection during partial nephrectomies that can help minimize intraoperative blood loss and eliminate the detrimental effects associated with prolonged ischemic time.

METHODS: Partial nephrectomies have shown to have superior long-term renal function outcomes when compared to radical nephrectomies and have consequently become the standard of care for small renal tumors. Ischemic time is the most modifiable risk factor associated with renal function loss. This video illustrates different methods of vascular control during and after tumor resection during partial nephrectomies that can help
minimize intraoperative blood loss and eliminate the detrimental effects associated with prolonged ischemic time.

RESULTS: The trade-off between blood loss and ischemic time must be weighed in order to determine if clampless partial nephrectomies are beneficial to the patient. Of note, the selectively clamped partial nephrectomy had a higher total blood loss due to the location and continued vascular supply from the other renal artery. The warm ischemic time of 13 minutes was only selective to a small area in the upper pole. The clampless partial nephrectomy had zero ischemic time preserving perfusion to the rest of the kidney. The continued perfusion to the entire kidney, however, led to a higher total blood loss when compared to the completely clamped partial nephrectomy.

CONCLUSIONS: Different suturing techniques during and after tumor resection can impact hemostatic control and determine the need to clamp the renal vasculature. In contrast to identifying and suturing bleeding vessels after resection, suturing during tumor resection as seen in the non-clamped partial nephrectomy can help reduce blood loss while eliminating ischemic time.

Source of Funding: none

V01-12 ROBOTIC RIGHT NEPHRECTOMY AND INFERIOR VENA CAVA TUMOR THROMBECTOMY WITH CAVAL PATCH GRAFT RECONSTRUCTION

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INTRODUCTION AND OBJECTIVES: Robot-assisted radical nephrectomy with IVC tumor thrombectomy has been reported with good outcomes. We present our technique and perioperative results of the first robot-assisted radical nephrectomy and IVC tumor thrombectomy and reconstruction using a synthetic patch graft.

METHODS: The procedure was performed by a single surgeon (DDE) using the da Vinci® Si. The major portions of the procedure included: interaortocaval dissection for proximal renal artery clamping, determination of tumor thrombus extent using laparoscopic ultrasound probe, retro-hepatic caval dissection, confirmation of absent arterial inflow into right kidney via intravenous indocyanine green visualization under near-infrared light, staging lymphadenectomy, clamping of supra-renal IVC, infra-renal IVC, and contralateral renal vein, cavo-tomy, vascular reconstruction using a 6 cm x 3 cm synthetic patch graft, and radical nephrectomy.

RESULTS: With the patient fully heparinized, IVC cross-clamp time was 69 minutes, and estimated blood loss was 550 milliliters. Operative time was 205 minutes. The patient was transferred out of the Intensive Care Unit on postoperative day 1, and was discharged home on postoperative 7 for Coumadin optimization. There were no intraoperative and no postoperative complications. Pathological analysis revealed a 7.1 centimeter poorly differentiated collecting duct carcinoma with tumor extension into the IVC wall, renal pelvis, sinus fat, perinephric fat, and ipsilateral adrenal gland. Seven out of 25 nodes were positive. At 3 months postoperatively, her performance status was excellent and abdominal CT showed no disease progression.

CONCLUSIONS: In the appropriate candidate, robot-assisted IVC thrombectomy with cross-clamping and patch graft reconstruction is feasible.

Source of Funding: None

V02 PERCUTANEOUS SURGERY

V02-01 TUBELESS, PRONE-FLEXED PERCUTANEOUS NEPHROLITHOTOMY: TECHNIQUE FOR TETHERED DOUBLE-J URETERAL STENT INSERTION

Kirsten Foell*, R. John D’A. Honey, Toronto, Canada

INTRODUCTION AND OBJECTIVES: During tubeless percutaneous nephrolithotomy (PCNL), ureteral stent insertion is routinely performed in an antegrade fashion. However, placing a stent with a tether protruding from the urethral meatus facilitates subsequent stent removal, and can be accomplished in a sterile, retrograde fashion. This sterile technique will be demonstrated in this video, for patients undergoing tubeless PCNL in the prone-flexed position.

METHODS: With the patient positioned supine, flexible cystoscopy is performed for placement of a ureteral catheter. Retrograde pyelography is performed after urine is aspirated out of the system. Over a guidewire, the catheter is exchanged to a 6F UPJ occlusion balloon. Up to 1.0 cc of saline is used to fill the balloon, which is positioned at the UPJ. A coude catheter is inserted, with 10 cc of 50% contrast in the balloon. With the balloon positioned at the base of the bladder, the sterile cystoscope irrigation tubing and bag are used for straight drainage to the catheter. The UPJ occlusion and Foley catheters are secured to each other with sterile tape, while the occlusion balloon remains positioned at the UPJ. One sterile towel is placed beneath both catheters, and another is placed overtop. The outer, lower towel will later be removed. A contrast infusion is attached to the 3-way catheter, which will distend the collecting system while the patient is repositioned. Later, after the procedure while the patient is prone, the drapes are cut to reveal the towels. The outer towel is removed, to release the catheter still wrapped in the inner, sterile towel and gloves are changed. The UPJ occlusion balloon is transected to deflate its balloon, and it is exchanged for a guidewire. A ureteral access sheath (UAS) is used to maintain sterility of the stent as it is advanced. The UAS is positioned just at the level of the bladder neck, which is marked by the Foley catheter balloon. A double-J ureteral stent, with its tether, is advanced through the UAS and the distal end is then pushed just up to the level of the bladder neck, as marked by the Foley balloon. The UAS is then removed, leaving the stent tether protruding from the urethra. The PCNL sheath is removed, and pressure is applied for 2–3 minutes. Our preference is to close the tract with steristrips.

RESULTS: This technique has been used successfully in over 100 patients at our institution.
V02-02 ONE STAGE PCNL FOR STAGHORN CALCULI BY 3 ACCESSES
Zhang Shudong*, Beijing, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: PCNL is currently the recommended treatment for patients with staghorn calculi based on the superior outcomes and acceptable low morbidity. PCNL is associated with high-risk complications such as renal hemorrhage especially for staghorn calculi. The stone-free rate of staghorn calculi following PCNL is lower by single tract. This video present one stage PCNL for staghorn calculi by three standard tracts (24 F-26 F).

METHODS: A 46-year old gentleman presented with left huge staghorn calculi one weeks ago. We performed one-stage three-tracts PCNL by ultrasound guidance. Tract dilatation was serially accomplished using Amplatz dilators from 10 F to 26 F. One type of three working sheath was 26 F and two was 24 F. The stones were fragmented with Cyberwand dual probe ultrasonic intracorporeal lithotripter through WOLF 20.8 F rigid nephroscope.

RESULTS: The estimated blood loss was 100 ml, and operative time was 90 min. There was no intraoperative and postoperative complications. Nephrostomy tube was removed after 3 days, provided no significant residual stone was seen on the KUB. The 6 F Double-J stent was removed after one month. No stone recurrence is seen after 10 months follow-up.

CONCLUSIONS: One-stage PCNL by multiple accesses more than 24 F under ultrasound guidance can be safe and selective by experienced surgeon.

Source of Funding: none

V02-03 TIPS AND TRICKS FOR PERCUTANEOUS NEPHROLITHOTRIPSY
Ioannis Georgiopoulos*, Jason Kyriazis, Panagiotis Kallicoris, Stavros Kontogiannis, Evangelos Liatsikos, Patras, Greece

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotripsy (PCNL) is a technically demanding intervention, but may be made easier by implementing a few tricks, especially regarding the important steps of access and dilation.

METHODS: The initial steps of access and dilation are of crucial importance to the successful outcome of PCNL. We describe simple steps that may benefit beginners and more experienced colleagues. First, we show how to properly handle a percutaneous needle, to circumvent an intervening rib. Then the use of an angiographic hydrophilic catheter is shown, a tool that many urologists are unfamiliar with. Then, tips on repositioning a slipped ureteral catheter are shown, and practical ideas to handle staghorn calculi or any other stone that requires multiple accesses. Finally, repositioning of a stone for easier breakage using a percutaneous needle is demonstrated.

RESULTS: The implementation of these tips and tricks has substantially aided younger residents and fellows manage their first attempts at PCNL, and are of value to more experienced colleagues as well.

CONCLUSIONS: Practical tips and tricks may help facilitate the performance of PCNL, especially in the important steps of access and dilation.

Source of Funding: None

V02-04 LASER ENDOPYELOTOMY
Prem Kumar*, Mohan Keshavamurthy, Shakir Tabrez, Uday Bhaskar, Mohan Balaih Ashwathaiah, Bangalore, India

INTRODUCTION AND OBJECTIVES: Pelvi ureteric junction obstruction has been treated with endopyelotomy in selected cases, especially in those patients with intrarenal pelvis or with renal calculi. The standard technique of endopyelotomy is by cold knife incision on the infero-postero lateral wall of the pelvi ureteric junction. Use of LASER in urology has recently been extensive. We have been using LASER for endopyelotomy successfully.

METHODS: Four patients presenting with post operative recurrent PUJ obstruction and primary PUJ obstruction with a significantly intrarenal pelvis were subjected to LASER endopyelotomy at our centre between January 2011 and March 2013. Under general anaesthesia and with the patient in a lateral position, percutaneous access is achieved and the pelvis entered. A guidewire is placed into the ureter and the lateral wall of the PUJ delineated. Using a diode (CO2) laser, an endopyelotomy was performed and an endopyelotomy stent inserted.

RESULTS: Endopyelotomy stents were removed a month after the procedure. No post operative complications were recorded. Patients were followed for a mean duration of 1 year after the procedure. All patients were followed up with ultrasound scans and renal function tests. No recurrence was detected on follow up.

CONCLUSIONS: LASER endopyelotomy is a good alternative to conventional endopyelotomy with better precision and control. No added complications or adverse events were recorded. In the current era of use of LASERS in urology it is feasible to use LASERS for the same.

Source of Funding: None

V02-05 RETROGRADE ACCESS VERSUS CLASSIC PERCUTANEOUS CYSTOLITHOLAPAXY IN BLADDER STONE MANAGEMENT
Shahrokh Sakhai, Kermanshah, Iran, Babak Kazemzadehazad*, Tehran, Iran

INTRODUCTION AND OBJECTIVES: Bladder stones are the most common manifestation of the lower urinary tract lithiasis including 1.5% of urologic admissions. Percutaneous cystolitholapaxy (PCCL) as a surgical treatment of bladder stones generally is attractive due to superior cosmetic results and less hospitalization, comparing with open procedure, and, less urethral traumatization and specially lack of stone burden limitation, weigh against transurethral process. Classically, PCCL is done by a blind access through an incision about the pubic area called Antegrade PCCL (APCCL).

Potential risk of bowel injury while entrance of Amplatz sheath, and Dilatator over advancement is the most hazardous complication of APCCI.

Retrograde approach is a modification that may solve these complications and make the PCCL even more trendy method.

METHODS: There were 25 adult male patients underwent Percutaneous cystolitholapaxy in our hospital between October 2010 and January 2013.
As you will see in the video, a low-sound or an appropriate benique is conducted through urethra into the bladder. Palpatting the suprapubic region, an almost 1.5 cm incision is done over the tip, then an anoplast sheath is placed over it treading into the bladder; further cystolitholapaxy is done by routine order.

RESULTS: 15 patients underwent APCCL and 10 patients were treated with RPCCL plan.

Average stone burden was 4.2 (2–5.5) cm. The surgery period was significantly less in RPCCL (25 min instead of 45 min in APCCL). (p < 0.05)

Postoperative hospital staying (1–2 days) and overall stone free rate (> 90%) was the same in two groups.

Hematuria (prolonged at least two days) is higher in Classic method (4 cases in APCCL and 1 in RPCCL).

There were two cases (13.3%) of tract loss in the group of APCCL and none in RPCCL.

We fortunately didn’t have any rectum injury in both groups.

CONCLUSIONS: Percutaneous cystolitholapaxy by Retrograde access is rather safer method, judge against Antegrade approach, which contains less complications (hematuria and tract loss), morbidity (hospitalization), and operation time.

Source of Funding: None

V02-06 TECHNIQUE OF PERCUTANEOUS TREATMENT IN THE SUPINE POSITION OF A RENAL DIVERTICULUM

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INTRODUCTION AND OBJECTIVES: To prove the feasibility and describe the technique of the percutaneous treatment in the supine position of renal diverticula.

METHODS: A 56 years old female patient was admitted for a renal colic, fever and a left urinoma caused by a rupture of a 3.7 cm left renal diverticulum due to obstruction from a pelvic ureteral stone. The diverticulum was located on the upper half of the kidney and contained a semilunar milk of calcium. The ureteral stone was removed ureteroscopically and a JJ stent and a bladder catheter were inserted for one month. An uroterenoscopic approach was then performed during which the infundibulum of the diverticulum could not be reached due to the extremely angled position of the infundibulum. Therefore it was decided to proceed with a percutaneous access to the diverticulum. With the patient in a supine oblique position, a subcostal ultrasound guided fluoroscopically adjusted puncture was performed through the diverticulum. Due to the proximity to the spleen, renal puncture was particularly delicate and ultrasound evaluation of the kidney proved to be very useful. Despite the puncture was successful after a single attempt, a modest bleeding from the percutaneous tract was observed. It was decided though not to proceed with the tract dilation but rather perform a staged procedure. After 1 month a percutaneous approach in the supine position was performed. The percutaneous tract was dilated by means of a balloon dilator. A rigid nephroscope was inserted into the diverticulum. The infundibulum was first identified through injection of indigo carmine in a retrograde fashion and subsequently was dilated by means of serial fascial dilators up to 20 Fr. A holmium laser incision was then performed further widening the infundibulum. At the end of the procedure a nephrostomy tube and a JJ stent were left in place.

RESULTS: There were no intra- or postoperative complications. The nephrostomy tube was removed in the second postoperative day and the JJ stent after 1 month. At 3 months the CT scan revealed a wide diverticular infundibulum and a decrease in the diameter of the diverticulum (2 cm). The patient was asymptomatic.

CONCLUSIONS: Treatment of symptomatic renal diverticula can be challenging. Percutaneous treatment in the supine position is feasible even if it can be difficult. Initial dilatation of the stenotic infundibulum with subsequent holmium laser incision seems to be efficacious.

Source of Funding: None

V02-07 MICROPERCUTANEOUS NPHROLITHOTOMY GUIDED BY RETROGRADE FLEXIBLE URETEROSCOPY: PRELIMINARY EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Micropercutaneous nephrolithotomy (Microperc) is the last born of the miniinvasive percutaneous approaches. The reduced size of the renal access without tract dilation reduces its morbidity, especially bleeding. Unfortunately, Microperc suffers from intrinsic limitations, i.e. reduced illumination and resolution of the working field due to the micro-optical system containing few fibers, a limited field of vision for the rigidity of the optics, the lack of extraction of stone fragments after lithotripsy because of the small diameter of the devices, the need to prolong operative time to obtain complete stone disintegration, the risk of developing high intrarenal pressures in absence of an adequate drain. Since we experienced for years ECIRS (Endoscopic Combined IntraRenal Surgery) with the patient in a modified supine position, we decided to try and perform micro-ECIRS, combining Microperc with retrograde flexible ureteroscopy, with the aim to maximally exploit the advantages of Microperc.

METHODS: Patients were arranged in the Galdakao-modified supine Valdivia position. One patient had a 16 mm stone in a lower calyx with long and deep infundibulum, the other a 15 mm stone impacted in a narrow lower calyx infundibulum. The 4.85 F all-seeing needle (PolyDiagnost, Pfaffenhofen, Germany) with 0.9 mm micro-optical system, the three-way connector and the 200 micron holmium laser fiber were used. Both analogic and digital flexible ureteroscopes were used, with a 12–14 F ureteral access sheath (UAS) in one case.

RESULTS: Dynamic anatomy of the collecting system and stone features were initially ascertained for optimal strategic planning; the correct introduction of the needle within the chosen calyx and lithotripsy was followed under Endovision control; vision was improved by retrograde illumination and irrigation, progressively removing sand; low pressures were guaranteed by UAS; major stone fragments were removed retrogradely with a basket; final exploration of all calyces was performed for complete fragments’ removal.

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Source of Funding: None
**V02-08 MICROPERCUTANEOUS NEPHROLITHOTOMY (MICROPERC): THE FIRST ITALIAN EXPERIENCE**

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**INTRODUCTION AND OBJECTIVES:** The micropercutaneous nephrolithotripsy (Microperc) represents the evolution of the standard PCNL for the surgical treatment of simple kidney stones. In this video we present our experience, the first in Italy, with Microperc technique.

**METHODS:** From February 2013 until April 2013 we performed 4 Microperc procedures. The procedures require access to renal calyces under ultrasound and fluoroscopic guidance, and also under direct vision through a 3-part “all-seeing needle”, consisting of a needle, a outer sheath of 4.85 Fr and working channel that allows the insertion of a micro-optics with a diameter of 0.9 mm and a resolution up to 10,000 pixels (Polydiagnost). A 3-way connector is then attached to the proximal end of the sheath for the application of an irrigation pump, micro-optics, 200 mc Holmium YAG laser fiber VersaPlus P20 (Lumenis). For the fragmentation of renal stone.

**RESULTS:** In 4 patients treated, the average size of the calculi was 15 mm (range 5–27 mm), average value on CT Hounsfield units was 1032 (range 931–1130). Anatomical abnormalities were present in one patient (horseshoe kidney). Calculi were located in the renal pelvis (3) and in the lower calyce (1). Stone fragmentation was obtained using work sheath diameter of 4.8 Fr or 8 Fr in two patients respectively. Mean time of surgery was 93.5 minutes (range 76–117 min). The average time of exposure to fluoroscopy was 187 seconds (range 128–283 seconds). Patients were discharged after 3.5 days (range 1–9 days). There was no significant blood loss, and no blood transfusions were necessary.

**CONCLUSIONS:** The Microperc technique was introduced as an evolution of PCNL with the intent to reduce this complication. We report our microperc experience, as the first Italian center to perform this procedure. Our data confirms that this technique is possible, reproducible and safe as was reported also in literature by Desai and Armagan. The minimal invasive microperc with optical puncture system, characteristic of this technique, makes it possible to avoid visceral lesions and confirms the access using visual references. Another advantage is that it takes place in a one step reduction of lithotripsy. Microperc is a viable alternative to PCNL for the treatment of simple renal stones. The minimal size of work sheath and optical puncture system allows to decrease the damage to the renal parenchyma. Thanks to this minimally invasive procedure results, both functional and esthetic, microperc turns out to be very advantageous in single-kidney patients, co-morbidity cases and pediatric surgery.

**Source of Funding:** none

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**V02-09 PERCUTANEOUS PLACEMENT OF A SAFETY GUIDEWIRE AT NO COST**

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**INTRODUCTION AND OBJECTIVES:** The use of a reserve safety guidewire is an inexpensive insurance to prevent the complete loss of an access tract during endourologic procedures. Various safety guidewire introducers are available. We present a video of tricks to insert a safety guidewire with no additional cost.

**METHODS:** To reduce the cost of the inserting-device of a safety wire, we present 3 techniques:

- The dispenser tube housing the guidewire: after calyx puncture and insertion of a first guidewire, dilation to 12 Fr is performed. A 15 cm segment is severed from a 9 Fr guidewire dispenser. The segment is advanced over the guidewire until reaching the caliceal system, and clear fluid is recuperated. The second guidewire is placed.

- Otherwise, the central rod of Alken metallic dilators is advanced over the working guidewire; a 24 or 30 Fr Amplatz dilator is advanced over the metallic rod until reaching the calyx cavity. A second guidewire is inserted through the Amplatz dilator adjacent to the metallic rod until passing into the calyx, between the dilator and the olive-tip of the metallic rod. The Amplatz dilator is retrieved. The safety guidewire is recuperated from the dilator. The Amplatz dilator and sheath are reintroduced once again into the caliceal cavity.

- The fascial dilator technique: A hole is performed in a 12 Fr fascial dilator, 2 cm below its tapered tip, with the 18-gauge puncture needle or its mandrin. The tip of a straight guidewire is inserted in the hole. The dilator is advanced over the working guidewire, until the safety wire reaches the calyx. The safety wire is held tight and the dilator is advanced until the tip of the guidewire is dislodged from its hole. Then, the safety guidewire is coiled into the kidney.

**RESULTS:** The dispenser tube of the guidewire is always present in the operating table, so this is the technique usually used in most of percutaneous renal surgeries. However, it is a rigid tube and insertion must be performed smoothly to avoid kinking of the guidewire. There is no radiopaque-markers incorporated; the correct position is ensured by the tactile feeling of the skilled-surgeon, the clear fluid, and/or the tip of the safety guidewire. The technique using the Amplatz dilator is performed if the dispenser coil tube of the used guidewire is of a large diameter, otherwise, to avoid the use of the small fascial dilators. No complications were noted with these techniques.

**CONCLUSIONS:** These cost-free tricks had allowed us the insertion of a safety guidewire without using any specific safety guidewire introducers. Other materials, usually present on the operating table, can be used: a large double J stent pusher...

**Source of Funding:** none

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**V02-10 A SECOND SIMULTANEOUS PERCUTANEOUS RENAL TRACT WITH THE RIGID URETEROSCOPE**

Mohammed Lezrek*, Khalil Bazine, Adil Slimani Alaoui, Hicham Tazi, Mohammed Alami, Meknes, Morocco

**INTRODUCTION AND OBJECTIVES:** We describe a video of our experience in managing complex renal calculi by combining a standard first tract using a nephroscope and a simultaneous second percutaneous tract using a rigid ureteroscope.

**METHODS:** Between January 2005 and June 2011, data from 30 patients (19 men and 11 women) corresponding to 32 renal units with multiple complex renal stones, which required multiple (≥2) access tracts in a single session, were analyzed retrospectively. Patient’s age ranged from 21 to 75 years (mean 38.7). Operative technique: percutaneous surgery is performed in the split leg modified lateral position. The first tract is achieved with a 24 or 30 Fr Amplatz sheath, using a 20.8 Fr nephroscope. When another percutaneous tract is necessary, a second caliceal puncture is performed. Dilation to 10 or 12 Fr and insertion of a
safety guidewire are mostly performed under endoscopic control without radiation exposure. The rigid ureteroscope (6 or 8 Fr) is introduced over a guidewire under direct vision. Then, it is used to mobilize stones from the calyx to the renal pelvis. Stone fragmentation and extraction is performed via the first tract by the nephroscope, simultaneously if possible, or alternately. At the end of the procedure a 20 Fr Foley catheter and an 8 Fr drain tube are respectively inserted in the first and second tract.

RESULTS: A second or third mini tract, using the rigid ureteroscope, was possible in all patients. A total of 67 percutaneous access tracts were realized. 28, 23, and 16 tracts were respectively through the upper, middle and lower calyx. The mean operating time was 125 min (extreme 85–192 min). The number of access was 2 in 29 renal units, and 3 in 3 renal units. The average decrease in serum hemoglobin was 2.7±0.9 g/dl. The mean hospital stay was 4.5 days (3–6 days). A single-stage PCNL resulted in complete clearance in 27 renal units (84%). No transfusion was required. 4 patients had a postoperative fever of more than 38.51°C, were treated by antibiotic therapy. 1 patient with 3 accesses a perirenal collection that resolved spontaneously.

CONCLUSIONS: A second or third mini tract, using the rigid ureteroscope, was possible and safe. It is another application for the rigid ureteroscope, already available in every endourology operating room, so there is no need for new equipment (mini-nephroscope). In addition, this mini second tract might provide less morbidity than a standard second tract. Also, it might avoid the need for a second look, and the need for flexible instruments (baskets, flexible lithotripter…), which are more expensive.

Source of Funding: none

V02-11 THORACIC LITHIASIS: AN UNUSUAL COMPLICATION OF PERCUTANEOUS RENAL SURGERY
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

INTRODUCTION AND OBJECTIVES: we present a video of an atypical complication of percutaneous nephrolithotomy (PCNL) with the migration of a renal stone in the thoracic cavity. 1 year ago, 17-years-old girl had open surgery for a stag-horn calculus. She had 3 residual stones of about 7–9 mm, so PCNL was decided. The kidney was fixed in a higher position. An intercostal, between the 11th and 10th rib, upper pole calyx percutaneous access was performed and a 24 Fr working sheath was placed. 2 stones were removed by the rigid nephroscope without fragmentation. The third stone was localized by the flexible nephroscope, and was grasped with a Nitinol basket. After, an abrupt pull, the Amplatz sheath, nephroscope and the stone were in the retroperitoneal tract and the stone was lost. Fluoroscopy showed the stone in the thorax. The rigid nephroscope and a 30 Fr Amplatz sheath are inserted through the pleural injury and thoracoscopy was performed. The stone was removed. A 24 Fr chest-tube was inserted through the percutaneous tract. A double-J-stent was inserted in the kidney, and no nephrostomy tube was placed.

RESULTS: the chest-tube was removed the second postoperative day, after a normal chest X-ray. The patient had an uneventful discharge on the fourth postoperative day.

CONCLUSIONS: thoracoscopy was possible using the rigid nephroscope through the same percutaneous tract, and the stone was removed. There is high risk of thoracic complications with intercostals punctures, especially, above the 11th. Gentle maneuvers are necessary during PCNL to avoid complications.

Source of Funding: none

V02-12 A NEW TECHNIQUE OF PERCUTANEOUS ENDOSCOPIC NEPHROPEXY
Mohammed Lezrek*, Khalil Bazine, Hicham Tazi, Adil Slimani Alaoui, Mohammed Alami, Meknes, Morocco

INTRODUCTION AND OBJECTIVES: we present a video of percutaneous endoscopic nephropexy technique, using nephrolysis and a polyglactin suture passed through the kidney.

METHODS: An intercostal upper pole calyx percutaneous access was performed and a 24 Fr working sheath was placed. Another needle access was performed through a lower pole calyx and a number 2-polyglactin suture was passed into the renal pelvis. Then, it was pulled out through the upper pole tract by the nephroscope. A retroperitoneoscopy was performed, and the tip of the nephroscope achieved a nephrolysis. After insertion of the nephrostomy tube, the polyglactin suture was passed in the subcutaneous tissue, and then tied without too much tension.

RESULTS: Four women, presenting symptomatic right nephropathy, underwent a percutaneous endoscopic nephropexy. The operative time was 33 minutes, and postoperative hospitalization was 3.5 days. The nephrostomy catheter was removed the fifth-postoperative day. No complication was noted, especially hemorrhagic, infectious, lesthetic or thoracic complication. The 4 patients were relieved of the symptoms they suffered preoperatively, with a mean follow up of 28 months. Postoperative ultrasonography and/or IVP showed the kidney at a higher location in erect position.

CONCLUSIONS: This technique combines the nephrostomy tract of percutaneous techniques, and the suture and nephrolysis of laparoscopic techniques. Moreover, this procedure seems to be a safe technique with satisfactory anatomical and clinical results at a lower morbidity. However, a larger series will be necessary to establish its long-term morbidity and success.

Source of Funding: none
V03-01 PLACEMENT OF METALLIC URETERAL STENTS - ANTEGRADE, RETROGRADE AND URINARY DIVERSION APPROACHES

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INTRODUCTION AND OBJECTIVES: Metallic ureteral stents are placed in patients with ureteral obstruction when long-term urinary drainage must be ensured. We demonstrate three cases highlighting the alternative placement choices with Resonance® stents.

METHODS: Placement through urinary diversions is demonstrated in a young female patient with a history of bladder extrophy and the creation of a cutaneous ureterostomy. Frequent obstructions of the left ureter required the use of a long-term ureteral stent. Once the ureter is catheterized, a stiff wire is advanced to the pelvis. The insertion catheter is then advanced to the pelvis, and through it the stent is placed. Proper placement of the stent is ascertained by the radioopaque markings on the introduction sheath. As the introduction sheath is removed, the stent coils in the pelvis and remains in place.

Retrograde transurethral insertion is the most common method of metallic stent insertion. We demonstrate the simultaneous bilateral placement of two Resonance® stents in a patient with extrinsic ureteral compression due to advanced ovarian cancer. After inserting stiff guidewires through the ureters into the renal pelvises, both introduction sheaths are advanced simultaneously. Proper placement is confirmed with the radioopaque markers, and the stents are then also simultaneously inserted on both sides. The introduction sheaths are removed carefully, ensuring the formation of the distal and proximal stent coils in the bladder and pelvis respectively.

The Resonance® stent may also be placed percutaneously in an antegrade fashion. Upon gaining percutaneous access into the collecting system, a stiff guide wire is advanced to the bladder. The introducing sheath is placed over the wire and the stent is then placed through the sheath. As the sheath is removed, the stent is seen to coil in the bladder and in the renal pelvis, ensuring its permanence in the ureter.

RESULTS: Resonance® stents have been successful in managing ureteral obstruction, and have been used in a variety of indications. Metallic ureteral stents are well tolerated by patients, require infrequent changes (at 12 months) and provide a solution to the need for long-term urinary drainage. We demonstrate that placement of the stents is feasible in a variety of patients, with satisfactory results.

CONCLUSIONS: Ureteral metallic stents may be placed through various approaches: through urinary diversions, retrogradely and anterogradely. Proper placement of the stents is important to ensure their proper function and to minimize discomfort for patients.

Source of Funding: none

V03-02 A PRACTICAL TRAINING SYSTEM OF LAPAROSCOPIC SURGERY

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INTRODUCTION AND OBJECTIVES: We developed an economical and practical training system for laparoscopic surgery.

METHODS: T® Eingen MIC Trainer is widely used in Europe. This console is useful for laparoscopic surgical training and only organs are fixed in it. In addition to organs, we also include other cheap equipment in the trainer such as filters of exhaust fans and water balloons. Finally, we conducted training with the intra-peritoneal pseudo-environments that we created.

RESULTS: During simulation of nephrectomy, the assistant had to clear the surgical field of other obstructive equipments. The assistant had to either include or exclude the filters, organs and other equipments. Extracorporeal technique training was also conducted, especially for laparoendoscopic single-site surgery (LESS). CONCLUSIONS: Generally, the training is conducted only for surgeons. However, an assistant may also play an important role in the surgical field. In our method, filters and other equipment interfered with the training procedures. In addition, assistants have to ensure that their technique does not interfere with that of the surgeon. Therefore, our method is very useful in surgical training not only for surgeons but also for assistants. It is also useful for robotic surgery and LESS training, particularly LESS which is difficult to perform not only by surgeons, but also by assistants. The T® Eingen MIC Trainer can be used to simulate and train for novel surgeries. Thus, we introduce a good training and simulation method for novel surgical techniques.

Source of Funding: none
**V03-03 A GLOVE MODEL FOR ACQUIRING SKILLS OF ENDOUROLOGIC STONE MANIPULATION**

Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

**INTRODUCTION AND OBJECTIVES:** We present a video of a model using a latex glove for learning of endoscopic stone manipulations.

**METHODS:** The glove opening is closed around an Amplatz sheath of 24 or 30 Fr, using a few ligations. The standard equipment of cystoscopic lithotripsy, PCNL, and or ureteroscopy with different stones sizes can be used. Urologist with no PCNL skills and residents were taught nephroscopy, ureteroscopy and stones manipulation.

**RESULTS:** The glove model closely simulates percutaneous nephroscopy, stone disintegration, and stone removal. The endoscopic exploration of the glove’s fingers is similar to intra-renal exploration. The flexible nephroscope, rigid and flexible ureteroscope can be used to simulate anterograde ureteroscopy. Moreover, stones manipulation in the glove’s palm can simulate bladder lithotripsy, and in a glove’s finger can simulate rigid ureteroscopy.

However, there is a limitation in terms of “tissue feeling” and for anatomic relations. Evaluations submitted by training session participants revealed a high degree of satisfaction with model effectiveness in the application of endoscopic lithotomy techniques.

**CONCLUSIONS:** Our glove model can simulate stone manipulation in the bladder kidney and ureter. The glove model is simple to set up, with a preparation time of about a few minutes. It is economical, by using widely available material. It can be performed in the operating room, since it is a non-biological model, so there is no risk of biologic contamination, nor any hygiene or sterilization issue. However, further technical experience and comparative studies with biologic and virtual reality simulators are necessary to evaluate this technique.

**Source of Funding:** none

**V03-04 PERCUTANEOUS CALYX PUNCTURE SIMULATION IN A GLOVE MODEL**

Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

**INTRODUCTION AND OBJECTIVES:** Many biological models with porcine kidney and virtual reality simulator have been developed, to facilitate the learning and training of percutaneous renal surgery. We present a video of a cheaper and easily available model using a latex glove, for percutaneous calyx puncture.

**METHODS:** Two or three foam layers are used to simulate the abdominal wall layers. A ureteral catheter is inserted in a latex glove, which is closed using five ligations. The glove is filled with saline solution and contrast media. It is placed on the distal half of the foams with the fingers pointing toward the middle. The fingers are fixed to the foam using medical tapes. The foams are folded, to cover the glove. The puncture, guidewire insertion, and small dilation are performed under fluoroscopic guidance, with the X-ray beam perpendicular to the tract. Urologist and residents were taught needle access, and the beginning of tract dilation.

**RESULTS:** The glove model is simple to set up, with a preparation time of about a few minutes. It is economical, by using widely available material. It can be performed in the operating room, since it is a non-biological model, so there is no risk of biologic contamination, nor any hygiene or sterilization issue. Percutaneous puncture and limited dilation were possible in all the fingers. The needle mobilization and puncture of the glove’s fingertip are similar to the feeling of the calyx puncture.

The fingers have to be tightly filled, in order to be firm to the needle puncture. Otherwise, if the finger is flaccid the needle will push the fingertip without puncturing it. Moreover, dilation and Amplatz sheath insertion are difficult or impossible; the finger is pushed by the dilator. It is a non-biological model so there is a limitation in terms of “tissue feeling” and for anatomic relations. In addition, ultrasound-imaging guidance cannot be used. Evaluations submitted by training session participants revealed a high degree of satisfaction with model effectiveness in the application of percutaneous calyx puncture.

**CONCLUSIONS:** This glove model seems to be an effective mean of skills acquisition for percutaneous calyx puncture. Moreover, it is cheap, simple and quick to set up, with no risks of biologic contamination. However, further technical experience and comparative studies with biologic and virtual reality simulators are necessary to evaluate this technique.

**Source of Funding:** none

**V03-05 MANAGEMENT OF STRESS URINARY INCONTINENCE AND VAGINAL PROLAPSE USING A SELF-TAILORED POLYPROPYLENE MESH**

Mohammed Lezrek*, Omar Laghzouzi Boukaidi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

**INTRODUCTION AND OBJECTIVES:** We present a video of our technique for the management of stress urinary incontinence and vaginal prolapse, using a self-tailored polypropylene mesh.

**METHODS:** for economic reason we use a polypropylene monofilament mesh of 15/15 cm for transobturator tape treatment of stress urinary incontinence and for cystocele synthetic repair.

For the sub-urethral sling, a tape of 1 cm large and 15 cm long is harvested from the polypropylene mesh. A vaginal incision under the mid-urethra is performed and then the mesh is implanted with the transobturator outside-in technique.

The cystocele mesh is tailored from the remaining 14/15 cm polypropylene mesh, with 2 or 4 arms. A transversal vaginal incision is performed 1 cm above the cervix. The vaginal wall is dissected from the bladder. The cystocele mesh is placed through the vaginal incision and the arms are placed with the transobturator outside-in technique.

**RESULTS:** the use of self-tailored polypropylene mesh is possible for using as sub-urethral sling for urinary incontinence. In addition, it can be used for the transobturator cystocele synthetic repair. A 15/15 cm mesh was sufficient for both repairs. No infectious complication or mesh erosion was noted. The great benefit of this self-tailored mesh is the economic gain since it is at least 6-times cheaper than the manufactured ones. Moreover, in this case one single mesh is used instead of 2, to treat both pathologies.

**CONCLUSIONS:** the use of a self-tailored mesh is possible, and safe for the transobturator repair of stress urinary incontinence and cystocele synthetic repair. In addition, it has a real economic benefit compared to the usual meshes.

**Source of Funding:** none
**V03-06** FOUR PORT ROBOTIC SACROCOLPOPEXY: DEMONSTRATION OF A NOVEL TECHNIQUE AND FEASIBILITY

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**INTRODUCTION AND OBJECTIVES:** Surgery for apical vaginal prolapse has involved both transabdominal and vaginal approaches. The indications for transabdominal surgery include concomitant abdominal procedures, poor vaginal exposure, and also surgeon’s preference. Patients that are undergoing vaginal repair of prolapse have a quicker convalescence and noted to have less pain. Adoption of laparoscopic sacrocolpopexy has been hampered by the steep learning curve. The use of robotic sacrocolpopexy allows for minimally invasive techniques to be applied with a decreased learning curve. Advantages include decreased pain and morbidity compared to open transabdominal sacrocolpopexy. Given the evolution of minimally invasive techniques, we present our technique for utilizing four ports during robotic sacrocolpopexy for prolapse repair. To our knowledge, this is the first demonstration of robotic sacrocolpopexy without an assistant port.

**METHODS:** A 63 year old female with a history of a vaginal bulge for multiple years was found to have stage III pelvic organ prolapse. After the treatment options were discussed with the patient she chose to have a robot assisted laparoscopic sacrocolpopexy. Robotic sacrocolpopexy started in a standard fashion with obtaining pneumoperitoneum with a Veress approach. Once pneumoperitoneum was achieved, robotic ports were configured in a W configuration with a 12 mm camera port supraumbilical with three 8 mm ports utilized for robotic ports. The 12 mm lateral assistant port was not utilized. After side docking the robot, sacrocolpopexy proceeded in standard fashion utilizing ProGraspTM forceps, monopolar shears and Mega SutureCut™ Needle Drivers. The mesh utilized for sacrocolpopexy was delivered transvaginally through perivaginal stab incisions. Sutures were delivered into the abdomen through the camera port while the camera was removed and being cleaned. Suture not being utilized at any given time were banked in the median umbilical ligament. At the end of the case, all needles and excess mesh material were delivered through the third arm port.

**RESULTS:** Perioperative variables included an estimated blood loss of 100cc, operating time from incision to closure of 219 minutes. No complications were noted during surgery. Postoperatively, the patient did well with minimal complaints of pain. She was discharged postoperative day 1, tolerating her diet and without a urethral catheter.

**CONCLUSIONS:** Robotic sacrocolpopexy utilizing four ports is feasible at a specialized urologic center. Further studies will be needed to evaluate its clinical efficacy versus standard port placement.

**Source of Funding:** none

**V03-07** ROBOTIC ASSISTED VESICOVAGINAL FISTULA REPAIR WITH EXCISION OF MESH AND SIMULTANEOUS INTRAVESICAL URETERAL REIMPLANT

Jeffrey Marotte*, Conway, AR, Wilson Alobuia, Little Rock, AR

**INTRODUCTION AND OBJECTIVES:** Urologic complications from hysterectomy such as vesicovaginal fistula (VVF) and ureteral injury are known to occur at a rate of approximately 1%. When a hysterectomy is indicated for uterine prolapse, simultaneous sacrocolpopexy can also result in a different complication such as mesh erosion. Using robotic assisted approach has been shown to be a favorable option when the abdominal approach is warranted in the event ureteral reimplant is needed for ureteral orifices positioned near the fistula tract or a co-existent ureterovaginal fistula. For distal, intramural ureteral strictures, intravesical ureteral excision and mobilization can be performed obviating the need to perform an extravesical ureteral reimplant.

**METHODS:** We present a case of a 48 year old women who had a robotic total hysterectomy with sacrocolpopexy performed. She developed a VVF and underwent two failed repairs; one abdominal and one vaginal, with the later causing a distal ureteral stricture not successfully managed with stenting. A robotic VVF repair was performed with an intravesical ureteral reimplant.

**RESULTS:** The patient had a successful repair of her VVF and excision of a distal ureteral stricture with no hydronephrosis nor incontinence.

**CONCLUSIONS:** To our knowledge this is the first report of robotic assisted VVF repair with excision of mesh and intravesical ureteral reimplant. The two failures from her prior surgeries likely failed secondary to incomplete removal of mesh involved with the fistula tract. The video emphasizes the importance of adherence to strict surgical principles of repair of VVF as historically documented in the literature, but also the importance for complete mesh excision. We introduce a novel surgical option of intravesical ureteral reimplant/mobilization should the intramural ureter have injury or if it is too close to the fistula tract.

**Source of Funding:** none

**V03-08** THE MANAGEMENT OF COMPLEX RENAL MASSES BY EX - VIVO PARTIAL NEPHRECTOMY AND AUTO - TRANSPLANTATION: CASE SERIES AND VIDEO PRESENTATION

Jasmir Nayak*, Joshua Koulack, Thomas McGregor, Winnipeg, Canada

**INTRODUCTION AND OBJECTIVES:** Nephron sparing surgery has become the gold standard for patients with tumors in solitary kidneys, bilateral renal masses, genetic renal masses, chronic renal dysfunction or those at risk of future renal impairment. We describe our approach for the treatment of complex central renal masses not otherwise amendable to standard open or laparoscopic partial nephrectomy. We present a case series of ex-vivo partial nephrectomy and auto-transplantation for the treatment of complex renal tumors.

**METHODS:** We present three cases of complex central tumors treated with ex-vivo partial nephrectomy and auto-transplantation with up to 1 year follow-up. We describe our approach with video demonstration and highlight our outcomes.

**RESULTS:** Laparoscopic donor nephrectomy was performed followed by immediate renal cooling and perfusion with isotonic solution. Ex-vivo partial nephrectomy and renography were then performed, followed by successful auto-transplantation. Cold ischemic times averaged less than forty minutes and warm ischemic times were negligible (<2 min). Average blood loss was minimal with no significant complications. Post-operative course was uneventful in all three cases. All patients displayed improved or stable renal function postoperatively. Pathology demonstrated clear cell renal carcinoma with negative margins. All are disease free at up to 1 year follow-up.

**CONCLUSIONS:** Ex-vivo partial nephrectomy and auto-transplantation is a viable option for patients with a complex central renal mass in which a nephron-sparring approach is
warranted. This technique facilitates both preservation of renal function and good oncologic control. The ex-vivo nature of the procedure allows for excellent exposure, a bloodless field and complex renography to be performed with negligible warm ischemia times.

Source of Funding: None

V03-09 LAPAROSCOPIC REPAIR OF POST RADICAL CYSTECTOMY PARASTOMAL HERNIA

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INTRODUCTION AND OBJECTIVES: Radical cystectomy with ileal conduit is the treatment option for patients with carcinoma bladder who are unfit for neobladder. Conduit, in the long run, leads to stomal complications such as stomal retraction, prolapse and parastomal hernia. We present the video of a patient who underwent laparoscopic repair of parastomal hernia.

METHODS: A 72 yr old male had undergone radical cystectomy with ileal conduit urinary diversion for muscle invasive transitional cell carcinoma bladder 3 yrs back. He presented with history of protrusion of stoma and bulging abdominal wall around the stoma. He was found to have parastomal hernia. Under general anesthesia, through 4 ports, laparoscopy was done transperitoneally. Adhesions around the conduit were released and the herniated bowels pulled into the peri- toneal cavity. The abdominal wall defect was closed. A bi-layered mesh, one layer polyglactin and the other, prolene, was fashioned to fit around the conduit, and placed with the polyglactin layer facing the bowels. The Mesh was sutured to abdominal wall with prolene sutures. Port sites were closed after ensuring hemostasis.

RESULTS: The operative time was 110 minutes. The blood loss was negligible. Patient was started on oral feeds after 24 hours and he was mobile after 24 hours. The conduit was functioning well post operatively and the patient was recurrence free at a follow up of 24 months.

CONCLUSIONS: Laparoscopic repair of parastomal hernia is a preferable option for managing parastomal hernia, since the convalescence period is minimal; there is no need for further incisions and there is no need to resite the stoma.

Source of Funding: None

V03-10 COMPILATION OF TWO CASES OF INVERTED PAPILLOMA THAT MIMICS TRANSITIONAL CELL NEOPLASIA IN YOUNG MEN PATIENTS: OUR TUR-BT EXPERIENCE

Serdar Yalcin*, Bilal Firat Alp, Sercan Yilmaz, Ibrahim Yildirim, ANKARA, Turkey

INTRODUCTION AND OBJECTIVES: Our objective with this video is to show the similarity of inverted papillomas and transitional cell neoplasia/carcinoma.

METHODS: We have chosen three patients video to prepare this video. all patients have applied to our clinic with the complaint of hematuria and disuria. all this three patients are men and 21 years old. all of them are heavy smokers (nearly 10 years of smoking history). we have performed the all three tur-bt operations with the same tur system. we used the same technique for all operations. in all operations we first have resected the tumor and than fulgurized or resected the tumor bases. all specimens have examined in the same pathology department.

RESULTS: First patient in the first part of the video presentation has only inverted papilloma in his pathology report. Second patient in the second part of the video has inverted papilloma accompanied papillary urothelial carcinoma of low malignant potential. and the last patient in the third part of the video has only papillary urothelial carcinoma of low malignant potential.

CONCLUSIONS: Inverted papillomas are rare tumors of lower urinary tract, characterized by an endophytic pattern like transitional cell carcinomas of lower urinary tract. inverted papillomas generally regarded as benign urothelial tumors. rarely inverted papillomas can contain papillary urothelial carcinoma and rarerly transform to the inverted carcinomas. inverted papillomas are benign tumors of bladder but have to be watched like malign ones according to our knowledge and experience.

Source of Funding: None

V03-11 ROBOTIC ASSISTED MICROSURGICAL REPAIR OF TESTICULAR ARTERIAL INJURY

Jamin Brahmbhatt, Ahmet Gudeloglu*, Sijo Parekattil, Winter Haven, FL

INTRODUCTION AND OBJECTIVES: Microsurgical deneveration of the spermatic cord (MDSC) is a minimally invasive treatment option for chronic groin or scrotal content pain. Robotic assistance during this microsurgical procedure is a state of the art approach. This video illustrates the successful robotic assisted microsurgical repair of a testicular arterial injury during MDSC for chronic testicular pain.

METHODS: 40-year-old male was suffering chronic left testicular pain due to recurrent left epididymitis for three years. He underwent left robotic MDSC (RMDSC) for pain that had not responded to standard medical treatment. We ligated three specific areas of the spermatic cord: the cremasteric muscle fibers, peri-vasal tissue, and posterior lipomatous tissue. Normally the testicular artery and vein are preserved during the procedure. However, during this case there was an inadvertent injury to the testicular artery that was confirmed with micro-Doppler ultrasound probe (VTI Vascular Technology, Nashua, NH). The proximal and distal ends of the artery were isolated and then re-anastomosed with assistance of the da Vinci robotic surgical system (Intuitive Inc., Sunnyvale, CA) using interrupted 10-nylon sutures.

RESULTS: After 1 year follow up scrotal Doppler ultrasound confirmed that the testicular blood supply was normal on the re-anastomosed side. The patient was still pain free at the end of 1-year follow up. This is one of two successful testicular arterial injury repairs from over 500 RMDSC procedures (the other patient also showed good flow and no evidence of testicular atrophy post-op). The micro-Doppler probe allowed us to identify testicular arterial injury. We were able to put 8 interrupted sutures on a 1 mm testicular artery with the robotic assisted microsurgical technique.

CONCLUSIONS: Inadvertent testicular arterial injury is a rare complication of spermatic cord surgery. However, if it occurs it can be successfully repaired using robotic microsurgical techniques.

Source of Funding: none
MP06-01 OPEN OR ROBOT-ASSISTED RADICAL PROSTATECTOMY AS THE PRIMARY TREATMENT OF HIGH-RISK PROSTATE CANCER: ONCOLOGIC OUTCOMES AND INCIDENCE OF SUBSEQUENT THERAPIES

Mary Achim*, Brian Chapin, Surena Matin, John Davis, Houston, TX

INTRODUCTION AND OBJECTIVES: High-risk prostate cancer (HRPCa) has no uniform standard of care. Radical prostatectomy (RP) has been advocated as the first step in the treatment of advanced disease with the application of multimodal therapies based on pathologic/PSA outcomes. We sought to determine clinical and biologic outcomes after open (ORP) and robotic RP (RRP) in a large academic practice.

METHODS: A retrospective analysis of HRPCa patients undergoing RP with lymphadenectomy from 5/2006-6/2010 by 5 surgeons at one center was conducted. A total of 215 patients were classified as HRPCa (NCCN guidelines: PSA >20 ng/mL, Gleason Score ≥ 8, Clinical stage ≥ T3a). Baseline demographics, periprosthetic pathologic outcomes and adjuvant/salvage therapies were included. Adjuvant external beam radiation (adj-XRT, defined in the setting of a non-detectable PSA and ≤ 9 months of RP). Biochemical failure (BCF) was defined as a PSA of ≥ 0.2 ng/mL. RESULTS: Median age was 62 (43–80), pre-operative PSA 5.6 ng/mL (0.1–119). 33 (53%) of 66 patients receiving neoadjuvant therapy were on clinical trial. Median follow-up was 4.7 yrs (1.4–9). Surgical approach was open in 91 (42%) and robotic for 124 (58%). RP was the only treatment applied in 108 (50.2%) of patients. Organ confined disease was present in 128 (60%) patients. Rate of positive surgical margins (SM+) was 27% (RRP 21%, ORP 35%). 56 (26%) were pathologic N1 (pN1). Adj-XRT was applied to 7 (3.3%) patients while 46 (21.4%) underwent salvage XRT. BCF at 6 weeks (26%) were pathologic N1 (pN1). Adj-XRT was applied to 7 (3.3%) patients while 46 (21.4%) underwent salvage XRT. BCF at 6 weeks (< 0.001), SM+ (HR: 2.21, 1.5–3.4), pN1 (HR: 3.6, 2.3–5.4), and number of high-risk features (2-6, 1.77–4.59 vs 3-6, 2.7–17) were predictors of BCF. On multivariable analysis preoperative PSA (HR: 1.02, 1.01–1.04), path Gleason score (4 2.7–17) were predictors of BCF. Surgical approach was not a significant predictor of BCF in univariate or multivariable analysis. CONCLUSIONS: Multiple therapeutic pathways exist for the treatment of HRPCa. Standardized approaches are unlikely given the inconsistency and variability in clinical and biologic outcomes. RP, regardless of approach, is a reasonable first step in the multimodality treatment of HRPCa.

Source of Funding: None

MP06-02 DOES LIGASURE VESSEL SEALING SYSTEM PROVIDE SAFE AND EFFECTIVE SOLUTION ON SECURING DORSAL VEIN IN LAPAROSCOPIC RADICAL PROSTATECTOMY?

Onur Kaygısız, Yakup Kordan, Bursa, Turkey, Cabir Alan, Çanakkale, Turkey, Burhan Coskun, Ömür Günseren, Bursa, Turkey, Ali Erhan Eren, Çanakkale, Turkey, Berna Aytaç, Hakan Vuruşkan*, Bursa, Turkey

Table. Comparison of Two Groups’ Parameters

<table>
<thead>
<tr>
<th></th>
<th>Group 1 (n = 37)</th>
<th>Group 2 (n = 33)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age*</td>
<td>62.0 (42.1–70)</td>
<td>60.2 (50.2–76)</td>
<td>0.127</td>
</tr>
<tr>
<td>PSA</td>
<td>14.7 (11.2–21.8)</td>
<td>8.4 (5.0–14.4)</td>
<td>0.004</td>
</tr>
<tr>
<td>Decrease in hemoglobin level</td>
<td>2.7 (1.1–13.0)</td>
<td>3.0 (1.7–10.7)</td>
<td>0.203</td>
</tr>
<tr>
<td>Operation time (minutes)</td>
<td>275 (253.5–319)</td>
<td>188 (136.4–240)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Length of hospital stay (days)</td>
<td>7.0 (5.6–11)</td>
<td>2.6 (1.7–4.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Continence rate**</td>
<td>31 (84%)</td>
<td>28 (83%)</td>
<td>0.66</td>
</tr>
</tbody>
</table>

(*: parametric data. **: nominal data, others: nonparametric data).

INTRODUCTION AND OBJECTIVES: The aim of this study was to investigate the safety and efficacy of dorsal vein ligation with LigaSure vessel sealing system in laparoscopic radical prostatectomy.

METHODS: Patients who were operated with laparoscopic bilateral nerve sparing radical prostatectomy by two senior urologist were included in the present study. Dorsal vein ligation was done with suture in group one and with LigaSure vessel sealing system in group two. First 20 cases of each group, patients treated with adjuvant and neoadjuvant therapies and the patients who were followed up less than one year were excluded from the study. 37 patients in group one and 32 patients in group two were included into the study. Groups were compared according to bleeding, operation time, hospitalization time, positive surgical margin status, and continence. RESULTS: Age of the patients was similar for both groups. PSA and decreasing of hemogram were higher in group one than in group two (p=0.004 and p=0.023, respectively) and total number of blood transfusion were 5 and 1 in group one and two, respectively (p=0.127(Table)). Operation time was significantly less in group two than in group one (p<0.001) (Table 1). Continence rate at one year followup after surgery was similar in both groups (Table). Only one patient had grade 3 modified Clavien complication in each groups. Positive surgical margin were similar but PSA elevation in the first year was two and one in group one and group two, respectively.

CONCLUSIONS: Dorsal vein ligation with LigaSure vessel sealing system is seemed to be safe and effective procedure in laparoscopic radical prostatectomy.

Source of Funding: none

MP06-03 OUTPATIENT ROBOTIC RADICAL PROSTATECTOMY: THE USC EXPERIENCE

André Berger*, André Luis de Castro Abreu, Arnaud Marien, Dennis J. Lee, Sheau-Mei Tsai, Scott Leslie, Raed Azhar, Sumeet Syan, Mihir M. Desai, Monish Aron, Innderbir S. Gill, Los Angeles, CA

INTRODUCTION AND OBJECTIVES: To report our experience with outpatient robot-assisted radical prostatectomy (RRP) as an outpatient procedure.

METHODS: From August 2011 to October 2012, we performed 24 outpatient RARP. Inclusion criteria were age <70 years, ASA <3, localized prostate cancer and patient’s motivation to be discharged...
on the same day of surgery. Discharge criteria were hemodynamic stability, pain control with oral medication, oral tolerance to liquid diet and ambulation. Patients were called night of discharge and day after, and filled out satisfaction questionnaires. Seventeen patients had at least one month of follow-up. We performed a matched-paired analysis based on age (60 vs. 60 years), ASA and clinical stage with 17 patients who standard inpatient RRP.

RESULTS: Fourteen patients were successfully discharged the same day of surgery. One patient was not discharged given the need of significant bladder neck reconstruction during surgery. Two patients met discharge criteria, but decided to stay in the hospital overnight. No readmissions occurred.

CONCLUSIONS: Outpatient RRP seems to be feasible and safe. Patient selection, preoperative patient motivation and counseling are essential. Surgeon experience, assessment of intraoperative findings, and adequate postoperative assessment are required.

Source of Funding: none

MP06-04 THE IMPACT OF OBESITY ON THE COMPLICATION AND SUCCESS RATES IN LAPAROSCOPIC RADICAL PROSTATECTOMY

Onur Kaygısız, Yakup Kordan, Hakan Vuruskan*, Ömür Günseren, Burhan Coskun, Hakan Kılıçarslan, Berna Aytac, Ismet Yavascaoglu, Bursa, Turkey

INTRODUCTION AND OBJECTIVES: The aim was to evaluate the effect of obesity on success and complications in laparoscopic radical prostatectomy.

METHODS: 235 patients who had undergone laparoscopic radical prostatectomy between April 2004 and January 2012 were examined. Patients were treated with adjuvant and neoadjuvant therapy, patients without one year follow up records and without body mass index records were excluded. The sample consisted of 190 patients. Patients with BMI<25 kg/m2 were defined as normal weight, 25-30 kg/m2 overweight, and BMI >30 kg/m2 obese. Patients were divided into 3 groups according to time of surgery; first 66 patients, second 66 patients and the last 68 patients. Patients were treated with adjuvant and neoadjuvant therapy, patients without one year follow up records and without body mass index records were excluded. The sample consisted of 190 patients. Patients with BMI<25 kg/m2 were defined as normal weight, 25-30 kg/m2 overweight, and BMI >30 kg/m2 obese. Patients were divided into 3 groups according to time of surgery; first 66 patients, second 66 patients and the last 68 patients composed group 1, group 2, and group 3 respectively. Groups were compared according to blood loss, operation time, hospitalization time, positive surgical margin and continence. Complication rates were compared with the modified Clavien grading system. Patients’ age and PSA were similar for each group.

RESULTS: Operation time, decrease in hemoglobin levels, catheterization and hospitalization times were not affected by obesity and the results were similar across the groups. Continence rate was less in overweight and obese patients one year after surgery, however difference was not statistical significant (p = 0.15). Positive surgical margins and complication rates were similar in obese patients in all groups.

CONCLUSIONS: Obesity does not affect the intraoperative complication, operation time, positive surgical margins and continence even in initial cases in laparoscopic radical prostatectomy.

Source of Funding: none

MP06-05 PELVIC LYMPHADENECTOMY IN INTERMEDIATE TO HIGH-RISK PROSTATE CANCER PATIENTS: A COMPARISON OF ROBOTIC AND OPEN APPROACHES

Andrew Michigan*, Don T. Bui, Fray F. Marshall, John G. Pattaras, Atlanta, GA

INTRODUCTION AND OBJECTIVES: Clinical practice guidelines recommend pelvic lymphadenectomy in patients with intermediate to high-risk prostate cancer. Some studies have shown improved disease-specific survival with an increase in lymph node yield. However, more extensive pelvic lymphadenectomy has also been associated with higher rates of complications, including lymphoceles, deep venous thromboses, and pulmonary emboli. Studies have shown mixed results about what impact surgical approach has on intraoperative lymph node yield. We compared lymph node yields and complication rates in intermediate and high-risk prostate cancer patients undergoing robotic or open radical prostatectomy with pelvic lymphadenectomy.

METHODS: A retrospective review was performed of patients with intermediate to high-risk prostate cancer who underwent robotic or open radical prostatectomy with pelvic lymphadenectomy at Emory University Hospital from 2007–2013. Data from two high-volume surgeons was compared (FFM and JGP).

RESULTS: One hundred nine patients fulfilled the inclusion criteria. 75 underwent robotic prostatectomy and 34 underwent open prostatectomy. Pre-operative PSA was significantly higher in patients undergoing robotic prostatectomy (12.2 vs. 7.14 ng/mL; p = 0.012). No other significant differences in baseline characteristics were noted. Mean lymph node yield was significantly higher in the robotic group (18.95 [2–43] vs. 12.74 [4–25]; p = 0.00003). No significant difference in the rate of lymph node involvement (18.7% vs. 14.7%; p = 0.617) was demonstrated. Rates of complications, including lymphoceles (4.0% vs. 5.9%; p = 0.660), deep venous thrombosis (1.33% vs. 5.9%; p = 0.180), and pulmonary embolus (1.33% vs. 5.9%; p = 0.180), were not significantly different but trended towards robotic advantages.

CONCLUSIONS: For patients with intermediate and high-risk prostate cancer undergoing radical prostatectomy with pelvic lymphadenectomy, robotic surgery represents a safe, suitable alternative to open surgery. Our study demonstrated significantly higher lymph node yields with decreased, though not statistically significant, complication rates in the robotic surgery group.

Source of Funding: None

MP06-06 GLEASON SCORE 6 PROSTATE CANCER AND PRESENCE OF EXTRAPROSTATIC EXTENSION

Aria A. Razmaria*, Chicago, IL, Edris Negron, Gladell P. Paner, Chicago, IL, Michael McGuire, Evanston, IL, Gregory P. Zagona, Arieh L. Shalhav, Scott E. Eggener, Chicago, IL

INTRODUCTION AND OBJECTIVES: Recent studies reassessing large series of prostatectomies with re-review of historic specimens and slides substantiate the notion that Gleason pattern
Six lacks the ability to form metastasis. In this study, we aimed at describing the proportion of patients with Gleason pattern 6 at final pathology that demonstrate extraprostatic extension or seminal vesicle invasion using a large sized contemporary series at a single institution.

METHODS: From April 2003 to June 2012, 2659 patients underwent robotic radical prostatectomy at the author’s institution. Patients that had undergone salvage prostatectomy, patients with ablated cases as well as patients with incomplete data were excluded. Clinico-pathological data were collected with focus on patients with Gleason score 6. Tumor volume was assessed in further detail. The estimate of tumor volume by the attending pathologist built the basis of the tumor volume variable. We calculated the prostate volume based on the gross specimen dimension in the pathology report. Based on this volume and the estimated tumor volume we calculated the tumor volume in cubic centimeters.

RESULTS: 916 patients met the inclusion criteria. The cohort had a median age of 59 (IQR 54–64), BMI of 27 (IQR 25–30) with 14% being African American and 86% Caucasian, respectively. Median preoperative PSA was 4.8 (IQR 3.7–6.2). Of the eligible cohort, 41 (4.5%) had pT3a and 6 (0.7%) pT3b disease with all others having organ confined disease. 206 (23%) had pelvic lymph node dissection without any evidence of nodal involvement. 96 (10.5%) had positive surgical margins. Calculated median tumor volume was 2.8 cubic cm (IQR 1.5–5.8) in the whole cohort, 3.1 (IQR 1.6–5.9) in pT2c, 4.7 (IQR 3.3–10.1) in pT3a and 9.8 (2.5–16) in pT3b.

CONCLUSIONS: Presence of extra prostatic extension and seminal vesicle involvement is in general a rare finding in Gleason 6 disease. However, with a median of 41 cases in this cohort (5.2%), median calculated tumor volume appears to correlate well with the stage. Evaluation of oncological significance of extraprostatic extension and seminal vesicle involvement in Gleason 6 disease needs to be further elucidated.

Source of Funding: None

MP06-07 VIDEO ASSISTED DOCKING OF THE DA VINCI SURGICAL SYSTEM PATIENT CART

Saum Ghodoussipour, Kristen Coffey, Tamim Khaddash, John Gaughan, Zachary Smith*, Philadelphia, PA, Michael Louie, Chino, CA, Phillip Mucksavage, Philadelphia, PA, Aaron Bernie, Please choose an option below

INTRODUCTION AND OBJECTIVES: To determine if video camera assistance improves accuracy, timing, and ease of set up during docking of the patient side cart during robotic-assisted laparoscopic surgery.

METHODS: After IRB approval, a da Vinci Surgical System patient side cart was outfitted with a camera and viewing screen. Eleven subjects (10 novices and 1 expert) were randomly assigned to drive the patient side cart to a predetermined ideal location with video assistance (VA) or without video assistance (WVA). Each task was carried out three times in a randomized order. Endpoints measured were time to completion of task, distance from ideal positioning (cart to front of table, cart to side of table, camera arm “sweet spot”), and overall subjective workload measured via the NASA Task Load Index questionnaire.

RESULTS: One out 11 (9.1%) subjects had prior experience driving the patient side cart, 5/11 (45.5%) were familiar with the da Vinci robot but had never driven the patient side cart, and 5/11 (45.5%) had never seen the da Vinci robot before participating in the protocol. The distances from both the “sweet spot” on the camera (1.8 cm vs 0.47 cm, p = 0.0001) and front of the robot (7.2 cm vs 3.4 cm, p < 0.0001) to the patient side cart were both significantly better with VA. Overall, the robot was 4.3 times more likely to be centered with VA (95% CI 1.86–10.05, p = 0.0007). VA positioning took slightly longer to complete (34.5 seconds vs 30.8 seconds, p = 0.0494). Subjective perception of performance was better with VA (p = 0.0272) while there was no difference in mental, physical, or temporal demands, or level of effort or frustration experienced by subjects.

CONCLUSIONS: VA appears to aid in improving the accuracy of positioning the patient side cart of the da Vinci Surgical System. While requiring slightly longer time to completion, subjects felt their performance was better and experienced no increased feelings of effort or frustration.

Source of Funding: None

MP06-08 ROBOTIC ASSISTED RADICAL PROSTATECTOMY IN BIOPSY PROVEN HIGH-GRADE PROSTATE CANCER: EXPERIENCE FROM TWO TERTIARY CENTERS WITH GLEASON DOWNGRADING AT FINAL PATHOLOGY ASSESSMENT

Naif Alhathal, Assaad El-Hakim*, Montreal, Canada, Vladimir Mouraviev, David M Albala, Syracuse, NY, Matt Kardjian, Syracuse, NY, Pierre-Alain Hueber, Montreal, Canada, Kevin C Zorn, Montreal, Canada

INTRODUCTION AND OBJECTIVES: The use of radical prostatectomy as part of the treatment algorithm in high-grade prostate cancer (HGPCa) remains controversial. On the other hand, there are well-known limitations of conventional TRUS-guided biopsy such as insufficient tissue sampling and pathologist experience. Such limitations raise concerns about the accuracy of Gleason grading as a main predictor of PCa aggressiveness. Based on validation by the final pathology assessment of prostatectomy specimens, we searched a cohort of patients with Gleason downgrading toward less aggressive disease and evaluated whether the use of radical prostatectomy was beneficial.

METHODS: Among a total of 965 collective RARP consecutive cases, 59 (6.1%) patients with high-grade PCa underwent RARP at two, high-volume tertiary centers between October 2006–August 2012. We assessed the rate of pathological Gleason downgrading, status of surgical margins, extracapsular extension, seminal vesical invasion, lymph node involvement, biochemical recurrence (PSA ≥ 0.20 ng/ml) and recovery of urine continence (0 pads usage).

RESULTS: Median follow-up was 12 months (range 1–24). Sixteen patients (27.1%) had positive surgical margins, majority (70%) where pT3-disease. Nineteen men (32.3%) had extracapsular extension and eight (13.5%) had seminal vesical invasion. Six patients (10.1%) did not reach undetectable PSA on initial post-op visit and were treated with ADT, 3 of which had positive lymph nodes. Overall biochemical recurrence was observed in a total of 7 patients (11.8%) with median time for recurrence 12 months. Only four men had PSA ≥ 0.20, the remaining
had early salvage EBRT with PSA < 0.20. Nine patients (15.2%) underwent adjuvant/salvage EBRT +/ minus; ADT. In total, 34 patients (57.6%) were downgraded to Gleason 7 on final surgical pathology, and yet another two patients downgraded to Gleason 5 and 6. Finally, pad-free urine continence at 3 and 12 months were 64.5% and 82.9%, respectively.

CONCLUSIONS: In spite of advances in prostate biopsy diagnosis of HGPCa, we observed a significant likelihood for disease downgrading on final pathology. Most patients had organ/ specimen confined disease, adequately served by RARP and avoided ADT, while maintaining known advantages of RARP. Therefore, it should be taken into consideration by robotic surgeons that not necessarily all biopsy proven HGPCa will have these features at final pathology.

Source of Funding: None

MP06-09 POTENCY OUTCOMES OF ANATOMICAL GRADING OF NERVE SPARING (NS) DURING ROBOT ASSISTED RADICAL PROSTATECTOMY (RARP)

Oscar Schatloff, Zerifin, Israel, Haidar Abdul-Muhsin, Srinivas Samavedi*, Celebration, FL, Rafael Coelho, Sao Paulo, Brazil, Bernardo Rocco, Milan, Italy, Kenneth Palmer, Celebration, FL, Vipul Patel, Celebration, FL.

INTRODUCTION AND OBJECTIVES: We previously described our NS grading system based on intraoperative anatomical landmarks. We now report the potency outcomes of this technique.

METHODS: 133 consecutive patients underwent RARP by a single surgeon. Data included patient demographics, grading of NS and cross-sectional area of extracapsular nerve tissue (ECNT) on the posterolateral aspect of the prostate on both sides. Potency was evaluated using a self-administrated questionnaire (SHIM). The quality of NS (sides independently) was graded by the surgeon intraoperatively as follows: 1: non NS (0%), 2: <50% NS, 3: 50% NS, 4: 75% NS and 5: full NS (>95%). The sum (LT and RT combined) was denoted as the nerve sparing score (NSS) ranging from 2 to 10 with 2 indicating non-NS and 10 indicating bilateral full NS. Patients were then categorized as follows: group A (NSS = 10), group B (NSS 8 or 9), group C (NSS 6 or 7), group D (NSS 5 or less).

RESULTS: Mean age (SD) was 60±8 years. Median (IQR) BMI, preoperative SHIM score, AUA-SS and PSA were 28 (26–31), 20 (13–25), 7 (3–14) and 5.2 ng/ml (4.2–7), respectively. Recovery of potency at 12 months for all the cohort (not stratified by SHIM) was 73.8%, 56.8%, 37.5% and 8.3% for NSS 10, 8–9, 6–7 and < 5, respectively (p < 0.01). Kaplan Meier analysis showed better potency for patients with higher NSS (p = < 0.01, log rank test, Fig 1). There was a significant difference in the median (IQR) cross-sectional area of ECNT among potent and non-potent patients: 2.5 (0–4.8) mm2 vs 7.8 (2.4–20) mm2; p < 0.01. A decreasing area of ECNT was significantly correlated with improved potency (p < 0.01). In a multivariable model, higher preoperative SHIM score and higher NS group were independent predictors of recovery of potency when the area of nerve tissue was not included in the model. However, when the latter was added to the model, only a higher preoperative SHIM score (p < 0.01) and decreasing area of ECNT (p = 0.01) were independent predictors.

CONCLUSIONS: Increasing degrees of nerve preservation is associated with improved recovery of potency. Our anatomical grading of NS is a valid tool that can help surgeons achieve more consistent NS and potency outcomes during RARP.

Source of Funding: none

FIG 1. Recovery of erectile function according to the quality of nerve sparing

MP06-10 OBJECTIVE PERIOPERATIVE PARAMETERS PREDICT LENGTH OF STAY FOR ROBOTIC-ASSISTED RADICAL PROSTATECTOMIES

Ariel Schulman*, Peter Homel, Piyush Gupta, David Silver, Brooklyn, NY

INTRODUCTION AND OBJECTIVES: The majority of radical prostatectomies at our institution are performed as robotic-assisted laparoscopic radical prostatectomies (RALRP.) We utilize a “short-stay” clinical model with early ambulation and diet with most patients discharged home on post-operative day (POD) 1. We examined perioperative factors in our patients that predicted length of stay (LOS.)

METHODS: A retrospective review of all RALRPs by a single surgeon (DS) between July 1st, 2009 and December 31st, 2010 was performed. We used generalized linear modeling with SAS statistical software to examine the relationship between LOS and preoperative and perioperative factors. Preoperative clinical variables included age, body mass index, American Society of Anesthesiologists (ASA) Score, hemoglobin, hematocrit, and creatinine. Perioperative parameters included trendelenberg time, total-case average mean arterial pressure (MAP,) intraoperative intravenous fluids and post-operative pain score. Univariate and multivariate analyses were performed.

RESULTS: The cohort included 95 cases of RALRP. The majority of patients (n = 82) were discharged home on POD 1. The

<table>
<thead>
<tr>
<th>Factor</th>
<th>LOS ≤ 1 Day</th>
<th>LOS &gt; 1 Day</th>
<th>p-value</th>
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<tbody>
<tr>
<td>ASA Score 1</td>
<td>8 (10%)</td>
<td>0</td>
<td>&lt; 0.001 (&lt; 0.01)</td>
</tr>
<tr>
<td>ASA Score 2</td>
<td>67 (82%)</td>
<td>31 (45%)</td>
<td></td>
</tr>
<tr>
<td>ASA Score 3</td>
<td>7 (9%)</td>
<td>2 (15%)</td>
<td></td>
</tr>
<tr>
<td>Mean Arterial Pressure</td>
<td>87.59 +/- 9.55</td>
<td>81.31 +/- 8.33</td>
<td>0.003 (&lt; 0.001)</td>
</tr>
</tbody>
</table>

a:frequency(%); b:univar p-value; c: mean +/- standard deviation.

Descriptive Table of Significant Predictors of Length of Stay (LOS)
MP06-11 SINGLE INSTITUTION OUTCOMES OF AFRICAN AMERICANS FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY

Samuel Ohlander*, Victor Gappmaier, Leslie Deane, Chicago, IL

INTRODUCTION AND OBJECTIVES: Prostate cancer will account for an estimated 28% of new cancer cases in 2013 according to the American Cancer Society’s annual report, with incidence in African American men being over 1.5 times that of Caucasians. We interrogated our single institution database of robotic assisted laparoscopic prostatectomy (RALP) patients to investigate the pathological and clinical outcomes of patients of differing race, hypothesizing that African Americans (AA) had similar outcomes to Caucasians.

METHODS: We compiled a database of 186 consecutive patients undergoing RALP for localized prostate cancer (PCa) over a 5-year period. Patient charts were retrospectively reviewed. The primary pathological outcomes of interest were final pathological stage and surgical margin status. Primary clinical outcomes were length of stay (LOS), need for blood transfusion, and readmission rate. Three patients were excluded from the clinical outcome analysis due to increased length of stay secondary to unrelated medical preconditions. The sample proportions were analyzed using two proportion Z-test at 95% confidence level, and Z score was used to interpret two tailed P values.

RESULTS: Of the 186 men, 111 were African American, 43 Caucasian, 18 Hispanic and 14 were classified as “other”. Study positive margin rate (PMR) was 19.35%. African American PMR was 18.92% versus 23.26% for Caucasians (p = 0.0635). Overall 128 of 186 patients had pT2 disease. Thirteen of the 128 patients with pT2 disease had positive surgical margins (10.16%). Ten of the 80 African Americans (12.5%) with pT2 disease had positive surgical margins compared to three of 28 Caucasians (10.71%, p = 0.7543). There was no significant difference in LOS or blood transfusion rate. The overall transfusion rate was 4.4%. Average LOS (standard deviation) was 3.90 (1.07); AA, 3.17 (1.61); Hispanics, 1.61 (0.78); Other, 1.62 (0.65). Readmission rates were significantly higher in AA than Caucasians (p < 0.05), with rates of 9.9% and 2.4% respectively.

CONCLUSIONS: Pathological outcomes for African American men with PCA were not different from that of Caucasian men for overall PMR or pT2 PMR. AAs had a significantly greater readmission rate than Caucasians; however, there was no difference in LOS or peri-operative transfusion rate between groups.

Source of Funding: None

MP06-12 COMBINED OPERATION OF ROBOT-ASSISTED RADICAL PROSTATECTOMY AND LAPAROSCOPIC NEPHROURETERECTOMY

Yoko Kyono*, Kazunori Hattori, Kohsuke Hishiki, Kazuhiito Matsushita, Masaki Shimbo, Fumiyasu Endo, Kenichi Tobisu, Osamu Muraishi, Tokyo, Japan

INTRODUCTION AND OBJECTIVES: The utilization of robot-assisted surgery has begun to expand beyond radical prostatectomy. We present the case report of the combined operation of robot-assisted radical prostatectomy (RARP) and laparoscopic nephroureterectomy for the treatment of two synchronous urologic malignancies.

METHODS: A 71-year-old Japanese man presented with macrohematuria. Laboratory data showed mild renal dysfunction, and the serum prostate specific antigen concentration was 3.8 ng/mL. Computed tomography demonstrated a 5.0-cm soft-tissue mass in the right lower ureter and hydronephrosis. Magnetic resonance imaging demonstrated a nodule in the left peripheral zone of the prostate. Histopathological diagnoses were prostate cancer and urothelial carcinoma of the ureter. The patient underwent a combined RARP and laparoscopic nephroureterectomy in a single session via the approach using a routine 6-port for RARP. An additional port was not placed through the operation.

RESULTS: The total operative time was 8 hours including 3 hours for nephroureterectomy and 5 hours for RARP. The estimated blood loss was 30 mL. He did well postoperatively and discharged on postoperative day 7 after removal of his catheter. The final pathology report was stage T2c Gleason Score 3+3 adenocarcinoma of the prostate and stage T1 grade 2 invasive urothelial carcinoma of the ureter, with negative surgical margins, respectively. The patient had no evidence of disease on follow-up at 3 months.

CONCLUSIONS: The procedure was successful to reduce the invasion to the patient by using the same port. Robotic assistance appears to perform ureterectomy with bladder-cuff excision repair much easier.

Source of Funding: none

MP06-13 THE SURGICAL LEARNING CURVE FOR PROSTATE CANCER CONTROL AFTER ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: EXPERIENCE OF A SINGLE SURGEON OF 500 CASES IN TAIWAN

Yen-Chuan Ou*, CK Yang, Taichung, Taiwan

INTRODUCTION AND OBJECTIVES: As surgeon's experience increases, cancer control after 250 cases of retropubic radical prostatectomy is improved. We analyzed the surgical learning curve for cancer control in the initial 250 cases and subsequent 250 cases of robotic-assisted Laparoscopic radical prostatectomy (RALP) were performed by a single surgeon in Taiwan.

METHODS: Five hundred consecutive patients with clinically localized prostate cancer received RALP. Patient was classified as Group I: case 1–250 and Group II: case 251–500. The clinical characteristics of both groups were recorded. Pathological outcomes, positive surgical margin and biochemical recurrence were assessed. We analyzed relationship of positive surgical margin (PSM) with neurovascular bundle (NVB) preserving, D1+Amico classification risk classification and pathological stage among each 50 cases of RALP.

Source of Funding: None
RESULTS: The Group II have more advanced prostate cancer than the Group I (22.2% vs 14.2% of biopsy Gleason score 8–10 with \( p = 0.33 \); 12.8% vs 5.6% of clinical stage T3 with \( p = 0.017 \)). The perioperative complication rate was reduced from 9.6% (24/250) in Group I to 5.6% (14/250) in Group II. PSM of pT3 was significantly decreased from 49% (Group I) to 32.6% (Group 2). The meaningful trend of decreasing PSM in each 50 cases, including pT3, intermediate risk and high risk. The NVB preservation was significantly influenced the PSM in high risk patients (84.1% in NVB preservation group vs 43.9% in non- NVB preservation group).

CONCLUSIONS: PSM of pT3 was significantly decreased with experience of 250 cases. The trend of surgical learning curve of decreasing PSM in each 50 cases, including pT3, intermediate risk and high risk. The NVB preservation during RALP was not suggested for high risk prostate cancer due to increasing PSM.

Source of Funding: None

MP06-15 GRADED ANATOMIC NERVE SPARING DURING ROBOT-ASSISTED RADICAL PROSTATECTOMY (RARP)

Ziho Lee*, Shaileen Sehgal, Reid Graves, Yu-Kai Su, Elton Llukani, Kelly Monahan, Alice McGill, David Lee, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Contemporary reports suggest that the neurovascular bundle can sustain varying degrees of injury during RARP. The purpose of our report is to describe the degrees of nerve sparing (NS) we have encountered, and to assess the role of increasing NS on oncologic and functional outcomes.

METHODS: This is a retrospective study of all patients with preoperative sexual health inventory for men (SHIM) score \( \geq 22 \) and \( \geq 1 \) y follow-up, who received RARP by a single surgeon (DIL) at a single institution between November 2007 and June 2012; 908/1966 patients were selected. All patients received NS that was determined by preoperative risk-stratification based on clinical exam, biopsy, and imaging. A specific NS grade between 0–3 was assigned to each lateral prostate lobe, with higher grades corresponding to an increasing degree of NS. Overall NS grade was defined as the sum of the right and left NS grades. Urinary continence was defined as using 0 pads per day. Erectile function was assessed in three ways: 1) Patient estimated percent erectile fullness (%EF) of 0%, > 25%, > 50%, > 75%, and 100% of preoperative erectile function, 2) SHIM score, 3) Ability to have erection sufficient for intercourse.

RESULTS: There was a significant difference in %EF at 3 m (\( p = 0.041 \)), %EF at 1 y (\( p = 0.002 \)), SHIM score at 1 y (\( p = 0.012 \)), and % of patients able to have erection sufficient for vaginal penetration at 1 y (0.026), such that patients receiving grade 6 NS (40%, 61%, 13.1, and 70%, respectively) had higher erectile function scores than grade 5 NS (38%, 55%, 11.5, and 60%, respectively), grade 4 NS (31%, 46%, 8.7, and 48%, respectively), grade 3 NS (21%, 40%, 7.1, and 40%, respectively), grade 2 NS (18%, 33%, 77 years. Post void residual volumes on average declined from 113 cc preop to 27.2 cc ~5 years postop (\( p < 0.001 \)). Voided volumes remained stable from 525 cc to 456 cc (\( p > .65 \)). Figure 1 demonstrates that PFR nearly doubled from 17.6 to 33.4 overall, and all age cohorts had similar improvements. PFR continually rose throughout the 5 year follow up, again across all age cohorts.

For men with preoperative low Peak Flow rate of < 10, (N = 20) preoperative to 5 year changes were PFR 6.9 to 23.0, PVR 97 to 28, Voided Volume 319 to 293, all \( p < .001 \), respectively. For men with preoperative normal Peak Flow rate of \( \geq 10 \), (N = 77) preoperative to 5 year changes were PFR 21.1 to 36.2, PVR 97 to 28, Voided Volume 436 to 385, all \( p < .001 \), respectively.

CONCLUSIONS: This study of uroflowmetry following RARP is unique in that we have paired pre and long term postoperative results. After RARP we found durable benefits across all ages in PFR, reductions in PVR and stable voided volumes persisting over time and ~5 years after surgery. For men with low preoperative PFR, the flow rates increased by 3 fold after surgery, with a 8X reduction in PVR, and stable voided volume. In contrast to the general decline of PFR in community based populations, RARP appears to reset the PFR>30 for most men, and is stable across long term follow up and advancing age.

Source of Funding: None
6.3, and 36%, respectively), and grade 1 NS (10%, 25%, 9.0, and 33%, respectively). There was no significant difference in SHIM score at 3 m (p = 0.410), and % of patients able to have erection sufficient for vaginal penetration at 3 m (p = 0.368). Postoperative urinary continence rates at 3 m (p = 0.558) and 1 y (p = 0.980) did not significantly differ.

CONCLUSIONS: Our risk-stratified approach to anatomically graded NS allowed for improved erectile function. An increasing degree of NS did not significantly influence postoperative urinary continence rates. Interestingly, patients who received greater degrees of NS had lower PSM rates.

Source of Funding: None

MP06-16 COMPARISON OF ONCOLOGICAL OUTCOMES BETWEEN RETROPubic RADICAL PROSTATECTOMY AND ROBOT-ASSISTED RADICAL PROSTATECTOMY: AN ANALYSIS STRATIFIED BY SURGICAL EXPERIENCE

Jinsung Park*, Dae-Seon Yoo, Daejeon, Korea, Republic of; Seong Cheol Kim, Busan, Korea, Republic of; Sejun Park, Hanjong Ahn, Seoul, Korea, Republic of;

INTRODUCTION AND OBJECTIVES: To compare oncological outcomes of consecutive retropubic radical prostatectomy (RRP) and robot-assisted radical prostatectomy (RARP) series performed by a single surgeon who had performed > 750 prior RRP's and started to perform RARPs.

METHODS: Prospectively collected longitudinal data of 277 RRP and 730 RARP series over a 5-year period were retrospectively analyzed. RARP series were divided into 3 subgroups (1st: < 250, 2nd: 250–500 and 3rd: > 500 cases) according to surgical period. Positive surgical margin (PSM) and short-term and biochemical recurrence-free survival (BCRFS) rates were compared at each pathologic stage between the two operative methods.

RESULTS: Overall PSM rates of RRP and RARP were 20.9% and 23.3%, respectively (p = 0.426). pT2 PSM rates demonstrated no significant difference between RRP (7.8%) and RARP series (1st 9.5%, 2nd 14.1% and 3rd 9.8%) throughout the study period (p = 0.689, 0.079 and 0.688, respectively). While pT3 PSM rates of 1st (50.6%) and 2nd RARP series (50.0%) were higher than RRP series (36.5%; p = 0.044, p = 0.069, respectively), 3rd RARP series had comparable pT3 PSM rates (32.4%, p = 0.641). Figure 1 shows the variation of overall PSM for the consecutive surgical series of each procedure. PSM rates after 500 RARP cases significantly decreased compared to those of less than 500 cases (17.4% vs. 26.0%, p = 0.011). Three year-BCRFS rates of the RRP and RARP series were similar in each pathological stage (pT2 92.1% vs. 96.8%, p = 0.517; pT3 60.0% vs. 67.3%, p = 0.265, respectively).

CONCLUSIONS: In our stage-specific analysis pT2 PSM rate and short-term BCRFS were similar between RRP and RARP, whereas RARP showed comparable pT3 PSM rate with RRP after > 500 cases of surgical experiences. Our data suggest that an experienced robotic surgeon of high volume center can accomplish comparable oncological outcomes with open prostatectomy even in locally advanced disease.

Source of Funding: None

MP06-17 SURGICAL TEAM ASSESSMENT OF THE OF THE 3D VIDEO SYSTEM AS USED IN LAPAROSCOPIC RADICAL PROSTATECTOMIES

Bogdan Petrut*, Hogea Maximilian, Vlad Schișeșteanu, Cluj Napoca, Romania

INTRODUCTION AND OBJECTIVES: Laparoscopy is an alternative to the open approach in various urological procedures, with comparable functional and oncological results. Still, its application is limited because of the difficult learning curve and time required to perfect the technique. Initially reserved for robotically assisted interventions, three dimensional video systems have been recently introduced in conventional laparoscopy as well. Under the hypothesis that this technical advancement could shorten the learning curve and improve surgical parameters, we aimed to evaluate the 3D video system during laparoscopic radical prostatectomies, assessing its subjective impact on the main and assistant surgeons as well as the cost-benefit ratio.

METHODS: We assessed the system by asking the surgeons to fill questionnaires that assess the difficulty of the operative steps, ergonomy of the system and the synchronization between the surgeon and the assistants in comparison to the classic 2D former experience. We also compared the operation time.

RESULTS: The time of the operation shortened significantly 128 vs 142 min (0.021) using the 3D system. Some steps of the operation became much more easier such as: ligation of the dorsal venous system, lymph node dissection and the anastomosys. And synchronization in the team improved also.

CONCLUSIONS: Using the 3D video system in the radical prostatectomy improves the cooperation in the surgical team and decreases the difficulty degree of the most demanding steps of the procedure resulting the shortening of the overall operation time.

Source of Funding: None

MP06-18 10 YEARS OF ROBOTIC UROLOGIC SURGERY AT AN ACADEMIC MEDICAL CENTER: A RETROSPECTIVE ANALYSIS OF CASE TRENDS AND PATTERNS

Gregory Mitchell*, Christopher Keel, Philip Dorsey, New Orleans, LA, Erik Castle, Scottsdale, AZ, Rodney Davis, Little Rock, AR, Raju Thomas, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Robotic assisted surgery was first utilized in urology in 1999, and over the past decade, it has disseminated into surgical care. Our institution was an early adopter of robotic technology, with first cases performed in 2002. We performed a retrospective analysis of 10 years of
robotic surgery at an academic institution to review disease management trends and practice patterns.

METHODS: After obtaining Institutional Review Board approval, a database of all robotic surgeries performed between 2002 and 2012 at our institution was constructed. The cases were indexed by surgeon and by procedure and were then tabulated. Records were cross referenced between case logs in addition to operating room statistics. Management of trends for prostate cancer, kidney disease, ureteropelvic junction obstruction, bladder cancer, and reconstructive robotic procedures were reviewed.

RESULTS: Surgeons in the Tulane Department of urology have engaged the Da Vinci surgical system in over 1600 urologic procedures since 2002. Early in its implementation, equivalent utilization of robotic pyeloplasties and prostatectomies were conducted. Beginning in 2004 and continuing since that time, robotic assisted radical prostatectomy took the lead as our most frequently performed robotic procedure by as much as 56% of total robotic case volume. There was a deviation from the upward trend in our case volume that occurred in 2005, corresponding to Hurricane Katrina, which devastated New Orleans and forced movement of the robotic program to another facility several miles from our home institution. Despite this challenge, our program resumed clinical practice 3 months later. In 2008, the number of robotic partial nephrectomies performed at our institution sharply increased, and that quantity has increased by 427% as of 2012. At this point, partial nephrectomy is our second most frequently performed robotic surgery. In 2009, 35% of the cases performed by urology faculty utilized the robot.

CONCLUSIONS: The advent of robotic technology in urologic surgery has greatly altered care at our institution. As the shifting global healthcare and economic climate has the potential to drastically alter the use of the robot, we will continually evaluate our practice patterns regarding this exciting surgical modality.

Source of Funding: none

MP06-19 USE OF TRANEXAMIC ACID IN ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY – OUTCOMES AND COMPLICATIONS

Sarvpreet Ubee*, Masilamani Selvan, Phillip El-Dalil, Jane Boddy, Bhagyasheer Netke, Rangaswamy Chandrashekar, Peter Cooke, Wolverhampton, United Kingdom

INTRODUCTION AND OBJECTIVES: Tranexamic acid (TXA) has been proven to reduce the morbidity and mortality related to intraoperative bleeding during elective surgery but its role to cause significant cardiovascular & thromboembolic events (CVTEE) when used during the peri-operative period remains uncertain.[1] Its role has been demonstrated in open radical prostatectomy.[2]

In this first reported study, we present our results with the use of TXA during robotic assisted laparoscopic radical prostatectomy (RALP).

METHODS: In a prospective study intravenous TXA was administered at the time of anaesthesia to 36 consecutive patients (TXAP group) undergoing RALP. Data was collected for the age, Basal Metabolic Index (BMI), American Association of Anaesthetists (ASA) score, haemoglobin level, blood loss, blood transfusion rate, drain output after 24 hours, time to drain removal, need for cystogram, total operating and console time along with attempt to nerve spare. Morbidity and mortality at 30 postoperative day was also noted.

Low Molecular Weight Heparin was given in the postoperative recovery area, and was continued for the next 28 days along with compression stockings.

Data was then retrospectively compared with the previous 36 patients (NTXAP group) who did not have TXA.

RESULTS: The patients in both groups matched closely in age, BMI and ASA score. Blood loss, drain output and time to drain removal were less for higher number of patients in the TXAP group. In either of the groups there were no CVSTEE complications or mortality reported during the first 30 day postoperative period.

Table-1 summarises the comparative data between the two groups. In either of the groups there were no CVSTEE complications or mortality reported during the first 30 day postoperative period.

CONCLUSIONS: Use of TXA during RALP can reduce the intraoperative blood loss related morbidity without increasing the CVSTEE despite the long operating time and Trendelenberg position. This may indirectly reduce the total console time.


Source of Funding: None

**MP06-20 LEARNING CURVE AND PERIOPERATIVE OUTCOMES OF ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY IN 200 INITIAL JAPANESE CASES BY A SINGLE SURGEON**

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**INTRODUCTION AND OBJECTIVES:** The present study was undertaken to investigate the learning curve and perioperative outcomes in consecutive 200 patients with prostate cancer who underwent robot-assisted radical prostatectomy (RARP) by a single surgeon.

**METHODS:** Between August 2006 and August 2011, 200 prostate cancer patients underwent RARP by a single surgeon at Tokyo Medical University Hospital and were enrolled in this study. We prospectively collected the demographic data of these 200 patients and retrospectively analyzed oncologic and functional outcomes. Operative outcomes analyzed were total operative time, estimated blood loss (EBL), pathologic results and perioperative complications. We also evaluated the relationship between learning curves and operative variables as well as positive surgical margin (PSM) rates in this surgeon. All of this study was approved by the ethics committee at Tokyo Medical University.

**RESULTS:** The median follow-up period was 16 months. The average total operative time was 190 minutes with EBL of 252 mL. A total of 36 complications were observed in 30 patients (15.0%) with no mortality. Twenty-nine patients treated with neoadjuvant hormone therapy and patients with pathological T0 stage were excluded in evaluating PSM for accurate data interpretation. PSM was found in 40 (23.5%) of the 170 patients. To acquire the stable skill for total operative time, PSM rate, complication rate and incontinence rate, slope learning curves of 25, 50, 50 and 100 cases were required, respectively.

**CONCLUSIONS:** The functional and oncologic results of this minimally invasive procedure seem to be very promising. The learning curve is shorter in RARP than in conventional LRP. Longer follow-up of the data and larger prospective studies are necessary to ensure current results.

Source of Funding: none

**MP06-21 PELVIC LYMPH NODE YIELD IN ROBOTIC PROSTATECTOMY: EXTRAPERITONEAL VS. TRANSPERITONEAL APPROACH**

Ashley Brandon*, Boston, MA, Abdul Babaeer, Ingolf Tuerk, Brighton, MA

**INTRODUCTION AND OBJECTIVES:** Robotic radical prostatectomy can be performed via transperitoneal (RALTP) or extraperitoneal (RALEP) approach. In selected patients, an extraperitoneal approach offers the theoretical benefit of avoiding the potential morbidity associated with entering the peritoneal cavity. Pelvic lymph node dissection (PLND) can be performed using either approach, however anatomic constraints restrict access to the internal iliac vessels and limit the extent of the lymph node dissection proximally in RALEP. We examine lymph node yield for each surgical approach.

**METHODS:** A retrospective analysis was conducted of all robotic prostatectomies performed by a single surgeon at a high volume institution over a 4-year period (11/2008 to 10/2012). This included 1088 patients, 408 (37.5%) performed using a transperitoneal approach and 680 (62.5%) using an extraperitoneal approach. Discretion of the surgeon was used to determine the approach considering factors including body habitus and history of previous abdominal surgeries including use of mesh.

**RESULTS:** Preoperative characteristic including patient age, BMI, Gleason score, and PSA were evaluated. Patients undergoing RA-LEP were slightly younger with lower BMIs and less advanced disease compared to those who underwent RALTP (table 1). Bilateral PLND was performed in 55.6% (n=235) and unilaterally in 47.7% (n=234). Of all RALTP cases compared to 23.7% (n=161) and 13.2% (n=90) of RALEP cases respectively. There were significantly more of lymph nodes sampled using a transperitoneal approach vs. extraperitoneal approach (p<0.001, table 2). In addition, more of lymph nodes were positive for malignancy in RALTP, however this may be reflective of preoperative disease characteristics.

**CONCLUSIONS:** In patients with more advanced or high-risk prostate cancer, a transperitoneal approach should be considered in order to maximize lymph node yield for prognostic and possibly therapeutic reasons.

Source of Funding: none

**MP06-22 NOVEL TECHNIQUE PREVENTS LYMPHOCOELE FOLLOWING TRANSPERITONEAL ROBOTIC ASSISTED PELVIC LYMPH NODE DISSECTION: PERITONEAL FLAP INTERPOSITION**

Christopher Lebeis*, Andrea Sorcini, David Cane, Alireza Moinzadeh, Burlington, MA

**INTRODUCTION AND OBJECTIVES:** Lymphocele formation is a known complication of pelvic lymph node dissection (PLND) after robotic-assisted radical prostatectomy (RARP). We developed a novel technique to prevent lymphocele formation, utilizing the existing peritoneum of the bladder.

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**Table 1. Preoperative Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>RALTP (n=640)</th>
<th>RALEP (n=608)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (ys)</td>
<td>60.3</td>
<td>60.3</td>
<td>p = 0.012</td>
</tr>
<tr>
<td>Mean Preoperative Gleason score</td>
<td>7.0</td>
<td>6.5</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Mean PSA (ng/dl)</td>
<td>7.6</td>
<td>5.8</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Mean BMI (kg/m2)</td>
<td>30.4</td>
<td>27.0</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>

**Table 2. Lymph Node Yield**

<table>
<thead>
<tr>
<th></th>
<th>RALTP</th>
<th>RALEP</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left (mean number)</td>
<td>4.31</td>
<td>2.07</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Right (mean number)</td>
<td>4.74</td>
<td>2.46</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>LN positive for malignancy (mean number)</td>
<td>0.180</td>
<td>0.052</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>
METHODS: We evaluated 155 consecutive patients undergoing RARP with PLND over 24 months. Group A included the first 77 patients with PLND using standard technique (no peritoneal flap). Group B included the subsequent 78 patients with PLND and peritoneal interposition flap. The peritoneal interposition flap is created by rotating and advancing the peritoneum (Point A in Figure 1) around the lateral surface of the ipsilateral bladder to the dependant portion of the pelvis (Arrow in Figure 1) and fixing it to the bladder itself (Figure 2). This prevents the bladder adipose tissue from contacting the lymph node dissection bed and scaring down. A cystogram was performed in 91% of the patients 7–14 days after the surgery. Lymphocele formation rates were compared (based on symptoms, cystogram findings, and radiographic confirmation).

RESULTS: The two groups were statistically equivalent in terms of PSA, age, blood loss, body mass index, Gleason score, prostate size, pathology, or heparin use. Symptomatic lymphocele formation occurred in 9/77 (11.6%) Group A patients and in 0/77 Group B patients (p = 0.003). Mean time to lymphocele detection in Group A was 30.4 days. Mean follow up in Groups A and B were 374.3 and 113.8 days respectively (p < 0.001).

CONCLUSIONS: Strategic rotation and fixation of a peritoneal flap around the lateral aspect of the bladder during transperitoneal RARP with PLND is a novel technique to prevent symptomatic lymphocele formation. Given the sample size and single institutional study, a prospective randomized, multi-institutional trial is planned.

Source of Funding: none

MP06-23 IDENTIFICATION OF FAVORABLE RISK FACTORS IN PATIENTS WITH POSITIVE SURGICAL MARGIN AFTER ROBOT-ASSISTED RADICAL PROSTATECTOMY

Yun-Sok Ha*, North Brunswick, NJ, Dong Il Kang, Busan, Korea, Republic of, Jeong Hyun Kim, Chuncheon, Korea, Republic of, Jae Young Joung, Goyang, Korea, Republic of, Ji Hyeong Yu, Seoul, Korea, Republic of, Wun-Jae Kim, Cheongju, Korea, Republic of, Isaac Kim, New Brunswick, NJ

INTRODUCTION AND OBJECTIVES: Positive surgical margin (PSM) has classically been associated with biochemical recurrence (BCR) following radical prostatectomy (RP) and immediate adjuvant radiotherapy has been advocated based on two large randomized prospective clinical studies. However, a significant percentage of patients with PSM never experience BCR. This study evaluated factors potentially affecting risk of BCR among the patients with PSM after robot-assisted radical prostatectomy (RARP).

METHODS: From a prospectively maintained database, 699 patients with localized prostate cancer who underwent a RARP without any adjuvant therapy were identified. Median follow-up was 46.0 months. To determine the pathologic and clinical factors that influenced BCR, univariate and multivariate analyses using the Cox proportional hazards model were performed. BCR-free survival curves were estimated with Kaplan-Meier method.

RESULTS: Surgical margins were positive in 115 patients (16.5%), of whom 23 (20%) had BCR. In the univariate analyses, serum PSA level, surgical Gleason score (GS), and non-organ confined disease were significantly associated with BCR in men with PSM. Multivariate Cox analysis showed that BCR was significantly associated with PSA (P = 0.011), and the surgical GS (P = 0.008). In patients with lower PSA cutoff (5.3 ng/ml), GS â‰¤ 7, and organ-confined disease, there were no BCR.

CONCLUSIONS: In this study, we identified favorable risk factors in patients with PSM following RARP. The results suggest that immediate adjuvant therapy for PSM may not be necessary in men with Gleason score 7 or less, organ-confined disease, and low pre-operative PSA.

Source of Funding: none

MP06-24 RISK FACTORS OF POSITIVE SURGICAL MARGINS ON THE APEX OF PROSTATE ON ROBOT-ASSISTED LAPAROSCOPIC PROSTATECTOMY

Risa Muneishi*, Ryuta Tanimoto, Yasuyuki Kobayashi, Motoo Araki, Shin Ebara, Toyohiko Watanabe, Yasutomo Nasu, Hiromi Kumon, Okayama, Japan

INTRODUCTION AND OBJECTIVES: Positive surgical margins (PSM) during laparoscopic prostatectomy are generally considered an adverse event. We evaluated the risk factors of positive RM on Robot-assisted laparoscopic prostatectomy (RALP) with specific attention to the exposed urethral length (UL) just before cutting urethra.

METHODS: The data of 81 patients who underwent RALP in our hospital were retrospectively evaluated. The standard clinical characteristics (age, prostate volume, prostate-specific antigen (PSA) before operation, Gleason score, clinical T stage and exposed urethral length (UL) just before cutting urethra were evaluated. The standard clinical characteristics (age, prostate volume, prostate-specific antigen (PSA) before operation, Gleason score, clinical T stage and exposed urethral length (UL) just before cutting urethra were evaluated. UL was measured based on the proportion of device diameter on the operation videos.
RESULTS: Eighteen out of 81 (22%) patients had PSM on prostate, and 11 of them had PSM on the apex of prostate. UL in the group of PSM on prostate as well as on the apex of prostate were significantly shorter than in the group of no PSM. On univariate analysis, we found the shorter UL was only significantly associated with an increased risk of PSM on the prostate as well as on the apex of prostate (p = 0.0014, 0.0136, respectively), but not age, PSA, prostate volume, clinical T stage or Gleason Score. On multivariate analysis, UL remained a significant predictive factor of PSM.

CONCLUSIONS: The risk factor of PSM was the shorter urethral length. The greater care should be taken on the dissecting urethra during Robot-assisted laparoscopic prostatectomy.

Source of Funding: none

MP06-25 DOES SURGEON SUBJECTIVE NERVE SPARING SCORE PREDICT RECOVERY TIME OF ERECTILE FUNCTION FOLLOWING ROBOT-ASSISTED RADICAL PROSTATECTOMY?


INTRODUCTION AND OBJECTIVES: During robot-assisted radical prostatectomy (RARP), the quality of nerve sparing (NS) was usually classified by laterality of NS (no NS, unilateral NS and bilateral NS) or degree of NS (no NS, partial NS and full NS). Recently, side-specific nerve sparing have been more frequently performed, but previous nerve sparing grading system might not reflect the differential NS in each side. Herein, we assessed whether a subjective NS score (NSS) incorporating both degree of NS and NS laterality can predict the time to potency recovery following RARP.

METHODS: Data was analyzed from 1,898 patients who had left and right neurovascular bundle sparing quality scores and at least one year of follow-up after RARP performed between January, 2008 and October, 2011. Cox proportional hazards method analyses were used to determine predictive factors for early recovery. Multivariable linear regression models were used to assess subjective NSS in an effort to predict time to potency recovery. Subjective NSSs were compared to a model based on the three grades according to laterality and degree.

RESULTS: Time to potency recovery showed a statistically significant difference in favor of higher NS grade by the Cox proportional hazard regression analysis (grade 0 vs. grades 3, 4, and 5; P<0.01), but there were no differences between grade 0 versus 1 (P=0.579) or grade 0 versus 2 (P=0.449). The regression model indicated that the subjective NSS better explained potency outcomes than the systems using conventional three-grade scales (adjusted R-squared = 0.207 in subjective NSS; subjective R-squared = 0.185 in NS laterality; adjusted R-squared = 0.187 in degree of NS). The regression equation with subjective NSS was as follows: Log (Time) = 5.163 - (0.035 × SHIM Score) + 0.028 Age - (0.101 × Subjective NSS).

CONCLUSIONS: Our subjective NSS model can more accurately predict the time to potency recovery and better explain potency outcomes than systems based on NS laterality and the degree of NS.

Source of Funding: none

MP06-26 IMPACT OF LENGTH OF POSITIVE SURGICAL MARGINS (PSM) ON BIOCHEMICAL RECURRENCE (BCR) AFTER ROBOTIC-ASSISTED RADICAL PROSTATECTOMY (RARP), IN A SINGLE CENTER SERIES WITH FOLLOW-UP OF AT LEAST FIVE YEARS

Prasanna Sooriakumaran*, Achilles Ploumidis, Leif Haendler, Tommy Nyberg, Mats Olsson, Stefan Carlsson, Gunnar Steineck, Peter Wiklund, Worcester Park, United Kingdom

INTRODUCTION AND OBJECTIVES: It is well established that PSM is a risk factor for BCR, and in our own series, PSM was associated with a 2–3 fold increase in the risk of BCR. In this study we aim to assess the impact of length of PSM as a predictive variable for BCR.

METHODS: From Jan 2002 to Dec 2006, 944 men with clinically localized or locally advanced (cT1–3) prostate cancer underwent RARP at our institution. Data were prospectively collected and included: age, BMI, preoperative PSA, prostate volume, clinical stage, biopsy Gleason score, pathological stage, specimen...
Gleason score (GS), margin status (positive, negative), number of PSM (single, multiple) and extent of PSM (mm) and were associated with BCR rate. Margin status and length were measured by seven uropathologists. BCR was defined as PSA $\geq 0.2$ ng/ml on two consecutive measurements. Kaplan-Meier survival plots with log-rank tests and Cox univariable and multivariable regression analysis were used to determine biochemical recurrence-free survival and identify predictors of BCR.

**RESULTS:**

The overall median follow-up was 6.3 (IQR: 5.6–7.2) years. In total, 194 (21.6%) patients were found to have PSM of which, 104 (16.0%) were pT2, 64 (33.3%) were pT3a and 22 (57.9%) were pT3b. The location of PSM was in 66 (7.4%) patients at the apex, in 87 (9.8%) patients posterolateral, in 33 (3.7%) patients anterior and in 20 (2.2%) patients at the base of the prostate. PSM in multiple locations was noted in 38 patients. In multivariable regression analysis: PSA $> 10$ (HR: 1.86, 95%CI: 1.27-2.72, $p = 0.0013$), pT3a stage (HR: 1.62, 95%CI: 1.07-2.46, $p = 0.0221$), pT3b stage (HR: 3.09, 95%CI: 1.69-5.67, $p = 0.0003$), GS: 3+ (HR: 2.20, 95%CI: 1.34-3.60, $p = 0.0017$), GS: 4+ (HR: 5.08, 95%CI: 2.95-8.74, $p < 0.0001$), GS: 8+ (HR: 3.89, 95%CI: 1.90-7.93, $p < 0.0001$) and PSM length $\geq 3$ mm or multifocality (HR: 2.84, 95%CI: 1.76-4.58, $p < 0.0001$) remained independent predictors of BCR.

**CONCLUSIONS:**

In a large RARP series with median follow-up of 6.3 years, PSM length $> 3$ mm was an independent predictor of BCR. Patients with PSM $< 3$ mm had similar BCR outcomes to those with negative surgical margins.

**Source of Funding:** None.

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**MP07 ESWL/UROLITHIASIS**

**MP07-01 ESWL TREATMENT IN GERMANY IN 2013: RESULTS FROM A NATION-WIDE HOSPITAL SURVEY**

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**INTRODUCTION AND OBJECTIVES:** The aim of the survey was to gain information on current ESWL treatment strategies and modalities in German urology departments.

**METHODS:** A survey was sent to 306 urologic departments within Germany under the auspices of the German Society for Shock Wave Lithotripsy (DGSWL). The questionnaire contained questions on the medical, technical and organizational modalities of stone-therapy.

**RESULTS:** 99 surveys (33%) had been answered, 25% of respondents were university departments. In 69% ESWL is performed only under in-patient conditions, in 15% only under outpatient conditions, and in 28% both in- and outpatient.

96% of the departments consider renal ultrasound to be an essential diagnostic measure prior to ESWL treatment, whereas 56% use intravenous urography, 54% a plain abdominal X-Ray, and only 18% a CT.

85% of the departments do not necessitate a pre-interventional blood coagulation test in case of unsuspected anamnesis.

A pre-interventional urine dipstick is used in 69% of the departments, 47% perform a urine sediment analysis, while 29% perform a routine urine culture despite unsuspected anamnesis regarding urinary tract infection. Only 5% do not perform any kind of urine analysis based on unsuspected anamnesis. In case of renal stone and ureter stone lithotripsy there is a difference in suspending anticoagulant medications.

For pain management 76% of the departments perform an intravenous analgo-sedation, 6% only use oral medication. In 18%, an anesthesiologist is always present during the procedure, 6% sometimes use general anesthesia.

Relating to the treatment modalities 48% of the departments perform an ultrasound-guided ESWL. All departments gradually increase shock wave energy (power ramping); 7% exceed the maximum energy and number of shock waves recommended by the manufacturer. The average shock wave frequency for renal and ureteral stones is 90 shocks/min (range 50–180). The maximum number of ESWL treatments per stone before switching to endourologic measures varies from 6%/one session, 32%/two sessions, 44%/three sessions, and up to 10% place no limit on the number of treatments. 8% of the departments perform re-ESWL of kidney stones within one day, 41% with a two day interval, while 28% wait more than a week.

**CONCLUSIONS:** The present survey shows the current ESWL treatment strategies and modalities of the German urology departments. Large disparities exist with respect to the single parameter. ESWL strategies and modalities still appear to be a matter of much debate.

**Source of Funding:** A survey within German urologic departments under the auspices of the German Society for Shock Wave Lithotripsy (DGSWL).
MP07-02 TRIPLE D SCORE IS A READILY INTERPRETED SINGLE SCORE THAT PREDICTS SHOCKWAVE LITHOTRIPSY STONE FREE RATES FOR RENAL CALCULI

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INTRODUCTION AND OBJECTIVES: Over the last decade, numerous studies have suggested improved shockwave lithotripsy (SWL) success rates with consideration of stone density, skin-to-stone distance and stone diameter. Manual determination of these predictors on computed tomography (CT) imaging is a time-consuming process that may limit the utilization of these predictors. Here, we describe an easy-to-interpret score that integrates these predictors and is reported by radiologists.

METHODS: Stone density based upon Hounsfield units (HU), skin-to-stone distance, ellipsoid stone volume and stone-free rates were determined for all patients that underwent SWL at our institution from 2011–2012. Receiver operator curves were generated to determine the optimal cutoff values for each parameter. Each stone was assigned a score based upon whether these parameters were below the established cutoff values (Triple D Score). Additionally, a survey was sent to local Urologists to assess their current utilization of these predictors and to gauge their interest in a unifying score.

RESULTS: 116 of the 186 patients (62.3%) that underwent SWL were stone free. 52/84 (61.9%) of the patients with available preoperative imaging were stone free. In univariate analysis, ellipsoid stone volume and stone density were significant predictors of SWL success while skin-to-stone distance trended towards significance. Cutoffs of < 150 μl for ellipsoid stone volume, < 12 cm for SSD and < 600 HU for density were established. A Triple D score of 0, 1, 2, and 3 had SWL success rates of 40.0%, 51.5%, 71.4% and 93.3%, respectively. Only two-thirds of surveyed urologists currently utilize SSD and HU in SWL planning. However, over 95% are aware of their predictive value and stated they would utilize a integrative score if it were included in a radiology report.

CONCLUSIONS: Inclusion of the Triple D Score in radiology reports offers a readily accessible means to integrate predictive parameters from CT imaging into preoperative planning for SWL. This may enhance the cost efficacy of SWL by limiting it to patients likely to have favorable outcomes.

Source of Funding: none

MP07-03 A NON-INFERIORITY TRIAL COMPARING THE COMBINATION OF ETORICOXIB AND DICLOFENAC AGAINST PETHIDINE AS ANALGESIA DURING EXTRACORPOREAL SHOCKWAVE LITHOTRIPSY

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INTRODUCTION AND OBJECTIVES: Opiates are commonly used as analgesia during extracorporeal shockwave lithotripsy (ESWL). They have good analgesic efficacy and rapid onset of action; but are often associated with significant adverse effects like nausea, respiratory depression and hypotension. Non-steroidal anti-inflammatory drugs (NSAIDs) are alternatives without the adverse effects of opiates, but their analgesic effect and onset of action seem inferior to opiates. By combining etoricoxib with diclofenac, we aim to spare the use of opiates and yet provide equivalent analgesia throughout ESWL.

METHODS: A test of non-inferiority was conducted. Patients with renal or ureteric stones undergoing ESWL would be randomised into 2 groups. Group A would receive oral etoricoxib 120 mg at 2 hours and intramuscular diclofenac 75 mg immediately before ESWL. Group B would receive intravenous pethidine 50 mg with metoclopramide 10 mg immediately before ESWL. All ESWLs were performed with a Siemens Modularis Variostar electromagnetic lithotripter following a standard treatment protocol. At the end of ESWL, all patients would rate pain severity using a visual analogue scale from 0 (no pain) to 10 (worst pain). Power analysis (1-β=0.80; α=0.025) determined the minimum sample size to be 284 patients, at a non-inferiority margin of 1. Besides the severity of pain, any drug-related adverse effects and unexpected interruption to ESWL were also recorded and compared between the groups.

RESULTS: A total of 372 patients were randomised into 2 equal groups over a period of 3 years. The 2 groups were similar in patients’ demographics, stone characteristics and ESWL details. The mean pain scores for Group A and Group B were 4.7 and 4.5 respectively. Results showed that non-inferiority was claimed, t (370) = 4.17, p < 0.001. The lower bound of the confidence limit was 0.39, which was within the non-inferiority margin. Six patients in each group had premature interruption to ESWL due to severe pain. There were no NSAID-related adverse effects in Group A. Twenty one patients in Group B suffered from nausea and vomiting, with 1 of them requiring hospitalisation for persistent nausea. There was 1 Group B patient who died from acute myocardial infarct 6 days after ESWL, but was deemed unrelated to opiate use.

CONCLUSIONS: The combination of etoricoxib and diclofenac is not inferior to pethidine as analgesia during ESWL, and is not associated with any adverse effects.

Source of Funding: none

MP07-04 TO ASSESS THE EFFECTS OF DIFFERENT TREATMENT PROTOCOLS ON THE DEGREE OF RENAL INJURY IN PATIENTS WITH RENAL STONES RECEIVING SHOCKWAVE LITHOTRIPSY

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INTRODUCTION AND OBJECTIVES: Animal studies aimed at minimizing renal injury caused by extracorporeal shockwave lithotripsy (SWL) suggested including modifications in treatment protocols, such as low energy shockwave pretreatment protocol and pause-protection protocol. Our study was designed to assess
the effects of these protocols on acute renal injury in human subjects.

METHODS: Adult patients with renal stone planned for SWL were recruited and randomized to follow one of the protocols, (1) 80% power (9.2 kV) from the beginning till the end (Control); (2) the first 100 shocks at 40% power (9.6 kV), followed by SWs at 80% power till the end; (3) the first 100 shocks at 40% power, followed by a 3-minute pause and then further SWs at 80% power till the end; (4) the first 100 shocks at 80% power, followed by a 3-minute pause and then further SWs at 80% power till the end. Spot urine samples were collected immediately before and after SWL. Urinary Interleukin-18 (IL-18) and microalbumin (MA) were measured and expressed as ratios to creatinine for comparison. The incidence of renal haematoma was assessed by MRI or NCCT on Day-2 after SWL.

RESULTS: 166 patients were recruited. The baseline information and treatment parameters of the 4 groups were comparable. The figure showed significant increase of urinary IL-18 levels after SWL compared to baseline levels in all groups (p < 0.005). Besides, the mean post-SWL IL-18 levels of Group 3 and 4 were significantly lower than in Group 1 (p < 0.05). However, there was no significant difference between the post-SWL levels of IL-18 in Group 2 and Group 1. Urinary MA levels also increased after SWL, but post-SWL levels between 4 groups showed no difference. There was no significant difference in the incidence of renal haematoma between 4 groups.

CONCLUSIONS: Patients who received the first 100 shocks at 40% or 80% power followed by a 3-minute pause had significantly less increase in urinary IL-18, compared to those had no low-energy pretreatment and pause. This suggested that pause protocol alone and combination of the two protocols may lead to less post-SWL acute renal injury.

Source of Funding: Hong Kong RGC General research fund (RGC Ref. No. CUHK472111)

MP07-05 IN VIVO STONE COMMINUTION PRODUCED BY A MODIFIED ACOUSTIC LENS FOR ELECTROMAGNETIC LITHOTRIPTERS

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INTRODUCTION AND OBJECTIVES: The acoustic lens of a Siemens Modularis electromagnetic shock wave lithotripter has been further modified to reduce pre-focal cavitation while generating a pressure waveform and broad focal zone mimicking that of the Dornier HM3. In this study, we sought to determine the comminution efficiency of the modified lens following a clinical therapy regime and compared the results to comminution produce by the original lens in a swine model.

METHODS: Using the maximum energy level (E+ = 44 mJ) that is safe for lithotripsy (i.e., without formation of gross hematoma), we have compared stone comminution produced by the original and modified lenses in vivo using hard cylindrical Begostones of 5×10 mm, surgically implemented in pig kidneys. A clinical protocol with a soft ramping scheme was used to deliver 3000 shock waves to each kidney using a pulse repetition frequency of 1.5 Hz, leading to a total accumulated energy of 112.84 J. Following lithotripsy, kidneys were harvested, dissected, all visible stone fragments were collected, dried and filtered with standard sieves with decreasing mesh size of 4, 2.8, and 2 mm, respectively. Final comminution efficiencies were determined by the percent-age (by weight) of fragments less than 2 mm. An unpaired two-tailed student’s t-test was used to compare fragmentation results.

RESULTS: At E+ = 44 mJ, the modified lens (12 renal units) showed a comminution efficiency of 72.8% (+21.4%) compared to 63.6% (+21.8%) for the original lens (10 renal units) overall, p = 0.058. When considering stones not trapped in the DJ loop and those with no spread > 2 cm, comminution efficiency was 88.8% (+10.9%) for the modified lens vs 51.4% (+23.3%) for the original lens, p = 0.013.

CONCLUSIONS: With our latest lens modification the electromagnetic lithotripter demonstrates better stone comminution under a clinically relevant energy setting and treatment protocol when compared to the original lens. This lens modification could be retrofitted to most electromagnetic lithotripters, thereby improving efficiency of clinical stone fragmentation.

Source of Funding: This work was supported in part by NIH through grant R37-DK052985-15, Siemens (for providing the electromagnetic shock wave generators and lenses used in this work), and a Ferdinand Eisenberger grant of the Deutsche Gesellschaft für Urologie (German Society of Urology), ID NeA1/FE-11 (Andreas Neisius).

MP07-06 ENERGY AND PULSE REPEITION FREQUENCY DEPENDENT TISSUE INJURY PRODUCED BY A MODIFIED ACOUSTIC LENS FOR ELECTROMAGNETIC LITHOTRIPTERS

Andreas Neisius*, Nathan Smith, Nicholas Kuntz, Tim Schykowski, Gaston Astroza, Richard Shin, Ramy Youssef, Muhammad Iqbal, Michael Ferrandino, Michael Lipkin, W. Neal Simmons, Glenn Preminger, Pei Zhong, Durham, NC

INTRODUCTION AND OBJECTIVES: The acoustic lens of a Siemens Modularis electromagnetic shock wave lithotripter has been further modified to reduce pre-focal cavitation while generating a pressure waveform and broad focal zone mimicking the Dornier HM3 electrohydraulic device. We sought to determine the threshold for the maximum acoustic energy which can be safely applied to a kidney under clinically relevant treatment protocols, and the dependency of tissue injury on pulse repetition frequency (PRF).

METHODS: Tissue injury (TI) produced by the original and modified lenses in a swine model were first evaluated starting from the highest output level to determine the threshold energy for safe lithotripsy. Thereafter, TI was assessed under an effective acoustic pulse energy for the leading compressive wave (E+) of 44 mJ. A clinical protocol with a soft ramping scheme was used to deliver 3000 shock waves to each kidney using a PRF of 1.0 and 1.5 Hz, leading to a total accumulated energy of 112.84 J. Following lithotripsy, kidneys were perfused, harvested, dehydrated, cast in paraffin wax, and sectioned. Photographic images were taken every 120 μm and analyzed to determine the functional renal volume (FRV) damage.

RESULTS: Gross subcapsular hematomas were produced by both the original and modified lenses at E+ of 51 mJ. Using E+ of 44 mJ, the modified lens showed quantitatively macroscopic tissue injury (subcapsular hematoma) in 1/6 renal units (17%) in the 1.5 Hz group. No macroscopic tissue injury was detected in the 1.0 Hz group (0/6 renal units). After processing of the digitalized images TI was detected in 0.432% (±0.51%) of the FRV (with a maximum level of 1.324% in the kidney with the gross hematoma) in the 1.5 Hz group and in 0.009% (±0.015%) of the FRV in the 1 Hz group (p = 0.025), respectively.
CONCLUSIONS: This study demonstrates that the energy threshold for gross TI of the modified lens is comparable to the original lens. Our data further confirms that the initiation of TI depends on acoustic pulse energy, and the extent of TI depends on the total accumulated acoustic energy delivered to a kidney, as well as on PRF. Overall, our results suggest that a rational design of treatment strategies to minimize tissue injury in SWL is warranted.

Source of Funding: This work was supported in part by NIH through grant R37-DK052985-15, Siemens (for providing the electromagnetic shock wave generators and lenses used in this work), and a Ferdinand Eisenberger grant of the Deutsche Gesellschaft für Urologie (German Society of Urology), ID NeA1/FE-11 (Andreas Neusius).

MP07-07 A NOVEL METHOD OF EXTRACORPOREAL LITHOTRIPSY WITHOUT SHOCK WAVES: IN VITRO FRACTIONATION OF ARTIFICIAL AND HUMAN CALCULI

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INTRODUCTION AND OBJECTIVES: Since the introduction of shock wave lithotripsy (SWL) over 30 years ago, most treatments have employed similar acoustic output protocols, delivering 2000–3000 shock waves at a rate of 1–2 per second. While this technology has been effective in many patients, the suboptimal stone-free rate has resulted in a shift in clinical preference towards more invasive approaches such as ureteroscopy. Based on previous work identifying the mechanisms of stone fracture in SWL, we are investigating a new method to fragment stones using ultrasound pulses without shock waves. This study evaluated the exposures needed to fragment artificial and human stones in vitro.

METHODS: Ultrasound exposures were tested on 1) cylindrical artificial stones (Begostone, 6 mm diameter x 10–12 mm length) with acoustic properties similar to calcium oxalate and 2) human stones (uric acid, struvite, cystine, calcium oxalate) extracted by percutaneous nephrolithotomy. Stones were fixed to a plastic membrane and positioned at the focus of an ultrasound transducer in a degassed water bath. The transducer was electrically driven with a radiofrequency amplifier between 170 to 255 kHz to output 10-cycle ultrasound pulses. Focal pressure amplitudes were lower than those in SWL (p < 6.5 MPa), but pulses were delivered at a higher rate (40–1000 Hz). Stone fracture time was recorded and fragments were collected to evaluate the size distribution. A numerical elastic wave model was used to compare the stress created in stones by both SWL shock waves and ultrasound pulses applied in this study.

RESULTS: Exposures resulted in fragments < 3 mm breaking off the intact stone, with fracture initiating near the stone surface closest to the transducer and progressing to the distal surface during treatment. The pressure threshold for fracture of artificial stones was between p = 2.3–2.8 MPa. Comminution of artificial stones required 10.9 ± 2.5 minutes (n = 6) at 200 Hz pulse rate and p = 6.5 MPa, and as little as 5 minutes at higher rates. Human stones were completely fragmented in 10 seconds (5 mm, uric acid) to 21 minutes (12 x 7 x 5 mm, cystine) with the same parameters. Stones treated at higher ultrasound frequency generated smaller fragments. Simulations provided a possible explanation for the relationship between ultrasound frequency and fragment size.

CONCLUSIONS: Pulsed ultrasound without shock waves can fragment artificial and human renal calculi in vitro over a time frame comparable to SWL. In contrast to SWL, the resulting fragment sizes may be controllable through selection of ultrasound frequency.

Source of Funding: Work supported by NIH 2T32DK007779-11A1, 2R01EB007643-05, 2P01DK043881-15, 1R01DK092197-02, and NSBRI through NASA NCC 9–58.

MP07-08 HYPOTHERMIA (ICE PACK) VERSUS CYCLOOXYGENASE 2 SELECTIVE INHIBITOR AS PAIN CONTROL FOR POST-EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY PATIENTS

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INTRODUCTION AND OBJECTIVES: Extracorporeal shockwave lithotripsy (ESWL) has now become the leading mode of management for urinary calculi. Acoustic shock waves break stones down into sand-like fragments (Ayt, et.al., 2008), accounting for the passage of sand-like urine. The treatment may be associated with significant pain, depending on the strength of the shock waves delivered. ESWL has shown excellent success rates in treatment of urinary calculi. The Hippocratic Oath that “I will never cut for a Stone” has become a welcome reality with the help of ESWL.

To assess the analgesic effect of Hypothermia (Ice Pack) versus Cox – 2 inhibitor in post-extracorporeal shockwave lithotripsy (ESWL) patients for renal calculi.

METHODS: The study was a randomized controlled trial involving 160 patients who, prior to ESWL for renal calculi, were properly screened and were divided into two groups. Patients in the ICED group (n = 80) received ice pack over the affected site on two occasions, 8 hours and 24 hours post ESWL. Patients in the COX-2 group (n = 80) received COX-2 inhibitor post ESWL. The effectiveness was assessed with the use of a visual analog scale (VAS).

RESULTS: The mean VAS (1.9875 ± 0.169) was noted to be higher in patients under the ICED Group compared to the mean VAS (1.936 ± 0.170) of the patients in the COX-2 group. However, the obtained p values for the two groups yielded no statistical significance for the two groups. VAS and age have an inverse Pearson correlation (r = -0.04698).

CONCLUSIONS: Both Hypothermia and COX-2 selective inhibitors are effective as pain control for post ESWL patients. Hypothermia (ice pack) as analgesic for post-ESWL patients does not have statistical difference in terms of its analgesic effect when compared with COX-2 inhibitors.

Source of Funding: none

MP07-09 EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY WITH DORNIER LITHOTRIPTER S: LONG TERM SIDE EFFECTS ASSESSMENT AFTER 10 YEARS OF FOLLOW UP

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INTRODUCTION AND OBJECTIVES: The extracorporeal shock wave lithotripsy (ESWL) is a minimally invasive treatment
of urolithiasis. Starting from the electrohydraulic prototype (HM3), the evolution of lithotripters led to a significant improvement in the safety of the treatment. Long-term side effects incidence is still a controversial topic; among the potential side effects of the first devices, the most important were the onset of chronic renal failure, arterial hypertension, and diabetes mellitus. The aim of our work is to evaluate the safety of ESWL treatment by using a last generation electromagnetic lithotripter.

METHODS: Between 2002 and 2012, we performed nearly 4000 ESWL treatments. We retrospectively reviewed the data of the first 47 patients treated for kidney stones in 2002 (current average age: 48.3 ± 9.8, 36 men, 14 women). The average number of shock waves was equal to 2000 SW (+/-100). No relevant short term side effects were identified. The same patients were contacted during 2012 and undergo clinical assessment with particular attention to the onset of hypertension, renal failure, and diabetes mellitus.

RESULTS: Our follow-up after 10 years showed that nine patients (9/47) have developed arterial hypertension (19%). The current age of 8 of these patients is between 45 and 64 years. A literature review shows that among the general population (untreated) the incidence of hypertension is 30% in the age group between 45 and 54 years old, and 42% between 55 and 64 years old (Woltz M, Am J Hypertension 2000). No patients had onset of insulin-dependent diabetes mellitus or renal dysfunction at 10 years follow up.

CONCLUSIONS: Electromagnetic lithotripter used in the extracorporeal shock wave lithotripsy does not seem to induce significant side effects in long-term follow-up. The incidence of hypertension, as possible complication, does not seem to differ in patients who underwent ESWL treatment and general population. However, this study is still in progress, and the future follow-up of more cases will eventually confirm these results.

Source of Funding: none

MP07-11 THE EFFECT OF PREOPERATIVE COUNSELING ON PATIENT PREFERENCE IN MANAGEMENT OF ASYMPTOMATIC RENAL CALCUL

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INTRODUCTION AND OBJECTIVES: With the development of new minimally invasive treatment modalities, patients are frequently presented with more than one option for the management of their stone disease. We evaluated the effect preoperative counseling had on patient decision making.

METHODS: We retrospectively reviewed the records of all patients seen by a single surgeon in our stone clinic over a three year period (2010–2012). Patients were included in the study if they were presenting with asymptomatic renal stone(s) and were not complications, those with renal colic and ureteral stones were excluded. All patients at time of preoperative visit were quoted potential success rates based on published data, and according to stone size, location, skin to stone distance, and attenuation.

RESULTS: A total of 201 patients met criteria for inclusion, and 152 of those patients ultimately underwent intervention with 109 opting for Shock Wave Lithotripsy (SWL) (n = 68) or Ureteroscopy (URS) (n = 41). The mean preoperative success rate quoted to patients choosing SWL 72% (Q1–Q3 70–80%) was significantly lower than the mean preoperative success rate quoted for URS 90% (Q1–Q3 90%–95%) (p < 0.001). Patients were more likely to choose SWL as long as the success rate was within 25% of that quoted for URS. If the

MP07-10 EFFECT OF ROWATINEX ON URINARY CALCULS CLEARANCE AFTER EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY

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INTRODUCTION AND OBJECTIVES: A special terpene combination (Rowatinex®) was known to help the emission of urinary stones. This study is how Rowatinex® effects the emission of remnant stones after shock wave lithotripsy (SWL).

METHODS: From January 2007 to August 2012, total 755 patients, who were diagnosed with urinary stones and underwent SWL. All patients were diagnosed with urinary stones through KUB, IVP or Abdomen CT. The patient’s progress was checked every 2 weeks to confirm remnant stones by KUB after SWL. If remnant stones existed, the patients underwent SWL again. Group 1 is composed of patients who were prescribed NSAIDs, Tamsulosin 0.2 mg and Rowatinex®. Group 2 is composed of patients who were prescribed NSAIDs and Tamsulosin 0.2 mg. When we performed SWL, the shock wave velocity was 60 times per minute to all patients equally, and the power increased from AC120V to AC170V. It was performed in all groups from 3,000 times to 4,000 times equally. The patient’s age, sex, the location of the urinary stone, the size of the urinary stone, the number of sessions, the treatment’s duration and complications were compared and analyzed by each group.

RESULTS: Group 1 and Group 2 showed no difference regarding patient’s age, sex and the location of the urinary stone. The average size of the urinary stone was not different statistically between Group 1 and Group 2 (8.5 ± 4.3 mm vs 8.7 ± 4.3 mm, p = 0.466). Two weeks after the first SWL, the clearance rate of the urinary stone was not different in the 2 groups, and after 4 weeks, it increased significantly in Group 1 (60.7% vs 47.5%, p = 0.002). The final clearance rate of the urinary stone was increased in Group 1 (68.7% ± 57.1%, p = 0.003). The number of sessions in Group 1 is greater than Group 2 (2.20 ± 1.43 vs 1.96 ± 1.29, p = 0.032). Thirty-six patients out of the total 755 patients did not emit a urinary stone after SWL. Seven patients out of 18 in Group 1 (6.8%), 5 out of 18 in Group 2 (4.7%) had ureteroscopic removal of the stone. Acute pyelonephritis occurred in one patient in Group 1 (1.0%) and in 2 patients in Group 2 (p = 0.589).

CONCLUSIONS: The long-term administration of Rowatinex® for more than 4 weeks increases the clearance rate of urinary stones after SWL.

Source of Funding: none

Table 1. Difference in Preoperative Success Rate Quoted for URS and SWL Versus Percentage of Patients Who Chose URS or SWL. URS-Ureteroscopy, SWL - Shock Wave Lithotripsy.
difference in success rate was > 50% for URS, all patients elected URS. (table 1).

CONCLUSIONS: Our patients favored SWL, the least invasive procedure, and were willing to accept a lower success rate when electing management for asymptomatic renal stones.

Source of Funding: none

MP07-12 VALIDATION OF A CLINICAL NOMOGRAM TO PREDICT SUCCESSFUL SINGLE TREATMENT SHOCKWAVE LITHOTRIPSY OF RENAL AND URETERAL CALCULI
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INTRODUCTION AND OBJECTIVES: Shock wave lithotripsy (SWL) is dependent on patient and stone-related factors; there are few reliable algorithms predictive of SWL success. We previously created a clinical nomogram using pre-treatment patient and stone variables to predict successful SWL with the Phillips Lithotron. The objective of this study is to determine if the nomogram is generalizable by validating it on a more current group treated on an electromagnetic lithotripter.

METHODS: Patients treated between June 2010 to Mar 2013 were reviewed. Analysis was restricted to patients with a solitary treated renal or ureteral calculus < 20 mm, with a pre-treatment CT scan at our institution within 4 weeks of SWL, and follow-up at our institution. Demographic, stone, patient and follow-up data were collected from a prospective database. All patients were treated on the StorzModulith SLX-F2 lithotripter.

RESULTS: 270 patients (71.5% male) were analyzed. Mean stone area was 51.5 ± 35.9 mm² for ureteral stones and 65.9 ± 54.3 mm² for renal stones, with 81 (55.1%) of the renal stones located in the lower pole. Single treatment success rates for ureteral and renal stones were 74.8% and 59.7%, respectively. By multivariate logistic regression, stone area, mean stone density and skin-to-stone distance (SSD) were significant predictors of successful SWL for renal stones (AUC = 0.78); for ureteral stones, patient body mass index, stone area, mean stone density, and SSD were significant predictors (AUC = 0.72).

CONCLUSIONS: Patient and stone parameters have been identified to create a nomogram that predicts SWL outcomes. Use of a clinical nomogram can facilitate optimal treatment-based decisions and provide patients with more accurate single-treatment success rates for SWL that are tailored to patient-specific situations.

Source of Funding: None

MP07-13 OPTICAL COUPLING CONTROL IN EXTRA-CORPOREAL SHOCK WAVE LITHOTRIPSY: FIRST CLINICAL EXPERIENCE
Geert Taillit*, Kapellen, Belgium

INTRODUCTION AND OBJECTIVES: In shock wave lithotripsy (SWL) the quality of coupling of the SW-source to the patient is one of the most important factors in energy transfer and hence in quality of stone disintegration. Air bubbles in the coupling area have a deleterious effect on the propagation of the shockwave and consequently on the disintegration capacity. After coupling the coupling area is invisible to the operator ("blind" coupling) and despite the most meticulous attention to proper coupling more often than not air bubbles persist in the coupling area. Since September 2012 we monitor coupling quality with a video camera installed in the water cushion of the therapy head.

METHODS: In order to check for air bubbles in the coupling area between the water cushion and the patient we video recorded and a LED-light were installed in the therapy head of our Dornier Gemini lithotripter. All air bubbles observed in the coupling area zone are then removed using manual control by manually swiping between water cushion and patient. We evaluated the effect of this optically controlled coupling (OCC) on treatment results (01/10/12-31/03/13) and compared these to the results obtained in a "blind" coupling mode (01/04/11-30/04/12).

RESULTS: Video monitoring of the coupling area with optically controlled removal of air bubbles significantly reduces the required number of SW with 19.6% for renal stones and 23.2% for ureteral stones. Energy level is reduced by 23.1% for renal stones and by 22.5% for ureteral stones.

Thus total applied energy is reduced by 38.0% for renal stones. Effectiveness quotients were comparable: in the "blind" mode 73 for renal and 74 for ureteral stones respectively; in the OCC mode 74 for renal and 77 for ureteral stones respectively.

CONCLUSIONS: "Blind" swiping of the coupling zone doesn’t always remove all air bubbles. Swiping with optical control effectively removes all air bubbles.

This significantly reduces the total energy needed to obtain comparable treatment results.

Theoretically this should also reduce incidence and severity of SW-induced adverse effects.

Source of Funding: None

MP07-14 IS SCREENING PATIENTS FOR URINARY TRACT INFECTIONS BEFORE EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY USING URINE DIPSTICK NECESSARY?
Ben Tschobotko, Milad Hanna*, Ranan DasGupta, London, United Kingdom

INTRODUCTION AND OBJECTIVES: The presence of Urinary Tract Infection (UTI) contraindicates the use of Extracorporeal Shock Wave Lithotripsy (ESWL) for the treatment of urinary tract calculi. The gold standard for diagnosing a UTI is microbiology, culture and sensitivity (MC&S). It is the policy of our Urology department to dipstick urine and perform MC&S only if urine is positive. Patients with nitrite positive urine are excluded from ESWL. Our aim was to consider whether performing a urine dipstick of all patients’ urine prior to ESWL is necessary and whether a nitrite positive urine dipstick is specific for culture positive infection.

METHODS: The urine dipstick and urine MC&S results were analysed from all patients who had undergone ESWL for urinary tract calculi in our department between November 2012 and May 2013. Patient details were accessed from our lithotripsy database, urine dip results were accessed from patient notes and MC&S results were accessed from the hospital records system.

RESULTS: 172 patients were analysed. 7 patients were found to have dipstick positive urine (nitrite positive). Of these, 5 samples were ‘culture positive’.

CONCLUSIONS: Only 4% of patients were nitrite positive and only 3% were culture positive. Furthermore, of the 5 ‘culture positive’ patients 2 were asymptomatic for UTI and 2 had staghorn calculi and ureteral stents in situ and were thus very high risk for UTI. Therefore targeted testing of patients with signs and symptoms of UTIs may be more appropriate than screening.
Moreover, previous results have suggested that nitrites are highly specific for bacteriuria. However, only 71% of nitrite positive urine was ‘culture positive’. In addition, studies have suggested that nitrites are only around 50% sensitive for bacteriuria. Overall, screening patients for UTIs by testing for nitrite positive urine, which may be poorly sensitive and specific for culture positive urine, may not be appropriate.

Source of Funding: None

MP07-15 EARLY OUTCOMES AND PREDICTORS OF TREATMENT SUCCESS AFTER SINGLE SESSION EXTRA-CORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL) FOR UROLITHIASIS

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INTRODUCTION AND OBJECTIVES: Reported outcomes following extra-corporal shock wave lithotripsy (ESWL) for urolithiasis are inconsistent. Various definitions of successful outcome, inclusion of additional treatments, and follow-up length account for part of this inconsistency. Reporting the early success rates after a single ESWL is important when comparing outcomes to those of alternative treatment options.

In this prospective study we aimed to report the early outcomes and predictors of successful treatment following a single ESWL session.

METHODS: Patients with normal renal anatomy referred for SWL with a single renal or ureteral stone which was not treated previously were included in the study cohort, and prospectively reviewed for clinical characteristics and treatment outcomes. Follow-up imaging with an ultrasound and an abdominal x-ray were performed one month after the procedure for all patients. Treatment success was defined as the absence of urinary stones ≥2 mm, without additional procedures, one month following the initial ESWL. Clinical characteristics were evaluated as predictors of treatment outcome.

RESULTS: The study group included 69 men and 16 women with a median stone size of 10 mm (5–21). The urinary stone was located in the upper calyx, middle calyx, lower calyx, renal pelvis and ureter in 5%, 16%, 36%, 19% and 24% respectively. Patients were treated by a mobile lithotripter (Econolith 2000™ and Duet™). Most patients (65%) were overweight (BMI > 25).

During the procedure, the surgeon’s impression of operative fragmentation was noted in 57 patients, describing a complete, partial and lack of response in 65%, 25% and 11% of the procedures respectively. An additional ESWL was required in 20 patients, and an auxiliary procedure in 13 patients.

Overall success rate at one month after a single treatment session was only 40%. Success rates were higher (58%) in patients with a stone <10 mm. On univariate analysis stone size of less than 10 mm (p = 0.012) and the surgeon’s impression of complete fragmentation during the procedure (p = 0.0027) were significant predictors of treatment success.

CONCLUSIONS: Treatment success one month after a single session of ESWL occurred in less than half of the patients. Stone size <10 mm is a significant pre-operative predictor of successful outcome. This information should be presented to patients at counseling, before deciding on the preferred treatment for urolithiasis.

Key Words: shockwave lithotripsy, stone free rate

Source of Funding: None

MP07-16 INDUCIBLE NITRIC OXIDE SYNTHASE INHIBITORS FOR PROTECTION FROM RENAL DAMAGE DUE TO EXTRACORPOREAL SHOCKWAVE THERAPY


INTRODUCTION AND OBJECTIVES: Extracorporeal shock waves lithotripsy (SWL) is not a completely harmless treatment in which peripheral tissues, renal parenchyma and other organs are damaged during process. The best known mechanism of renal damage occurring during SWL is the production of free radicals due to oxygen and nitrogen. We searched the protective effect of the inhibition of nitric oxide (NO) production with high selective 1400 W inducible nitric oxide synthase (iNOS) inhibitor against renal damage due to extracorporeal shockwave therapy (SWT).

METHODS: Right nephrectomy applied 24 rats were equally divided into three groups as control group, only SWT and SWT with 1400 W applied. The SWT application was done with 2000 shot with 15 joule energy to left renal; the peripheral tissues were surrounded by protective circle. 1400 W was given sequentially for 3 days with dose of 10 mg/kg 2 hours before SWT and at the beginning of SWT intraperitoneally. At the end of the third day, after the rats had been killed with decapitation, blood samples were taken from aorta and nephrectomy was applied. The half of each kidney were immediately preserved for superoxide dismutase (SOD), glutathione peroxidase (GPx) tissue lipid peroxidation (Malondialdehyde-MDA) and nitrite/nitrate (NOx) levels. The rest of the tissue was fixed in formalin for histopathological examination.

RESULTS: It was determined that SWT causes renal tubular damage, lipid peroxidation and increase in antioxidant enzyme activity. Also SWT caused increase in nitro oxidative products. iNOS inhibition and 1400 W application reduced renal damage and MDA, SOD, GPx and NOx levels. In addition when compared to SWT group, histopathological changes in SWT +1400 W group improved.

CONCLUSIONS: The renal damage due to SWL is related to the extreme increase of free oxygen radicals and NO productions. iNOS inhibition has protective effect from renal damage occurring after SWL treatment. 1400 W iNOS inhibitor can be used to be protected from morphological and functional damages due to SWT.

Source of Funding: None

MP07-17 DOES OZONE THERAPY HAVE PROTECTIVE EFFECT ON RENAL DAMAGE CAUSED BY EXTRACORPOREAL SHOCKWAVE THERAPY?

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INTRODUCTION AND OBJECTIVES: Kidney damage may occur during the body extracorporeal shock wave lithotripsy (SWL) process. One of the known mechanisms of this damage is production of free radicals due to oxygen and nitrogen. Ozone therapy eliminates the apoptosis process by transferring the inflammation process to another part of the body. In our study, we investigated the effect of ozone therapy as protection against kidney damage due to extracorporeal shockwave therapy (SWT).
METHODS: Sprague Dowley type 24 rats were divided into three equal groups after right nephrectomy as; control group, SWT performed and ozone therapy administered along with SWT. SWT application to the left kidney was performed with 2000 shots and a total of 15 joules of energy. Tissues except the kidney were preserved by circle of protection. Nephrectomy was performed after the rats were sacrificed and histopathological changes were examined. Glomerular, tubular, interstitial and vascular damage was scored from 0 to 4. Total scores were compared between groups.

RESULTS: Vascular damage was not observed in any group. In the control group for glomerular, tubular and interstitial changes (congestion, inflammation, necrosis, edema, vascular, tubular degeneration), the total median score was 4 (1–6), while the score of the SWT group was 18 (11–22), and in SWT + ozone therapy group was calculated as 8 (2–11). Histopathological changes were statistically different between the three groups (p > 0.05).

CONCLUSIONS: SWT treatment leads to histopathological changes in the kidney. Ozone therapy has a protective effect against histopathological changes in the kidney. Ozone therapy can be used against morphological and functional changes caused by SWT.

Source of Funding: None

MP07-18 VALPROIC ACID TREATMENT IN RENAL DAMAGE DUE TO EXTRACORPOREAL SHOCKWAVE THERAPY

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INTRODUCTION AND OBJECTIVES: Extracorporeal shock wave lithotripsy (SWL) process may cause renal damage. One of the known mechanisms of this damage is the production of free radicals due to oxygen and nitrogen. Valproic acid is a medicine used against oxidative stress. We examined the effect of valproic acid treatment against renal damage due to extracorporeal shockwave therapy (SWT).

METHODS: Sprague Dowley type 24 rats were divided equally into three groups as control group, SWT applied and valproic acid treatment with SWT applied. The SWT was performed with 2000 shots and a total of 15 joules of energy to left kidney, the peripheral tissues were surrounded by protective circle. After the rats had been sacrificed, nephrectomy was applied and histopathological changes were examined. Glomerular, tubular, interstitial and vascular damages were scored between 0 and 4. The total scores were compared between groups.

RESULTS: Vascular damage was not seen in any of the groups. Total median score was 5 in terms of glomerular, tubular, interstitial changes (congestion, inflammation, necrosis, oedema, vascular tubular degeneration), this score was 18 in SWT group and 8 in SWT with valproic acid treatment group. Three groups were statistically different from each other (p > 0.05) in terms of histopathological changes.

CONCLUSIONS: SWT treatment causes histopathological changes in kidney. Valproic acid treatment makes protective effect against histopathological changes in kidney. Valproic acid treatment can be used against morphological and functional changes due to SWL.

Source of Funding: None

MP07-19 CHANGE OF OXIDATIVE STRESS BEFORE AND AFTER ESWL FOR PATIENTS WITH RENAL STONE

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INTRODUCTION AND OBJECTIVES: To evaluate the change of oxidative stress before and after extracorporeal shock wave lithotripsy (ESWL) for patients with renal stone.

METHODS: Forty patients with renal stone and receiving ESWL were recruited in this study. The parameters for comparison included stone size, shock wave numbers and KV, age, and body mass index (BMI). The oxidative stress and antioxidant capacity were evaluated by measuring malondialdehyde (MDA), mitochondrial DNA (mtDNA) copy number and total capacity of antioxidants (TOA) in the blood. The data were correlated with serum creatinine, which were measured before and immediately after ESWL in all patients.

RESULTS: Serum creatinine increased (0.89 ± 0.18 vs. 1.03 ± 0.20 mg/dL). MDA (15.6 ± 2.8 vs. 22.1 ± 5.8/µM) was increased and TOA (148.7 ± 53.2 vs. 69.4 ± 32.5 µM) decreased in all the patients immediately after ESWL compared with the data before ESWL. Patients with larger renal stone (>2 cm) had significantly higher MDA (23.9 ± 2.8 vs. 21.1 ± 5.1/µM), lower mtDNA copy number (0.24 ± 0.12 vs. 0.34 ± 0.12), and lower TOA (61.7 ± 29.2 vs. 76.4 ± 32.5 µM) immediately after ESWL than did those with smaller stone (<2 cm). By multiple regression, larger renal stone, higher shock wave numbers and KV were associated with higher oxidative stress and lower antioxidant capacity immediately after ESWL. Besides, negative correlation was found between oxidative stress and renal function immediately after ESWL.

CONCLUSIONS: An increase of MDA and decrease of TOA in blood in all the patients immediately after ESWL, which might induce renal damage. Moreover, the oxidative stress levels in blood was higher and antioxidant capacity was lower in patients who had larger renal stone (>2 cm), and receive higher shock wave numbers (>4000) and KV (>17).

Source of Funding: none

MP07-20 COMPARISON EARLY WITH DELAYED LI- THOTRIPSY IN COLIC PATIENTS WITH SOLITARY UTERTER CALCULI

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INTRODUCTION AND OBJECTIVES: This study was conducted to evaluate safety and efficacy of early extracorporeal shock wave lithotripsy (eESWL) performed within 24 hours of symptom onset by comparing eESWL with delayed extracorporeal shock wave lithotripsy (dESWL) performed at least 24 hours after symptom onset in urolithiasis patients with acute renal colic.

METHODS: Among patients with acute renal colic visiting this institution from January 2008 to November 2012, 259 patients with solitary radio-opaque urinary stone of 5–20 mm in diameter were enrolled in this study. Patients were divided into two groups; those treated with eESWL performed within 24 hours of symptom onset and those treated with dESWL performed at least 24 hours after symptom onset. We retrospectively analyzed pre-procedural factors such as sex, age, body mass index (BMI), hemato-logic tests, urinalysis, screening of concurrent diseases, size and location of the stone, unilaterality, presence of hydronephrosis, and skin-to-stone distance, as well as post-procedural factors including the number of ESWL performed, complications
following ESWL, and time from ESWL to stone expulsion, etc. Kidney, ureter, and bladder (KUB) X-ray was performed weekly before and after ESWL and the treatment success was defined as no visible residual fragments on radiologic image after the initial ESWL.

RESULTS: Ninety were assigned to eESWL group and 169 were assigned to dESWL group. There were no significant differences in terms of sex, age, BMI, hematologic results, urinalysis, and concurrent diseases between the two groups. The mean (± SD) stone sizes in eESWL group and dESWL group were 5.5±2.5 mm and 5.68±3.1 mm, respectively. There were no significant differences in location and unilaterality between stones found in upper, middle and lower ureter. Treatment success in each group was 78.2% and 62.7%, respectively, with eESWL group having a significantly higher rate of success. The number of procedures performed in each group were 2.7±1.1 and 3.1±1.3, respectively. Time required from the ESWL to stone expulsion were 28.4±18.5 days and 39.7±57.7 days,(p<0.05) respectively, with eESWL group having significantly better outcome in both factors. Especially with stones measuring 15 mm or less, the treatment success were 87.4% and 66.1%, respectively, which were significantly higher than the total success rates (p<0.05).

CONCLUSIONS: The early extracorporeal shock wave lithotripsy performed within 24 hours of the onset of renal colic is markedly more effective than the delayed extracorporeal shock wave lithotripsy performed at least 24 hours after symptom onset.

Source of Funding: none

MP07-21 NEUTROPHIL GELATINASE-ASSOCIATED LYPICALIN (NGAL) VALUES CHANGE BEFORE AND AFTER SHOCK WAVE LITHOTRIPSY

Alessandro D’addessi*, Matteo Vittori, Silvia Baroni, Chiara De Waure, Matteo Raponi, Aniello Primiano, Francesco Sessa, Giuseppe Palermo, Pierfrancesco Bassi, Rome, Italy

INTRODUCTION AND OBJECTIVES: The most promising marker used in the diagnosis of acute renal failure in recent years is NGAL (Neutrophil Gelatinase-associated Lypocalin). Aim of this study was to determine possible acute kidney injury, measuring urine NGAL values change in patients undergoing shock wave lithotripsy (SWL).

METHODS: Fourteen patients were considered in the study. All patients had a single stone in the kidney with an average size of 10 mm. They were treated with the electromagnetic lithotripter Siemens Lithoskop (3000 shock waves at 90 shock waves/min, total power of 60 Joules).

Serum BUN and creatinine, urine creatinine and NGAL levels were determined before and at 3, 24 hours and 30 days after the treatment. BUN and creatinine were measured by kit Roche on Cobas; NGAL was assayed by kit Abbott on Architect.

Exclusion criteria were: recent episodes of renal colic (less than 3 months), the presence of radiotransparent lithiasis, renal impairment; upper urinary tract obstruction and malignancy, acute pyelonephritis, patients who used potentially nephrotoxic drugs within 2 weeks before the evaluation.

RESULTS: A general linear model for repeated measurements was applied in order to evaluate the relationship between time and NGAL and NGAL/Creatinine Ratio (in order to exclude differences due to the hydration of patients). A post-hoc analysis was carried out with Bonferroni correction. No significant difference was found with respect to NGAL and NGAL/Creatinine Ratio when T0, T3h, T24h and T30 days were compared.

CONCLUSIONS: Actually NGAL is the most accurate biomarker that can predict and quantify possible acute kidney damage. Our work suggests that there is no demonstrable kidney damage after a single treatment SWL (total power supplied 60 Joules with a frequency of 90 shock waves/min).

Source of Funding: none

MP07-22 SELECTIVE LUNG INTUBATION MAY IMPROVE STONE TARGETING DURING SECONDARY SWL

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INTRODUCTION AND OBJECTIVES: Respiratory motion during SWL impairs stone targeting. The study aim was to examine the ability of bronchial blocker (BB) ipsilateral to the stone side to prevent stone motion and improve the outcome.

METHODS: We compared 13 patients who had failed the first SWL treatment and were given second SWL under general anesthesia (GA), using BB with 17 controls who underwent secondary SWL treatment under conventional. Success was defined as stone free state at 3 month.

RESULTS: The overall treatment duration was significantly prolonged in the study group: 43 minutes (range 30–55) versus 27 minutes (25–40) in the control group, p<0.001. The success rate was 9/13 (69%) in the study group versus 10/17 (59%) in the control group. Although this difference did not reach statistical significance (p=0.12) in a subset analysis of patient with upper pole stones 9/12 (75%) versus 7/11 (64%) were successful, respectively (p=0.02).

CONCLUSIONS: In a small group of patients undergoing secondary SWL for upper pole stones, general anesthesia and ipsilateral temporary bronchial blockade may be considered in order to improve outcome. Further study using larger cohorts of patients is required.

Source of Funding: none

MP07-23 EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL) FOR THE TREATMENT OF RENAL COLIC INDUCED BY URETERAL STONES

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INTRODUCTION AND OBJECTIVES: Renal colic is common in clinical manifestations of ureteral calculi and the main treatments are used by drugs of analgesia spasmylosis. But the drugs are ineffective for some patients. Some authors reported that Non-deferred ESWL for acute renal colic secondary to obstructing ureteral stones has a satisfactory success rate and very low morbidity. To explore the application we choosed ESWL with traditional Chinese medicine for the treatment of ureteral calculi in this paper.

METHODS: All patients were treated with a Lithotripsy Donier vision (FS 2000, Germany) by one physician in an outpatient setting. The intensity of the shock waves ranged from one to two, and the frequency of the waves was about 60 times/min. Traditional Chinese medicine was used for 7 days after ESWL. Treatment effect was evaluated by KUB or ultrasound at 2 weeks after treatment.

RESULTS: Stone access was successful in all patients. Stone fragmentation was found to be inadequate by shock waves from
INTRODUCTION AND OBJECTIVES: Modern stone management is based on a judicious combination of both shock wave lithotripsy (SWL) and endourologic techniques. Medium and high volume stone centers are therefore interested in a multifunctional machine that allows the performance of both SWL and endourologic procedures.

METHODS: Our Dornier Gemini is equipped with a high penetration electromagnetic shock wave emitter, a dual imaging system with on-line use of both fluoroscopy and ultrasound, a therapy head with versatile coupling possibilities above and under table and a fully translucent carbon table top. We evaluated SWL in 132 renal and 143 ureteral stones. BMI ranged from 18.2–40.4 in males (mean 27.1) and 18.2–40.0 in females (mean 25.8).

RESULTS: For renal and ureteral stones respectively mean stone size was 56.2 mm² and 47.5 mm², mean number of SW 1496 at level 7 (3–10) and 1659 at level 8 (3–11).

Overall retreatment rate was 15.9% for renal and 15.4% for ureteral stones; auxiliary procedure rate 6.0% and 13.9% respectively; stone free rates at 1 month 88.6% and 96.5%; extended EQ 73 and 75.

CONCLUSIONS: With the high penetration EMSE 220 F-XXP HP we obtained excellent EQ’s at relatively low total energies even in the (morbidly) obese.

The high quality imaging with flat panel detector and the carbon table top with a 250 kg capacity contribute to an excellent endourology function.

METHODS: A nonsystematic review of the literature was performed using the National Library of Medicine database (PubMed), science direct, Google, and the Cochrane Library to assemble appropriate evidence-based reference literature. The Medline search was performed with special emphasis on the management of kidney and proximal ureteral stones with the following terms: comparison between ESWL, PCNL in kidney stone, comparison between ESWL and RIRS in kidney stones, and comparison between ESWL and URLS in ureteral calculi. Only comparison trials and papers written in English were included in meta-analysis.

Meta-analysis: Statistical analyses were performed using MedCalc for Windows, version 9.5.0.0. Dichotomous data were extracted and summarized using Odds Ratio (ORs) with 95% confidence intervals (CIs). A fixed effects model was used by default, unless test of heterogeneity was found significant.

RESULTS: Four publications comparing the results of ESWL and PCNL in treatment of renal calculi, three publications comparing the results of ESWL and retrograde intrarenal surgery (RIRS) in treatment of renal calculi, and, five publications comparing the results of ESWL and ureteroscopy in treatment of proximal ureteric calculi were included. The three months stone-free rates were lower in the ESWL group than the other endoscopic interventional procedures in all publications. The retreatment rates were lower but not significant in the ureteroscopy and PCNL. The rate of complications is insignificantly lower in the ESWL group. Length of hospital stay, and the operative time was significantly less for ESWL treatment than the other procedures.

CONCLUSIONS: PCNL or RIRS of kidney stones and URLS of proximal ureteric stones achieves a higher stone-free state with insignificant a higher complication rate and a longer hospital stay. With the advances in Endoscopic technology, complications and hospital stay of PCNL, RIRS and URLS will be comparable to ESWL. With time, ESWL will be limited in indications; and it may be replaced by PCNL, RIRS and URLS in treatment of urinary calculi.

INTRODUCTION AND OBJECTIVES: In the province of Ontario shockwave lithotripsy (SWL) is a regionalized resource with only 3 treatment centres to service a population of 13 million residents. Access to ureteroscopy (URS) and percutaneous nephrolithotomy (PCNL) is more widely available, however many centres may still lack the necessary technology and technical expertise to treat stones of varying complexity and achieve high success rates. Little research exists examining regional variation in SWL, URS and PCNL utilization in the management of kidney stone disease, as well as variation in the need for ancillary treatment.

METHODS: Using the Ontario Health Insurance Plan physician claims database all kidney stone treatments performed in Ontario between Jan. 1, 2005 and Dec. 31, 2010, were identified. Regional area rate variation in the utilization of SWL, URS and PCNL was calculated across each of the 49 counties (CNT) in the province of Ontario and was quantified using 4 measures of small-area variation, including the systematic component of variation (SCV). Additionally, the Chi-square test was used to test for variation between CNT, while controlling for age and sex differences. A
Chi-square statistic was also used to compare each CNT with the overall mean rate for the province. In a similar manner, the regional area rate variation for ancillary treatment was evaluated.

**RESULTS:** We identified 73,055 procedures (SWL=28,319, URS=39,602, PCNL=5,104). The number of procedures increased from 11,474 in 2005 to 13,183 in 2010 and the age and sex adjusted rate for stone procedures across all 6 years was 140.23/100,000. There was a moderately large degree of variation in the utilization of both SWL (SCV 167.56) and URS (SCV 200.38). For SWL 5 CNT had rates significantly higher than the provincial rate (p<0.0001) and included the 3 CNT with lithotripters. Accordingly the 3 CNT with lithotripters, in addition to 2 others, had significantly lower rates of URS (p<0.0001). Five of the 11 CNT with significantly higher rates of URS had significantly lower rates of SWL. Minimal regional variation was seen for PCNL utilization, as well as for ancillary treatment across all modalities (p>0.05).

**CONCLUSIONS:** Regional variation exists in the utilization of SWL and URS in Ontario and is closely related to proximity to SWL centres. Conversely, utilization of PCNL was more uniform across the province. Despite variability in treatment utilization rate, need for ancillary treatment did not vary greatly across regions.

**Source of Funding:** None

**MP08 ROBOTICS/LAPAROSCOPY: PROSTATE/BLADDER I**

**MP08-01 ROBOTIC RADICAL CYSTECTOMY WITH TOTALLY INTRACORPOREAL URINARY DIVERSION: PRELIMINARY RESULTS**

Mariaconsiglia Ferriero*, Giuseppe Simone, Rocco Papalia, Salvatore Guaglianone, Rome, Italy, Mihir Desai, Inderbir Gill, Los Angeles, CA, Michele Gallucci, Rome, Italy

**INTRODUCTION AND OBJECTIVES:** In the last few years robotic radical cystectomy (RRC) for muscle invasive bladder cancer began to gain popularity. However total intracorporeal diversion is a challenging procedure.

In this series we presented feasibility, complication rate and perioperative outcome of our first 21 patients treated with RRC and intracorporeal urinary diversion.

**METHODS:** From January to March 2013, 21 consecutive unselected patients with cT2-4a/cN1–3/cM0 bladder cancer underwent RRC, super-extended lymphadenectomy and totally intracorporeal diversion. Baseline demographics and perioperative data were collected and reported.

**RESULTS:** Robotic intracorporeal urinary diversion was successfully performed in all patients (Studer neobladder: 7 patients, Padua Ileal Bladder: 7 patients, Ileal conduit: 7 patients). Median age and BMI were 64.5 yr and 26.5, respectively.

Median operative time was 240 (IQR 226.5–274) minutes for ON group and 255 (IQR 185–278) minutes for IC group, respectively (p=0.227).

In the whole cohort, median preoperative and postoperative haemoglobin were 14.5 g/dL (IQR 13.6–15.7 g/dL) vs 12.2 g/dL (IQR: 11.3–13.2) respectively, median preoperative and postoperative serum creatinine levels were 0.83 mg/dL (IQR 0.69–1.03) vs 1.29 mg/dL (IQR 0.83–1.78). Median time to regular diet was 6 d (IQR 5–7), median hospital stay was 9 d (IQR 7–13.7). The median number of lymph nodes removed at pathologic examination was 37 (IQR 32.75–41).

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Perioperative Clavien grade 3–5 complication rate was 23.8% (n=5/21).

The first 5 patients with ON experienced grade 3b complications (including bowel anastomosis dehiscence and urinary leakage, treated with re-anastomosis and bilateral nephrostomies, respectively).

Pathologic data were summarized in Table 1.

**CONCLUSIONS:** RRC with totally intracorporeal urinary diversion is feasible and safe. The orthotopic reconstruction is subject to a higher rate of 3–5 grade complications than IC even if it happened in the first cases. A step-wise standardization of technique reduces operative time and perioperative complication rate.

**Source of Funding:** None

**MP08-02 THE FIRST NATIONAL EXPERIENCE OF INTRAVESICAL INJECTION OF THE TRACEIT TISSUE MARKER UNDER A LOCAL ANESTHESIA FOR IMAGING VISUALIZATION OF MUSCLE-INVASIVE BLADDER CANCER FOR THE TARGETED IMRT**

Joel Bass*, Po Lam, Christopher Pieczonka, Syracuse, NY, Patrick Campbell, Waltham, MA, David Albala, Howard Williams, Vladimir Mouraviev, Neil Mariados, Syracuse, NY

**INTRODUCTION AND OBJECTIVES:** The treatment of muscle invasive bladder tumors remains challenging for urologic oncologists. Targeted radiation therapy coupled with chemotherapy has become as a promising treatment modality comparable with a radical cystectomy according to the cancer control results. Radiation oncologists often combine, or fuse, MR and CT images to improve dose planning accuracy. However, most markers do not have equivalent visibility on both CT and MR, creating a permanent image artifact in areas of particular interest and limiting their usefulness for image fusion. The TraceIT™ Tissue Marker (Augmenix, Waltham, MA) is an injectable polyethylene glycol based hydrogel marker designed to be visible under CT, cone beam computed tomography (CBCT), MR and ultrasound imaging for three months after implantation, and then to absorb within seven months.

**METHODS:** Patient M., 80 years with history of left nephrectomy for upper tract urothelial carcinoma 1.5 years...
ago diagnosed with recurrent bladder cancer. Cystoscopy was performed where a large papillary tumor more than 5 cm on anterior wall was found and resected by TURBT. The histology confirmed a high-grade muscle-invasive urothelial carcinoma with lymphatic invasion. Patient declined radical cystectomy and chose combination radiotherapy and chemotherapy. In order to outline a bladder tumor margins, the patient agreed to undergo an injection of TraceTM Tissue marker before IMRT. Under local anesthesia (intraurethral 2% lidocaine gel and intravesical 1% lidocaine) a rigid 20 Fr. resectoscope was introduced into bladder, systematic cystoscopy was performed and of tumor was localized. TraceTM was injected using a 23G needle with 0.3 ml into 6 locations around tumor resection bed within 1 cm from cancer borderin total amount of 1.8 ml were injected.

RESULTS: Patient tolerated a procedure well and immediately underwent planning CT scan following the injection. The patient was discharged following completion of the planning CT scan. Three days later, IMRT radiation therapy was started for a planned dose of 65 Gy in total on the Varian image-guided linear accelerator using Rapid Arc technology. The exact outlining of tumor margins on CBCT provided with TraceIT hydrogel™ allowed us to use a targeted boost IMRT regimen that led to cancer eradication with minimal toxicity.

CONCLUSIONS: Next generation absorbable tissue markers such a TraceIT hydrogel™ extends our ability to exactly map the tumor margins for targeted radiation therapy.

Source of Funding: none

MP08-03 ROBOTIC RADICAL CYSTECTOMY AND COMPLETELY INTRACORPOREAL URINARY DIVERSION: THE USC EXPERIENCE

Andre Berger*, Andre Luis de Castro Abreu, Adrian Fairey, Sheaumei Tsai, Mehrdad Alemozaffar, Alvin Goh, Hamed Hamadi, Dennis J. Lee, Scott Leslie, Raed Azhar, Sumeet Syan, Monish Aron, Inderbir S. Gill, Mihir M. Desai, Los Angeles, CA

INTRODUCTION AND OBJECTIVES: Robotic radical cystectomy (RRC) and lymph node dissection (LND) is becoming a more standardized procedure; however, intracorporeal diversion is still in the early stages and only performed at very few centers around the world. Here we describe the evolution of the technique and lessons learned during our initial experience at USC.

METHODS: From July 2010 to November 2012, RRC and LND with intracorporeal urinary diversion patients were performed in 50 patients with muscle-invasive bladder cancer by the same surgical team in 3 different institutions. Data were analyzed in 37 patients who had at least 3 month followup (18 patients neobladders and 19 patients ileal conduits). Operative times for the cystectomy, LND and diversion portions of the operation were compared across all 37 patients.

RESULTS: Median time for the cystectomy and LND portions of the operation for all 37 patients, were 77 min (IQR, 61.5–123 min) and 63 min (IQR, 52–82.5 min), respectively. Median time for neobladder diversion in 18 patients was 172.5 min (IQR, 148.75–212.5 min) and for ileal conduit diversion in 19 patients was 62 min (IQR, 28–130 min). There was a significant decrease in time over successive cases for cystectomy, but not for LND or neobladder diversion (r=−0.415, p=0.02; r=−0.158, p=0.395; r=−0.0129, p=0.6329; respectively). For all 37 patients, median estimated blood loss (EBL) was 250 cc (IQR, 187.5–325 cc), lymph node yield (LNY) was 35 nodes (IQR, 18–48 nodes), and hospital stay was 9 days (IQR, 7–17 day), with a significant decrease in EBL and hospital stay over successive cases but not for LNY (r=−0.347, p=0.038; r=−0.382, p=0.022; r=0.190, p=0.261; respectively).

Overall 30-day complication rate was 67.5% (Clavien III-IV, 13.5%).

CONCLUSIONS: Our technique for RRC and LND with intracorporeal diversion is evolving and while operative times for the cystectomy portion have significantly decreased, LND operative times have stayed fairly consistent, and we have modified our approach for the diversion in an effort to minimize potential problems in order to achieve shorter, more consistent operative times.

Source of Funding: none

MP08-04 COMPARISON OF OUTCOMES BETWEEN INTRACORPOREAL AND EXTRACORPOREAL ILEAL CONDUITS IN 164 CONSECUTIVE ROBOT-ASSISTED RADICAL CYSTECTOMIES

Anees Fazili*, Helen Levey, Justin Houman, Changyong Feng, Hani Rashid, Guan Wu, Rochester, NY

INTRODUCTION AND OBJECTIVES: We present our initial experience with robot-assisted radical cystectomy with ileal conduit (RACI), and compare our outcomes for intracorporeal creation of ileal conduit (ICIC) versus extracorporeal creation of ileal conduit (ECIC).

METHODS: A retrospective review was performed on all patients that underwent RACI at our institution between January 2007 and February 2013. This included 164 patients, among which ICIC was performed on 124 patients, and ECIC was performed on 40 patients. Pre-operative patient characteristics, intra-operative data, as well as peri-operative and pathologic outcomes were compared between the two groups.

RESULTS: The median age for our RACI population was 70 years old, with a mean ASA of 2.6, and mean Charlson Comorbidity Index (CCI) score of 6.2. In regards to pre-operative characteristics, there were no significant differences between the ICIC and ECIC cohorts in regards to patient age, gender, ASA score, CCI score, pre-operative GFR, or history of multiple abdominal surgeries. The ECIC cohort had a significantly higher BMI (29.7 vs. 27.4, p=0.04) as well as rate of utilization of neoadjuvant chemotherapy (23% vs. 10%, p=0.04). In regards to intra-operative characteristics, whereas the frequency of lysis of adhesions, lymph node yields, and surgical margin status were similar, EBL was significantly lower in the ICIC cohort (372 vs. 548 mL, p=0.001), as was operative time (369 vs. 411 min, p=0.004). The mean length of stay for all RACI patients was 9.6 days, with no significant difference between the two cohorts. In regards to pathologic stage, there was a clear trend towards increased rates of non-organ-confined disease in our ICIC cohort, which attained marginal statistical significance (45.4% ICIC vs. 28.2% ECIC, p=0.06). Nonetheless, rates of adjuvant chemotherapy utilization were similar between our groups, as were rates of local and metastatic recurrence with a mean and median follow-up of 19 and 13 months, respectively. There were also no significant differences between ICIC and ECIC in terms of overall complication rates, immediate post-operative ICU admissions, unplanned ICU admissions, or return to the operating room within 30 and 90 days.

CONCLUSIONS: Robot-assisted ICIC is technically feasible, and can be accomplished safely with acceptable and comparable operative as well as oncologic outcomes when compared to ECIC.

Source of Funding: None
MP08-05 THE EFFECT OF SURGEON VOLUME ON THE MORBIDITY OF RADICAL CYSTECTOMY IN THE UNITED STATES: A CONTEMPORARY POPULATION-BASED ANALYSIS

Jeffrey Leow*, Wei Jiang, Stephen Reese, Stuart Lipsitz, Boston, MA, Benjamin Chung, Stanford, CA, Steven Chang, Boston, MA

INTRODUCTION AND OBJECTIVES: Radical cystectomy, the gold standard treatment for invasive bladder cancer, is a morbid procedure associated with high costs. In an effort to improve quality and safety, the Leapfrog Initiative calls for hospitals to meet volume/year criteria; otherwise referral to a high volume center is warranted. This study evaluates the evidence behind this public health policy by examining the relationship between surgeon volume and radical cystectomy morbidity including the impact of the increasing common robotic approach.

METHODS: We captured all who underwent a radical cystectomy (ICD-9 code 57.71) between 2004 to 2010, from a nationally representative discharge database representing over 600 non-federal hospitals across the United States. Review of the hospital chargemaster was performed to identify robotic procedures. Patient-level (age, gender, race, insurance status, Charlson comorbidity) and hospital-level (bed size, teaching status, location) characteristics were evaluated. Volume was based on the annual number of cystectomies performed by surgeon in the year the procedure was performed on a given patient (low: < 6; high: ≥ 6 cases). Propensity-weighting statistical techniques were employed to reduce selection bias. Survey weighting with cluster analysis was performed to ensure nationally representative estimates. The outcomes of interest were 90-day major complications (Clavien 3–5) as defined by ICD-9 diagnosis codes, and mean inpatient length of stay (LOS).

RESULTS: The weighted cohort included 43,506 radical cystectomies (41,484 non-robotic and 2022 robotic) during the study period with an overall major complication rate of 17.2%. High volume surgeons were associated with a 20% decreased odds for major complications (OR 0.80, p < 0.03) and 1.2 days shorter LOS (p = 0.01) (Fig 1). Compared to non-robotic surgery, robotic radical cystectomy had similar 90-day major complication rates (p = 0.63) but a 1.9 day shorter LOS (p < 0.01) (Fig 1).

CONCLUSIONS: Our contemporary evaluation of radical cystectomy suggests that by encouraging centralization of complex surgical procedures to high-volume providers, the Leapfrog Initiative would reduce the overall burden of disease associated with radical cystectomy. The impact of robotic cystectomy warrants further evaluation.

Source of Funding: none

MP08-06 EFFECTS OF OPIOID-BASED ANALGESICS AND THE UTILIZATION OF THE ROBOTIC SYSTEM ON THE DURATION OF POSTOPERATIVE ILEUS FOLLOWING RADICAL CYSTECTOMY WITH ILEAL CONDUIT

Kyo Chul Koo*, Sey Kiat Lim, Tae Young Shin, Young Eun Yoon, Sang Woon Kim, Koon Ho Rha, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Postoperative ileus (POI) is common following bowel resection for radical cystectomy with ileal conduit (RCIC). Prolonged POI is associated with patient discomfort, increased postoperative morbidity, and length of hospital stay (LOS). The current study was to determine factors associated with prolongation of POI following RCIC in regard to operative and postoperative treatment regimen.

METHODS: 95 patients who received RCIC were identified between 2007 and 2009 at a single institution. 69 (72%) and 26 (28%) patients underwent RCIC via open and robot-assisted techniques, respectively. Extracorporeal urinary diversions were performed for all robot-assisted RCICs. Pre, intra, and post-operative records were retrospectively obtained to assess their associations with days to passage of flatus, tolerance to oral diet, and LOS. Prior to general anesthesia, all patients received an epidural patient-controlled analgesia (ePCA) containing fentanyl with its dose adjusted to body mass index (BMI). Postoperatively, single intravenous tramadol 50 mg injections were applied at patient's will. Postoperative nasogastric decompression was routinely applied until the passage of flatus.

RESULTS: Age, BMI, sex, estimated blood loss, excessive intraoperative fluid intake, and operative time had no associations with the duration of POI. Doses of ePCA fentanyl and cumulative doses of tramadol injections within five post-operative days each revealed a significantly positive associations with time to flatus (p = 0.003, t = 3.08; p = 0.005, t = 2.88), tolerance to diet (p = 0.001, t = 4.0; p = 0.003, t = 3.05), and LOS (p = 0.045, t = 2.05; p = 0.011, t = 2.60), respectively. Compared to the open technique, utilization of the robotic-system showed significantly shorter time to diet (5.5 ± 1.5 vs. 7.8 ± 3.1; p < 0.001, t = −3.94) and accordingly LOS (11.1 ± 2.3 vs. 15.1 ± 4.5; p < 0.001, t = −4.43), respectively; however, no significant correlations were noted with time to flatus.

CONCLUSIONS: Minimizing the dosage of opioid-based analgesics can shorten the duration of POI following RCIC. In addition, the utilization of the robotic-system could be an option in shortening time to bowel recovery for selected patients.

Source of Funding: none

MP08-07 PATIENT SURVIVAL COMPARISON BETWEEN CONVENTIONAL VS. OTHER VARIANT SUBTYPES OF BLADDER UROTHELIAL CARCINOMA

Ahmed Abd El Latif*, Beni Suef, Egypt, Ranko Mioicinovic, Detroit, MI, Adrian Hernandez, Ryan Berglund, Cleveland, OH

INTRODUCTION AND OBJECTIVES: We compared the overall survival (OS) between conventional urothelial carcinoma

FIG. 1: The effect of surgeon volume and robotic surgery on morbidity outcomes of radical cystectomies.
of the bladder (cUC) and variant subtype urothelial carcinoma (vUC) both treated with radical cystectomy (RC), and secondarily the differential effect of platinum-based perioperative chemotherapy on OS, recurrence and recurrence-free survival (RFS) in cUC and vUC.

METHODS: We retrospectively evaluated 524 patients who underwent RC between 2004 and 2011; tumors were classified based on the presence of non-urothelial components as either cUC (n = 396) or vUC (n = 128). Patients had the following outcomes: death from any cause (n = 179), recurrence (n = 81), and alive without recurrence (n = 321). Non-urothelial components included squamous, sarcomatoid, nested, glandular, micropapillary and mixed differentiation. Multivariable cox model and competing risk regression were used to assess the impact of perioperative chemotherapy on OS, recurrence and RFS adjusted for age, smoking, gender, American Society of Anesthesiology (ASA) score, path T stage, path N stage, surgical margins (SM), lymphovascular invasion (LVI) and carcinoma in situ (CIS).

RESULTS: Using KM and cumulative incidence analyses, there was a difference in OS between the two groups, but no difference was observed regarding cancer recurrence rates (Fig 1). In multivariable analysis (MVA), there was a significant benefit of chemotherapy on OS (Hazard Ratio [HR] 0.63; 95% CI 0.42-0.93; P = 0.02) and on recurrence (subhazard HR [sHR] 0.65; 95% CI 0.44-0.96; P = 0.03) but there was no significant benefit of chemotherapy on RFS (HR 0.75; 95% CI 0.53-1.07; P = 0.1). In secondary MVA, we found that in the vUC group patients receiving chemotherapy had significantly better OS than those who did not receive it (HR 0.42; 95% CI 0.21-0.83; P = 0.01), however these results are limited by the small sample size and relatively few events. Patients with cUC had a non-significant improved survival with chemotherapy (HR 0.76; 95% CI 0.46-1.24; P = 0.2).

CONCLUSIONS: Patients with cUC seem to have a better OS in comparison to those with vUC disease. However, there may be a benefit in terms of improved OS in patients with vUC treated with perioperative platinum-based chemotherapy.

Source of Funding: None
year follow-up. However, longer follow-up in a larger cohort of patients is needed to assess long-term oncological and functional outcomes.

Source of Funding: none

MP08-10 MATCHED-COMPARISON OF ROBOTIC ASSISTED AND OPEN RADICAL CYSTECTOMY: EXPERIENCE FROM A SINGLE INSTITUTION

Sailaja Pisipati*, Datesh Daneshwar, Elizabeth Waine, Christian Bach, David Gillatt, Anthony Koupparis, Edward Rowe, Bristol, United Kingdom

INTRODUCTION AND OBJECTIVES: Robotic-assisted radical cystectomy (RARC) continues to evolve as a surgical option in the management of muscle-invasive bladder cancer. We aimed to evaluate our initial RARC experience compared with a robust open radical cystectomy (ORC) series performed at a single institution using a matched-pair analysis.

METHODS: All patients who underwent RARC between January 2011 and February 2013 were identified through a prospectively maintained institutional registry. Data on basic demographics, length of stay (LOS), blood loss, type of diversion was recorded. Outcomes were compared to an equal number of matched ORC cohort from pre- and post-enhanced recovery programme period (ERP) respectively.

RESULTS: 83 patients had RARC during this period, eight of whom needed conversion to open. The results are summarised in the table.

CONCLUSIONS: Early experience with RARC compared with a robust ORC experience demonstrated at least similar, if not better, perioperative outcomes. Continued experience with RARC has the potential to bring improved perioperative results.

Source of Funding: None

<table>
<thead>
<tr>
<th>Number of patients (n)</th>
<th>ORC Pre-ERP</th>
<th>ORC Post-ERP</th>
<th>RARC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mean age (years)</td>
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<td>66</td>
<td>65.8</td>
</tr>
<tr>
<td>Median LOS (days)</td>
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<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Median blood loss (mL)</td>
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MP08-11 ROBOTIC VERSUS LAPAROSCOPIC INTRACORPOREAL URINARY DIVERSION AFTER RADICAL CYSTECTOMY

Idir Ouzaid*, Riccardo Autorino, Emad Rizkala, Dinesh Samarasekera, Vishnuvardhan Ganesan, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Pure robotic (PRIUD) and pure laparoscopic (PLIUD) intracorporeal urinary diversions after radical cystectomy have been reported as minimally invasive alternatives to the open approach. Herein, we report perioperative outcomes of PRIUD and PLIUD.

METHODS: Fifty-two patients who underwent minimally invasive intracorporeal urinary diversion at our center were reviewed and analyzed. Baseline demographics, main surgical parameters (operative time and estimated blood loss), and postoperative outcomes (time to oral intake, complications, secondary procedures) between PRIUD (n=35, 28 ileal conduits and 7 neobladders) and PLIUD (n=17, 7 ileal conduits and 9 neobladders) were compared.

RESULTS: The 2 groups were similar in terms of age, BMI, ASA score, and previous abdominal surgery. Operative time (562 ± 88 vs. 435 ± 104 min; p < 0.0001), EBL (788 ± 481 vs. 350 ± 205 mL; p < 0.0001) were higher in the PLIUD group. Time to oral intake (6 ± 5 vs. 3.7 ± 1.3 days; p = 0.019) was shorter in PRIUD group. Mean follow-up of 15 ± 13 and 7 ± 6 months. Overall complication rate was reported to be up to 88.2% and 37.1% in the PRIUD and PLIUD groups (p = 0.0008). Accordingly, secondary procedures were respectively reported in 35.2% and 10.5% (p = 0.044) of the cases.

CONCLUSIONS: To our knowledge, this is the initial comparative study in the literature. Our data suggest that pure robotic intracorporeal urinary diversion offers superior outcomes compared to the pure laparoscopic approach.

Source of Funding: None

MP08-12 CONTEMPORARY OUTCOMES OF ROBOT ASSISTED RADICAL CYSTECTOMY WITH EXTENDED PELVIC LYMPH NODE DISSECTION

Ryan Dorin*, Halili Kiziloz, Kyle Finnegan, Joseph Wagner, Anoop Meraney, Hartford, CT

INTRODUCTION AND OBJECTIVES: Robotic assisted radical cystectomy with extended pelvic lymph node dissection (RARC) is proposed to be less morbid than open RC with similar oncologic outcomes. We present the complication rates and survival outcomes of patients undergoing RARC for bladder cancer at our institution.

METHODS: Our institutional IRB approved bladder cancer database was reviewed for patients undergoing RARC between 4/2004–10/2012. Patient demographics, clinical and pathological stage, and perioperative complications were analyzed utilizing Chi Square and/or Fisher’s Exact test. Overall survival (OS) and disease specific (DSS) survival were estimated utilizing the Kaplan-Meier method. Cox-Proportional regression analysis was employed to evaluate associations between potential risk factors and outcomes.

RESULTS: 103 patients (18 female) met inclusion criteria, with a mean age at surgery of 67.2 ± 10 (range, 40–89) years and a mean American Society of Anesthesiologists (ASA) score of 2.6 ± 0.8. Mean BMI was 28, and 26 (25.2%) patients received neoadjuvant chemotherapy. 69 (67.7%) patients underwent ileal conduit diversion. Positive LNs were identified in 20 (19.4%) of patients, and there were 8 positive margins (PSM). 70 (67.7%) patients experienced an early postoperative complication, including 30 (29%) Clavien Grade ≥ 3a complications. Tumor stage distribution is listed in table 1.

Median follow up was 23 months (1–92). Estimated 2 and 4 year OS was 74% and 58%, and estimated 2 and 4 year DSS was 80% and 65%, respectively. Patients with ≤ pT2 tumors...
**Table 1: Clinical and Pathologic Tumor Staging**

<table>
<thead>
<tr>
<th>Clinical Stage</th>
<th>T(\text{T0/T1/T2/T3/T4})</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
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</thead>
<tbody>
<tr>
<td>Clinical Stage</td>
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<td>53</td>
<td>14</td>
<td>6</td>
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<tr>
<td>Final Pathology*</td>
<td>N/A</td>
<td>39</td>
<td>35</td>
<td>26</td>
<td>12</td>
</tr>
</tbody>
</table>

*Patients who were pT0 at cystectomy were staged according to TUR specimen.

demonstrated 2 and 4 yr OS rates of 92% and 82%, vs. 48% and 31.6% for patients with \(\geq\) pT3a tumors. In Cox regression analysis, \(\geq\) pT2 (p < 0.01; HR 4.7), lymph node involvement (p < 0.01; HR 4), PSM (p = 0.04; HR 3.2), and complications (p < 0.01; HR 1.28) were significantly associated with decreased OS. Age, gender, BMI, ASA score and neoadjuvant chemotherapy were not significantly predictive of survival.

**CONCLUSIONS:** OS and early complication rates after RARC were comparable with those of open RC series. Neoadjuvant chemotherapy did not influence OS, but a larger cohort size may be required for accurate analysis. Longer follow up is needed to definitively assess equivalence of RARC.

**Source of Funding:** none

**MP08-13 LAPAROSCOPIC RADICAL CYSTECTOMY WITH ILEAL CONDUIT: THE FIRST EXPERIENCE FROM SOUTH AFRICA**

Sunil Sinha*, Cape Town, South Africa

**INTRODUCTION AND OBJECTIVES:** The use of laparoscopic radical cystectomy (LRC) for muscle-invasive bladder cancer is not yet widespread because of the technical difficulties of the procedure and the lengthy operating time. It’s ironical that we are only sharing our first experience with laparoscopic radical cystectomy now when the rest of the world has already made significant progress in robotic assisted LRC and that too from the country where first heart transplant in the world was done. What went wrong? Why did we lag so much behind from being world leaders?

In this study we report a single surgeon’s experience with LRC.

**METHODS:** Forty two patients (29 men and 13 women) with Muscle Invasive Bladder Cancer underwent LRC and ileal conduit between May 2010 and May 2013. An extracorporeal urinary diversion was performed through the opening for the urostomy site, which was also used for specimen extraction.

**RESULTS:** The majority of bladder cancer was TCC (73.78%), while SCC was 14.27%; adenocarcinoma was 4.76% and others being 7.18%. 16.66% had associated adenocarcinoma of prostate and 11.9% had TCC invasion of prostate. 30.94% was pT3a tumors, 28.56% was pT4a tumors while 21.42% was pT2 tumors. 28.56% had TCC invasion of prostate. 30.94% was pT3 tumors, being 7.18%. 16.66% had associated adenocarcinoma of prostate, while SCC was 14.28%, adenocarcinoma was 4.76% and others being 7.18%. 16.66% had associated adenocarcinoma of prostate and 11.9% had TCC invasion of prostate. 30.94% was pT3a tumors, 28.56% was pT4a tumors while 21.42% was pT2 tumors. 28.56% had nodal involvement. 66.64% of the tumours were high grade.

The median operating time and estimated blood loss were 365 minutes and 450 ml respectively. There were three conversions to open surgery due to locally advanced tumours that had palliative procedure. The median time to oral intake and post-operative hospital stay was 5 days and 10 days respectively.

**CONCLUSIONS:** LRC is feasible for the management of invasive bladder cancer in third world country as well where facilities are limited and with appropriate patient selection, can be a good alternative to open or robot-assisted radical cystectomy in the era of robot-assisted surgery.

**Source of Funding:** None

**MP08-14 COMPARATIVE OUTCOMES OF STUDER ILEAL NEobladder AND BRICKER ILEAL CONDUIT URINARY DIVERSION AFTER LAPAROSCOPIC RADICAL CYSTECTOMY: EIGHT-YEAR FOLLOW-UP OF 77 CASES**

Jianfei Ye*, Jianfei Ye, Lulin Ma, Beijing, China, People’s Republic of China

**INTRODUCTION AND OBJECTIVES:** To explore the comparative outcomes of Studer ileal neobladder and Bricker ileal conduit urinary diversion after laparoscopic radical cystectomy.

**METHODS:** From September 2004 to December 2012, 32 patients underwent laparoscopic radical cystectomies with Bricker urinary diversion (Group 1) and 45 patients with Studer orthotopic ileal neobladder (Group 2). All operations were performed successfully under laparoscopy.

**RESULTS:** The mean follow-up was 53.2 (5-88) months. Two groups were comparable in terms of risk factors, perioperative characteristics except operative time, pathological characteristics expect tumor size. The mean size of tumors in Group 1 was significantly larger than Group 2 (4.9 vs 3.7 cm, p = 0.008). The mean operation time in Group 1 was longer than Group 2 (432.1 vs 375.3 minutes, p = 0.02). No recurrence was found during follow-up in both groups. The postoperative complication rates were 9.4% and 8.9% respectively. The median survival time in Group 1 was 44.7 months, log rank p = 0.024, whereas longer than 42.2 months in Group 2.

**CONCLUSIONS:** There are no differences in terms of perioperative and oncologic results of Studer orthotopic ileal neobladder and Bricker conduit. However, the life quality of Studer orthotopic ileal neobladder is a bit more satisfactory.

**Source of Funding:** none

**MP08-15 A COMPARISON OF ROBOTIC AND OPEN RADICAL CYSTECTOMY FOR UROTHELIAL CARCINOMA IN OCTOGENARIANS**

Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Goudelocke, Juan Class, Chattanooga, TN

**INTRODUCTION AND OBJECTIVES:** The prevalence of bladder cancer is increasing among octogenarians as this population continues to increase in size. Elderly patients are often assumed to have an increased surgical risk and thus are frequently not offered radical extirpative surgical options. Here we present our single institution experience and perioperative outcomes with radical cystectomy for urothelial carcinoma in an octogenarian patient population.

**METHODS:** A total of twenty four patients of age eighty or older underwent radical cystectomy between 2008 and 2013 by a single surgeon. Eleven patients underwent robotic assisted laparoscopic radical cystectomy (RALRC) and Thirteen underwent open radical cystectomy ORC. Ileal loop urinary diversion was performed in all patients. Demographic, operative, perioperative, and complications data were collected prospectively and analyzed.

**RESULTS:** The average age and ASA score for the RALRC and ORC groups were comparable (82 years and 3). There were five female and Six male patients in the RALRC group and six female and seven male patients in the ORC group. The average operative time for the RALRC and ORC was 246 min and 252 min respectively (p = 0.76). Estimated blood loss (EBL) was significantly lower in the RALRC group (175 cc) when compared to the ORC group (461 cc) (p = 0.004). Similarly, length of stay (LOS) was also significantly less in the RALRC group (6 days) in comparison to...
the ORC group (14 days) (p=0.04). Six of thirteen patients under- 
going ORC required placement into a rehabilitation facility and 
one of eleven from the laparoscopic group required reha-
bilitated facility admission. The RALRC group had one case of 
prolonged ileus. The ORC group had one patient with DVT and 
one death from respiratory distress secondary to sepsis.

CONCLUSIONS: Radical cystectomy as a treatment option for 
invasive urothelial carcinoma is a feasible option in octogenari-
ans. Due to a higher prevalence of medical comorbidities in the 
octogenarians, RALRC may be superior to ORC as a extirpative 
surgical treatment option and may lead to lower EBL and a 
shorter LOS. Larger studies with longer follow-up times are nee-
ded to further validate these observations.

Source of Funding: none

MP08-16 MINIMALLY-INVASIVE URETERAL RE-
PLANTATION: A SINGLE INSTITUTION FIVE-YEAR 
EXPERIENCE

Samuel Kaffenberger*, Aaron Benson, Ryan Pickens, 
S. Duke Herrell, Nashville, TN

INTRODUCTION AND OBJECTIVES: Minimally-invasive 
ureteroneocystostomy (MIUNC) has become an increasingly 
popular approach for distal ureteral reconstruction; however, 
data regarding patient selection, complication rates, and out-
comes are scarce. We report our five-year experience with 
MIUNC for benign ureteral stricture disease.

METHODS: We retrospectively reviewed the medical records for 
23 consecutive patients who underwent MIUNC from 2008 to 
2012. Patients were evaluated for demographic and clinical 
characteristics, perioperative outcomes, and postoperative ra-
diographic findings. Complications were graded according to 
the Clavien-Dindo classification system.

RESULTS: The median age of the cohort was 45.6 years (inter-
quartile range [IQR] 39.5–61.0 years). Median BMI was 28.6 kg/m2 
(IQR 23.8–30.7 kg/m2). Etiologies of ureteral stricture included: 
ureteral calculus (n=8, 35%), iatrogenic ureteral injury from prior 
surgery (n=7, 30%), endometriosis (n=3, 13%), retroperitoneal fib-
brosis (n=1, 4%), transplant ureteral stricture (n=1, 4%), and un-
known (n=3, 13%). Median stricture length was 1.5 cm (IQR 1.0–
4.0 cm). Two patients underwent laparoscopic MIUNC, whereas 
robotic-assistance was utilized in the remainder. Twelve patients 
(52%) received UNC with psoas hitch, while 10 patients (43%) 
underwent UNC with boari flap. Median operative time was 336 
minutes (IQR 298–366 minutes). Median blood loss (EBL) was 
101 ml (IQR 100–200 ml) and no patients required transfusion. 
Median length of stay (LOS) was 2 days (IQR 2–3 days).

Median follow-up was 9.3 months. On postoperative imaging, 
two patients (9%) demonstrated recurrence of their ureteral 
stricture. Two patients had readmission for ileus and one de-
veloped hospital-acquired pneumonia (Clavien grade II). Four pa-
tients (17%) required reoperation (Clavien grade IIb), including 1 
who underwent a normal retrograde pyelogram, 1 who under-
went endopyelotomy after a boari flap-to-renal pelvis anasto-
mosis for a 10 cm ureteral stricture, and two nephrectomies—one 
due to anastomotic failure in a minimally-functioning kidney, 
and the other due to persistent pain despite radiographic dem-
onstration of patency. One patient suffered a postoperative stroke 
(Clavien grade IVa).

CONCLUSIONS: In one of the largest, single-institution expe-
riences to date, MIUNC appears to be safe and efficacious. While 
this series is descriptive in nature, primary advantages of the 
minimally-invasive approach appear to be high success rates 
with few complications, low EBL, and short LOS. Further follow-
up is required to determine the long-term efficacy of MIUNC.

Source of Funding: none

MP08-17 LAPAROSCOPIC RADICAL CYSTECTOMY 
WITH INTRACORPOREAL CONSTRUCTION OF ORTHO-
TOPIC SIGMOID NEOBLADDER: TECHNIQUES AND RE-
ULTS

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Hai Huang, Wen Dong, Xinxiang Fan, Hao Yu, Jian Huang*, 
Guangzhou, China, People's Republic of

INTRODUCTION AND OBJECTIVES: Laparoscopic radical 
cystectomy (LRC) is recognized as an alternative approach for 
patients with muscle-invasive bladder cancer, with less blood loss 
and earlier recovery while comparing with open approach. 
Although feasibility and advantages of intracorporeal urinary di-
version were demonstrated, it remains a skill-challenging 
procedure. Sigmoid colon may be ideal for intracorporeal con-
struction of neobladder as the procedure is simple under lapa-
roscope, and the specimen can be extracted through the anus 
without additional incision. Only few center report the experience 
of pure LRC and orthotopic sigmoid neobladder.

METHODS: Between 2004 and 2012, 10 male patients (aged 56– 
76) underwent LRC with intracorporeal construction of sigmoid 
neobladder. After laparoscopic cystectomy with standard lymphadenectomy, the sigmoid is transected about 15 cm proximal to 
the anus. The specimen was extracted through the anus. A 15 cm 
sigmoid is isolated and continuity of the bowel is restored with 
stapler. The intracorporeal construction of sigmoid neobladder 
was categorized into two methods. In the first 4 cases, the isolated 
sigmoid is anastomosed with urethra and ureter before fashioned 
as neobladder with detalaenic technique (Method A). In the latter 
6 cases, the isolated sigmoid is detubularized and tubed as 
U-shaped neobladder (Method B). The perioperative outcomes 
and follow-up results are evaluated.

RESULTS: All 10 operations were finished uneventfully, without 
conversion to open surgery or extracorporeal diversion. The 
average operating time is 473 minutes (420–560 minutes) for 4 cases 
with Method A and 337 minutes (270–390 minutes) for 6 cases with 
Method B. The average estimated blood loss is 260 ml (200–350 ml). 
None of the patients needs transfusion. The average time to flatus 
is 3.2 days. No major perioperative complication (Grade 3–5) was 
recorded. The mean time of follow-up is 47.7 months (12–103 
months). The continence rate is 80% for daytime and 40% for 
nighttime 3 months after surgery, and 90% and 60% respectively at 
1-year follow-up. The average volume of the neobladder is 250 ml. 
All the patients were satisfied in terms of cosmesis. All the patients 
were alive at the last follow up without evidence of recurrence.

CONCLUSIONS: Our preliminary results demonstrate LRC with 
intracorporeal construction of orthotopic sigmoid neobladder is 
feasible, with excellent cosmetic effect, acceptable clinical out-
comes. Refinement and standardization of the techniques are 
needed to decrease operating time and optimize clinical outcomes.

Source of Funding: None

MP08-18 LAPAROSCOPIC ILEOCYSTOPLASTY IN 
NEUROGENIC BLADDERS - IDEAL ILEAL LENGTH RE-
DEFINED

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INTRODUCTION AND OBJECTIVES: Upper tract damage and distressing urine leak necessitate surgery for most patients with neurogenic bladder. Augmentation ileocystoplasty is one of the final options in managing such bladders refractory to maximal medical management. However the ideal ileal segment length has been arbitrarily fixed irrespective of the bladder capacity. We analysed the results of our patients who underwent laparoscopic ileocystoplasty with an ileal segment of about 10 cm.

METHODS: We analysed the pre operative and post operative findings of the patients who underwent laparoscopic ileocystoplasty in our institution. The patients were initially evaluated with bladder diary and urodynamic study and then started on medical management and CIC. Patients who have troublesome leak or upper tract deterioration were taken up for ileocystoplasty after x-ray or CT cystogram. Under general anesthesia, using 4 ports, bladder was mobilized anteriorly followed by transverse cystotomy. A loop of ileum, 25 cm from ileo cecal junction, which could reach the pelvis easily was selected and brought out extracorporeally by extending the para rectus port site. A 10 cm ileal loop was isolated, detubularised and internalized. The isolated segment was sutured to the bladder using 2-0 or 3-0 polyglactin continuous sutures. Supra pubic and urethral catheters were placed and port sites closed after placing a drain. All patients were followed up with cystogram at 3 weeks; and urodynamic study and repeat cystogram at 6 months and yearly thereafter.

RESULTS: 10 patients underwent cystogram (9 laparoscopy assisted and 1 total laparoscopic). The age ranged from 7 yrs to 55 years. All patients had poor compliance and gross overactivity and 5 had small capacity bladder (<150 ml) on urodynamic studies. The mean operative time was 280 (200 to 330) minutes and post op stay was 5.4 (4–7) days respectively. None required blood transfusion. One patient developed subacute intestinal obstruction and one developed had prolonged ileus. 9 patients are on clean intermittent catheterization at a mean follow up of 56 months (6–96). Follow up urodynamic parameters revealed there was a significant increase in the bladder capacity, compliance, and residual urine and significant decrease in the end detrusor pressure, overactive contractions and leak episodes.

CONCLUSIONS: Laparoscopic ileocystoplasty is a feasible minimally invasive option for patients with poorly compliant overactive bladders. Using a shorter ileal segment for augmentation, may help in reduction of long term complications without compromising the outcome.

Source of Funding: None

MP08-19 CLINICAL SIGNIFICANCE OF RADICAL CYSTECTOMY WITH EXTENDED LYMPHADENECTOMY AND INFLUENCING FACTORS ASSOCIATED WITH RECURRENCE OF BLADDER CANCER

Gongxian Wang*, NanChang, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To compare the prognosis of patients with extended lymphadenectomy versus standard lymphadenectomy at radical cystectomy (RC).

METHODS: A retrospective analysis was done of 75 cases with bladder cancer who received radical cystectomy from March 2008 to July 2012 in the NanChang University First Hospital. The patients did not receive any neoadjuvant or adjuvant therapy. To find the main factors relating to prognosis through multiple-factor analysis.

RESULTS: Of the 75 patients, 33 received extended lymphadenectomy and the other 42 underwent standard lymphadenectomy. The 6¡¢12¡¢18¡¢24 months disease-free survival in the extended lymphadenectomy group were 93%¡¢89%¡¢84%¡¢77% respectively. In the standard lymphadenectomy the corresponding figures were 85%¡¢76%¡¢62%¡¢59% respectively. (P=0.081). When restricting the analyses to lymph node positive patients, patients with extended lymphadenectomy had much better disease-free survival compared with patients with standard lymphadenectomy (P=0.048). Among the patients after February 2010, the average number of lymph node removed in the extended lymphadenectomy group were 20.30¡A`6.66 compared with 13.95¡A`6.49 in the standard lymphadenectomy (P<0.05). There’s no statistical significance between two group’s mean operation time, blood loss amount and the incidence rate of complications (P>0.05). By bringing the age, sex, pT stage, pathological grade and lymph node resection, number of lymph node removed, lymph node metastasis, intraoperative transfusion, urinary diversion as concomitant variable into the regression analysis model. The main factors for prognosis was established. Extent of lymph node resection, pT stage, pathological grade and lymph node metastasis had independent influences on DFS in every Cox regression model.

CONCLUSIONS: 1. Extended lymphadenectomy is associated with better disease-free survival for lymph node positive patients who underwent radical cystectomy.

2. The ePLND do not contribute significantly to the operative time, intraoperative bleeding and postoperative complications.

3. The extent of lymph node resection is a important prognostic factor for bladder cancer after operation.

Source of Funding: This project has been supported by the National Natural Science Foundation of China

MP08-20 80 IS THE NEW 60: ROBOTIC CYSTECTOMY IN OCTOGENARIANS AFFORDS PATIENTS STANDARD OF CARE WITH LIMITED COMPLICATIONS

Elizabeth Phillips, Vik Ubéroi, Boston, MA, Audley Osbourne, Lewiston, ME, Ingolf Tuerk, Brighton, MA, Chris Hoover*, Please choose an option below

INTRODUCTION AND OBJECTIVES: Radical cystectomy is the standard of care for muscle-invasive bladder cancer; however, SEER
INTRODUCTION AND OBJECTIVES: Philadelphia, PA

Dana Kivlin*, Michael Hanzly, Jamison Jaffe, Justin Harmon, NIQUE AS THE ORIGINAL PROCEDURE INJURY USING THE SAME MINIMALLY-INVASIVE TECHNIQUE.

This is a retrospective, single-center study examining the role of minimally-invasive approaches to surgery, specifically laparoscopy and robot-assisted laparoscopy, for iatrogenic urinary tract injury and to establish the role of pre-operative imaging to assist in the selection of patients best suited for a minimally invasive approach.

METHODS: After IRB approval, all RARC performed between 2009 and 2012 from our institution were reviewed and 23 cases in patients over age 80 were identified. Data analyzed included age, indication for cystectomy, ASA score, Charlson comorbidity index, pathologic stage, EBL, transfusion rate, and 90-day morbidity and mortality rate.

RESULTS: 23 patients over age 80 underwent RARC with ileal loop urinary diversion by a single surgeon (IT) between April 2009 and October 2012. The average age was 83.7 years (range 80–88 years) with average Charlson comorbidity index score of 4.3 and age-weighted Charlson comorbidity index of 8.3. Reason for cystectomy was oncologic in all cases (21 bladder cancers, 1 metastatic prostate cancer with hemorrhagic cystitis) and 1 hemorrhalic cystitis in the setting of previous external beam radiation for prostate cancer). The average blood loss and operative times were 208 cc (range 50–650 cc) and 253 minutes (range 175–365 minutes). Seven patients required blood transfusions (30.4%). The average length of hospital stay was 8.2 days (range 6–24 days). Within the first 90 days after surgery, there were complications in eight patients (34.8%). (Ileus (3), wound dehiscence (2), Clostridium difficile infection (2), urinary tract infection (2), PE/DVT (1), readmission (2)). The overall 90-day complication rate was 34.8%. There was no mortality to date in our patient group, with the longest follow up being 34 months.

CONCLUSIONS: RARC is an option for patients over 80 with clinical indications for cystectomy. Complication rate is acceptable even in complicated patients with multiple comorbidities and those with previous abdominal surgery or pelvic radiation. Hospital stay remains shorter than with open surgery, and complication rates appear to be lower than previously reported for this age group.

Source of Funding: none

MP08-21 REPAIR OF IATROGENIC URINARY TRACT INJURY USING THE SAME MINIMALLY-INVASIVE TECHNIQUE AS THE ORIGINAL PROCEDURE

Dana Kivlin*, Michael Hanzly, Jamison Jaffe, Justin Harmon, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: To examine the intra-operative consults Urologists encounter for iatrogenic urinary tract injury and to establish the role of minimally-invasive technique for repairing their repair. Iatrogenic injury to the urinary tract is a well-established complication of abdominopelvic surgery. With the use of minimally-invasive approaches to surgery, specifically laparoscopy and robot-assisted laparoscopy, it is necessary to reexamine urinary tract injury and the approach that can be taken for immediate repair.

METHODS: This is a retrospective, single-center study examining all iatrogenic urinary tract injury that occurred over one year that resulted in intra-operative consultation to a Urologist for immediate repair. The repairs were performed by one of two fellowship-trained Urologists.

RESULTS: Nine iatrogenic injuries occurred over the course of one year; 3 were during robotic-assisted cases, 3 during laparoscopic cases and 3 during open cases. Each repair was performed using the same approach as the original procedure. Therefore, no conversion from minimally-invasive to open occurred. All injuries included at least a cystotomy whereas only two injuries also included ureteral transection requiring ureteral reimplantation. Two of the open cases were with general surgery while all the robotic and laparoscopic cases were gynecological cases. To date, no patients required additional surgeries for the injury.

CONCLUSIONS: With the advent of minimally invasive surgery and the increasing rate at which it is being used, Urologists should expect intra-operative consultations for immediate repair of iatrogenic urinary tract injury and the challenge to repair them with the same approach. Recently, there have been case-reports and small series where laparoscopy or robotic techniques were used to repair iatrogenic urinary tract injury, but most were for injuries identified post-operatively where delayed-repair allowed for the advantage of pre-operative imaging to assist in the selection of patients best suited for a minimally invasive approach. This is the first study, to our knowledge, that establishes the role of a minimally-invasive approach for immediate repair.

Source of Funding: None

MP08-22 INITIAL EXPERIENCE OF ROBOTIC-ASSISTED RADICAL CYSTECTOMY WITH INTRA-CORPOREAL URINARY DIVERSION: A COMPARISON WITH EXTRA-CORPOREAL METHOD.

Sailaja Pisipati*, Datesh Daneshwar, Christian Bach, Elizabeth Waine, David Gillatt, Edward Rowe, Anthony Koupparis, Bristol, United Kingdom

INTRODUCTION AND OBJECTIVES: We aim to evaluate our initial RARC experience comparing the outcomes of extra-
corporeal (EC) versus intra-corporeal (IC) urinary diversions performed at a single tertiary referral centre.

METHODS: All patients who underwent RARC between January 2011 and February 2013 were identified through an institutional registry. Data on basic demographics, type of diversion, length of stay (LOS), blood loss, complications and mortality rates were recorded and outcomes were compared for the IC and EC groups.

RESULTS: 83 patients had RARC during this period, eight of whom were converted to open and one patient was rendered anephric. The outcomes are compared in the table below.

CONCLUSIONS: RARC with IC urinary diversion, although technically challenging, is feasible, effective and safe with no definite benefits associated with IC over the EC diversion. Our data has suggested a reduced LOS by 2 days in the IC cohort. Large-scale, prospective comparative studies will be needed to demonstrate the benefit of IC urinary diversion.

Source of Funding: None

MP08-23 NOVEL LAPAROSCOPE DEFOGGING AND CLEANING DEVICE FOR ROBOT-ASSISTED LAPAROSCOPIC PROSTATECTOMY (RALP)

Carson Wong*, Middleburg Heights, OH, Xiao Gu, Yangzhou, China, People’s Republic of, Motoo Araki, Okayama, Japan, Sara Heider, Middleburg Heights, OH

INTRODUCTION AND OBJECTIVES: Maintaining efficiency and optimal visualization are critical components of any surgical procedure, particularly in robot-assisted cases, where removal of the laparoscope to defog or clean the lens requires time and can be cumbersome. We evaluate the Advanced Laparoscopic Care Kit (New Wave Surgical, Coral Springs, FL) as a novel set of accessories that defogs and cleans the laparoscope during RALP.

METHODS: Laparoscope warming and cleaning equipment were replaced in our operating suite with the Advanced Laparoscopic Care Kit (“Care Kit”) for patients who underwent transperitoneal RALP. Our observations and the features of the Care Kit are reviewed.

RESULTS: The Care Kit includes a defogging device that heats an internal reservoir of surfactant based alcohol-free anti-fog solution to 120 F. The device remains heated for 5 hours. The heated surfactant acts as a soap that can quickly remove dried debris from the lens. Because the device is self-contained and hand held, it can be brought to the laparoscope with minimal displacement of the laparoscope from the trocar. The Care Kit also includes microfiber cleaning pads (fibers 2000 times smaller than surgical gauze) that clean oils better than surgical gauze and avoid scratching the delicate lens. A trocar cleaning sponge for removing debris that can be trapped inside the trocar cannula is also supplied. Subjectively, the Care Kit proved to be simple to use by the bedside assistant and effective at maintaining optimal laparoscopic visualization. Transfer of the laparoscope to the back table for warming intraoperatively was not required in 86 consecutive cases to date. The Care Kit protects the laparoscope while it is initially lying flat on the back table from the dangers of scratching and falling associated with using traditional laparoscope warmers.

CONCLUSIONS: The Care Kit was effective in preventing fogging of the laparoscope during RALP. It has the potential to minimize delays that can result from laparoscope defogging and cleaning, thereby reducing operative times. Further studies will be required to quantify the potential time savings and determine whether there is a reduction in laparoscope damage and subsequent repair costs associated with use of this device.

Source of Funding: None

MP08-24 INCIDENCE AND SEVERITY OF SURGICAL COMPLICATIONS IN MINIMALLY INVASIVE RADICAL PROSTATECTOMY

Ana Maria Autran-Gomez*, Rafael Sanchez-Salas, Dominique Prapotnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: To characterize the type, incidence and severity of surgical complications using Clavien system in patients treated with LRP and RARP in a high volume center.

METHODS: A prospectively maintained data base was used to evaluate 3829 consecutive patients who were treated with LRP and 1552 underwent RARP at our institution between 1998 and 2012. Pre, intra and post-operative data were collected. The surgical complications were reported using Clavien system and classified as early- occurring within 30 days post-surgery and late- beyond 30 days. The risk factors for morbidity were explored using Cox regression models.

RESULTS: Table 1 shows the clinical and pathological characteristics of study population. 921 (24%) patients experienced a total of 1029 surgical complications in LRP and 282 complications were
METHODS:
A total of 104 patients who underwent non-nerve sparing LRP. Early recovery of urinary continence after Laparoscopic Radical Prostatectomy (LRP) was defined as no pad or one security pad per day. Continence is defined as no pad for 3 months. The patients were divided into two groups by bladder aspect ratio (Group A and B) and three groups (Group I, II and III) by VUA position, respectively. Group A: bladder aspect ratio is < 1.5. Group B: bladder aspect ratio is ≥ 1.5. Group I: VUA position is above the upper margin of the pubic symphysis. Group II: VUA location is between the upper margin and the middle of the pubic symphysis. Group III: VUA position is below the middle of pubic symphysis. Continence is defined as no pad or one security pad per day.

RESULTS: The continence rates at 3, 6 and 12 months in Group A were 39 %, 64 % and 81 %, respectively, and those of Group B were 20 %, 50 % and 60 %, respectively. Those of Group I were 75 %, 100 % and % wasn’t reached to 12 months). Those of Group II and Group III were 42 %, 74 %, and 86 %, and 26 %, 45 % and 63 %, respectively. Bladder aspect ratio < 1.5 group showed significantly earlier recovery of urinary continence compared with the bladder aspect ratio ≥ 1.5 group. (log-rank test p = 0.037) The group with higher VUA position showed earlier recovery of urinary continence after LRP. (log-rank test p < 0.01)

CONCLUSIONS: Bladder aspect ratio and VUA position on the postoperative cystography seem to be the predictive factors for early recovery of urinary continence after LRP.

Source of Funding: none

Table 2. Complications Following RARP and LRP

<table>
<thead>
<tr>
<th>Complication</th>
<th>RARP</th>
<th>LRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>323</td>
<td>1059</td>
</tr>
<tr>
<td>Mortality</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Fever</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>Urinary tract</td>
<td>34</td>
<td>108</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

MP08-25 BLADDER ASPECT RATIO AND VESICO-URETHRAL ANASTOMOSIS POSITION ON POSTOPERATIVE CYSTOGRAPHY AS THE PREDICTIVE FACTORS OF URINARY CONTINENCE RECOVERY AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY

Nobuyuki Nakajima*, Yuuki Shimizu, Taro Higure, Mamoru Fukuda, Masayoshi Kawakami, Masahiro Nitta, Kazuya Hanai, Akio Hoshi, Takeshi Nomoto, Toshiro Terachi, Isehara, Japan

INTRODUCTION AND OBJECTIVES: To evaluate the value of bladder aspect ratio and vesico-urethral anastomosis (VUA) position on postoperative cystography as the predictive factors of early recovery of urinary continence after Laparoscopic Radical Prostatectomy (LRP).

METHODS: A total of 104 patients who underwent non-nerve sparing LRP between April, 2008 and July, 2011 were included in this study. The patients who underwent nerve sparing LRP were excluded to remove the influence of the procedure on urinary continence. Bladder aspect ratio and VUA position were determined by postoperative cystography. The bladder was filled with 140 ml mixture solution (100 ml saline solution and 40 ml contrast medium), then the image was obtained in the supine position. The patients were divided into two groups by bladder aspect ratio (Group A and B) and three groups (Group I, II and III) by VUA position, respectively. Group A: bladder aspect ratio is < 1.5. Group B: bladder aspect ratio is ≥ 1.5. Group I: VUA position is above the upper margin of the pubic symphysis. Group II: VUA location is between the upper margin and the middle of the pubic symphysis. Group III: VUA position is below the middle of pubic symphysis. Continence is defined as no pad or one security pad per day.

RESULTS: The continence rates at 3, 6 and 12 months in Group A were 39 %, 64 % and 81 %, respectively, and those of Group B were 20 %, 50 % and 60 %, respectively. Those of Group I were 75 %, 100 % and % wasn’t reached to 12 months). Those of Group II and Group III were 42 %, 74 %, and 86 %, and 26 %, 45 % and 63 %, respectively. Bladder aspect ratio < 1.5 group showed significantly earlier recovery of urinary continence compared with the bladder aspect ratio ≥ 1.5 group. (log-rank test p = 0.037) The group with higher VUA position showed earlier recovery of urinary continence after LRP. (log-rank test p < 0.01)

CONCLUSIONS: Bladder aspect ratio and VUA position on the postoperative cystography seem to be the predictive factors for early recovery of urinary continence after LRP.

Source of Funding: none

MP08-26 REAL-TIME VISUAL TISSUE STIFFNESS FEEDBACK IN MINIMALLY INVASIVE SURGERY

Gautam Mehra*, Min Li, Geoffrey Lane, Kaspar Althoefer, Prokar Dasgupta, London, United Kingdom

INTRODUCTION AND OBJECTIVES: There has been an increase in the uptake of laparoscopic and robotic surgery for pelvic surgery. While surgeons increasingly offer minimally invasive surgery (MIS) because of its advantages over traditional surgery, both the robotic and laparoscopic surgery have been criticised for the lack of live feedback on tissue properties available for the surgeon. In practise, this is important in identifying abnormalities in tissue, localise tumours and ensure complete excision of tumours with clear margins.

Pathological tumours located within pelvic organs, such as prostate and uterus, should vary the tissue stiffness because the cells multiply at an accelerated pace, invade and tend to occupy space. We test a novel method using force sensor and visual feedback giving live feedback on tissue stiffness and test it to locate tumours using silicone models.

METHODS: Tissue stiffness was calculated by measuring force and indentation depth at different points on the organ. To conduct our experiments, we created silicone models of uterus and prostate with embedded tumour. The PHANToM Omni, which is capable of three-dimensional motion tracking, attached with a...
The artificial organ surface was reconstructed and the stiffness map was correlated with the actual location of tumours within the silicone models. The locations of tumours were identified accurately using the stiffness map generated.

CONCLUSIONS: This novel technique can be used to identify areas of abnormalities in soft tissue that alter tissue properties such as tissue stiffness. It is useful in identifying the location of nodular areas within tissue providing an instant live feedback to the surgeon while operating. This technology has the potential to be used in robotic and laparoscopic surgery to assist the surgeon to locate tumours in pelvic organs such as prostrate and uterus and to ensure they are completely excised at surgery.

Source of Funding: Guy’s & St Thomas Charity

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**MP09 TUR SURGERY**

**MP09-01 HISTOTRIPSY EFFECTS ON THE BLADDER TRIGONE: FUNCTIONAL AND HISTOLOGIC CONSEQUENCES IN THE CANINE MODEL**

Christopher Allam, J. Erby Wilkinson, Xu Cheng, Kimberly Ives, Timothy Hall, William Roberts*, Ann Arbor, MI

INTRODUCTION AND OBJECTIVES: Histotripsy is an extracorporeal therapeutic ultrasound technology where high-amplitude acoustic energy is applied to targeted tissue. Previous research has demonstrated the feasibility, safety, and effectiveness of histotripsy tissue homogenization and debulking of the prostate in the canine model. Prior to translating this technology for human use, it is prudent to examine the susceptibility of critical periprostatic structures to cavitation injury in the event of histotripsy mistargeting. In this study, we sought to characterize the tissue effects and biologic response of directly treating the bladder trigone with histotripsy.

METHODS: In 8 anesthetized canines, 750,000 histotripsy pulses were applied uniformly across a 2 × 1.5 cm area encompassing the bladder trigone and ureteral orifices. Prostate and bladder trigone were harvested immediately after treatment (2) or at 14 days (6). Flexible cystourethroscopy, ultrasound imaging, and creatinine levels were obtained at intervals until harvest 14 days after treatment.

RESULTS: The artificial organ surface was reconstructed and stiffness map generated after several indentation behaviours. The stiffness map was correlated with the actual location of tumours within the silicone models. The locations of tumours were identified accurately using the stiffness map generated.

CONCLUSIONS: This novel technique can be used to identify areas of abnormalities in soft tissue that alter tissue properties such as tissue stiffness. It is useful in identifying the location of nodular areas within tissue providing an instant live feedback to the surgeon while operating. This technology has the potential to be used in robotic and laparoscopic surgery to assist the surgeon to locate tumours in pelvic organs such as prostrate and uterus and to ensure they are completely excised at surgery.

Source of Funding: NIH R01 DK087871

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**MP09-02 EN BLOC TURB WITH PLASMAKINETIC BUTTON TURIS: IS A BETTER TREATMENT OPTION?**

Barbara Cristina Gentile*, Roberto Giuliani, Luca Albanesi, Francesco Attisani, Gabriella Mirabile, Francesco Pisanti, Manlio Schettini, David Granata, Rome, Italy

INTRODUCTION AND OBJECTIVES: Transurethral resection of bladder tumor (TURBT) is the cornerstone in the management of bladder cancer. Aim of the TURBT is to completely remove the tumor and to stage it by identifying detrusor muscle invasion. Conventional endoscopic resection removes tumors in piecemeal and the adequacy of TURBT is often identify only later by histopathology. Presence of detrusor is a surrogate for the completeness of resection but various series reported the absence of detrusor muscle in TURBT specimen in up to 50% of the cases. Restaging TURBT has shown presence of residual disease in up to 76% of cases.

Aim of the study is to valuate the adequacy of en bloc TURB specimen by the presence of the detrusor muscle. We performed en-bloc TURBT with Plasmakinetic Button Turis Gyrus system.

METHODS: From June 2010 to December 2011, 513 consecutive patients, 342 male and 171 female, affected by non-muscle invasive bladder tumours, underwent WL plus NBI bipolar TURBT. In 26 pts we performed en bloc NBI bipolar TURBT. All patients provided written informed consent prior to the study.
All procedures began by performing a white light cystoscopy, after this, the use of NBI confirmed what had been seen and reported eventual more suspicious areas. All endoscopic resections were performed with a button loop and Olympus Gyrus bipolar generator (Olympus, Tokyo, Japan), in saline, with 30 degrees optic. Resection of each lesion was carried out with white light, whilst the resection of surgical margins and bed of resection were performed using only NBI light, which were sent separately.

RESULTS: Of 26 patients in the en-bloc group, 25 (96.1%) had detrusor muscle in their initial specimen. In the en-bloc group, the procedure could be completed without any bladder perforation as vision was much better due to better hemostasis.

Median catheterization time was 30 hours (24–36), mean hospital stay was 42 hours (36–48), mean bleeding loss were 0.9 gr/dl (0.3–1.5) and no death during peri or post-operative follow-up.

Early Adverse Events were dysuria (52.1%), urgency (15.3%), haematuria (11.5%) and AUR with re-catheterization (3.8%). No Second look hemicystic endoscopy was performed.

CONCLUSIONS: An ideal TURBT would mean complete resection of the visible tumor, resection of the surrounding healthy looking mucosa for up to 1 cm and then the removal of the detrusor muscle.

Inadequate TURBT, is not only judged by the absence of muscle in the specimen but also by the rate of recurrence at the same site. It is common knowledge that recurrence is seen in 50–80% of non-muscle-invasive bladder cancer mostly during the first year.

Source of Funding: none

MP09-03 FOUR-YEAR NON-MUSCLE INVASIVE BLADDER CANCER RECURRENTC RATES – A PROSPECTIVE, RANDOMIZED COMPARISON BETWEEN HEXAMINOLEVULINATE BLUE LIGHT AND STANDARD WHITE LIGHT CYSTOSCOPY

Bogdan Geavlete*, Razvan Multescu, Dragos Georgescu, Marian Jecu, Florin Stanescu, Cristian Moldoveanu, Petrisor Geavlete, Bucharest, Romania

INTRODUCTION AND OBJECTIVES: A prospective, randomized, long term study was performed aiming to compare the long term recurrence rates provided by the hexaminoxulinate blue light cystoscopy (HAL-BLC) versus the standard white light cystoscopy (WLC) in cases of non-muscle invasive bladder cancer (NMIBC).

METHODS: A total of 362 NMIBC suspected patients were included in the trial based on positive urinary cytology and/or ultrasound suspicion of bladder tumors. The 181 cases of the study group underwent both WLC and HAL-BLC, while patients in the control group benefited from standard cystoscopy alone. A single postoperative mytomicin-C instillation was performed in all resection cases. No additional instillations were used in low risk patients, while adjuvant chemotherapy was applied in intermediate risk cases and BCG immunotherapy for high risk patients. The follow-up protocol consisted of abdominal ultrasound, urinary cytology and WLC, performed every 3 months for a period of 2 years and every 6 months in the third and fourth year.

RESULTS: In the 142 NMIBC patients of the study group, HAL-BLC emphasized significantly improved CIS (95.2% versus 71.4%), pTa (95.3% versus 87.1%) and overall (95.8% versus 85.9%) cases’ detection rates. Additional tumors were found by HAL-BLC in a significantly higher proportion of cases (35.2% versus 14.1%). Consequently, the recurrence (16.2% versus 4.9%) and progression (21.1% versus 7%) risk categories of patients changed significantly due to HAL-BLC by comparison to WLC.

As a result, the postoperative treatment was modified due to fluorescence cystoscopy for a significantly larger proportion of patients (19% versus 6.3%). The 3 months’ recurrence rate was significantly lower in the HAL-BLC series (7.2% versus 15.8%) due to fewer other site recurrences (0.8% versus 6.1%). During the long term follow-up, the overall one (21.6% versus 32.5%), two (31.2% versus 45.6%), three (35.6% versus 51.9%) and four (40.8% versus 58.8%) years’ recurrence rates were significantly reduced in the HAL-BLC study arm.

CONCLUSIONS: Fluorescence cystoscopy emphasized superior NMIBC patients’ detection rates as well as a significant impact in terms of additional tumors’ cases, risk category changes and postoperative treatment modifications. Subsequently, the long term recurrence rates were significantly improved in the HAL-BLC group.

Source of Funding: None
Reason for typ I was insufficient neoadjuvant TUR, type II correlated to small preoperative prostatic volume, type III to insufficient apical TUR with residual tissue transformed to fibrosis, typ IV as typical side effect of TUR—not HIFU related.

“Endo-V-Plastic” was developed to open fast, safe and effective intraprostatic type I-III stenosis without a trauma of previous dilatations. Inserting the resectoscope, passing the external sphincter leads to the typical 5 french concentric fibrotic stenosis: 180° rotation of the resectoscope with visible loop (Up-sideway”) and 45° ventral angulation allows a simple antegrade resection of the ventral half of the stenosis.

Intravesical 180° re-rotation in ° position and retrograde resection opens the stenosis completely, followed by a circular resection of the bladder neck up to an “V-shaped” anatomy.

CONCLUSIONS: Post-HIFU obstruction after TURP & HIFU is common and mostly correlated to small prostates.

HIFU induced shrinkage of the prostatic capsule induces intracapsular „sand glass“ type stenosis in 3 different locations and occurs typically after ½ a year of asymptomatic micturition, which means 6–9 months after treatment (obstruction caused by necrotic tissue occurs early and does not have the interval of asymptomatic micturition).

Concept of „Endo-V-plastic“ showed to be a fast endoscopical procedure for stenosis repair, while cold-loop curettage seemed to be the adequate therapy for necrotic tissue resection.

Source of Funding: Harlachinger Krebshilfe e.V.; Lingen foundation.

MP09-05 HIGH INTENSITY FOCUSED ULTRASOUND IN INCIDENTAL PROSTATE CANCER – A NON INVASIVE CURATIVE THERAPY.

Stefan Thueroff*, Derya Tilki, Munich, Germany; Christian Chaussy, Regensburg, Germany

INTRODUCTION AND OBJECTIVES: Up to 8% of patients, who undergo TURP/adenomectomy for BPH, show unexpected PCa in histology. These patients might deserve or wish a definitive cancer therapy.

We performed a prospective monocentric study treating these patients after TURP with robotic HIFU as a definitive, non invasive, single session local therapy.

METHODS: Since 2000, 65 patients with incidental PCa were treated with robotic HIFU.

Age was *70 (57–87), initial PSA was *4.9 (1–32), prostatic volume *39 cc (16–130), *20 gr (1–95) had been resected by TURP. Histology of TURP showed *5% positive chips with a Gleason of *3 (3–9). We used Ablatherm® integrated imaging (EDAP-TMS, Lyon) in a single session. (* = median).

RESULTS: PSA Nadir of *0.07 (0–3.67) after *1.8 (0.7–5.9) months (including 62% <0.1 / 81% <0.5 ng/ml). PSA last of 0.13* (0–8.3) - equivalent to a PSA velocity of 0.01 ng/ml/year*- after a mean follow up of 48 months (3–110) was registered. Perioperative percourse was free of side effects but within the first year follow up showed 19% of secondary obstructions caused by necrotic tissue or bladder neck stenosis. Long term side effects after the first year were mild: intermediate urinary stress incontinence Grade I (11%) and UTI (14%).

CONCLUSIONS: *PSA Nadir of 0.07 ng/ml as well as the *PSA velocity of 0.01 ng/ml/year indicate that HIFU can be used as a curative therapy for patients with incidental PCa.

Psychological burden of patients who are confronted either with untreated cancer disease in cases of „wait & see“ or with fear of significant side effects in cases of radical surgery or radiation, can be avoided by this non invasive, transrectal, single session therapy.

Mid term obstructive side effects might be avoided by a specific TUR before HIFU, resecting ventral and bladderneck tissue compensating the HIFU induced shrinkage of the prostatic capsule.

Source of Funding: Harlachinger Krebshilfe e.V. and Lingen foundation
contact: (sthueroff@mnet-mail.de)

MP09-06 A RANDOMIZED COMPARATIVE EFFECTIVENESS TRIAL ON TRANSURETHRAL ENUCELATION WITH OLYMPUS BUTTON ELECTRODE (B-TUEP) VERSUS “TRADITIONAL LOOP” GYRUS PK FOR THE TREATMENT OF CLINICAL OBSTRUCTING BENIGN PROSTATE HYPERPLASIA. RUA’S EXPERIENCE

Barbara Cristina Gentile*, Roberto Giulianelli, Luca Albanesi, Francesco Attisani, Gabriella Mirabile, Francesco Pisanti, Manlio Schettini, Rome, Italy

INTRODUCTION AND OBJECTIVES: Transurethral resection of the prostate (TURP) has, for many decades, been the reference standard in the surgical management of lower urinary tract syndrome (LUTS) due to bladder outlet obstruction. Aim of the study was to compare the outcome of “traditional” bipolar TURP with Gyrus PK vs the new technique called B-TUEP (Trans-urethral saline enucleation with Olympus Button electrode).

METHODS: From February 2011 to February 2012, 120 consecutive patients, with a mean age of 63,34±7,1 years, who had LUTS of BPE were enrolled in this study. A total of 60 patients with a mean age of 62,5±6,9 years were randomised to undergo bipolar “traditional loop” TURP (Traditional Gyrus group) and 60 with a mean age of 64,18±7,2 years to Transurethral in saline enucleation (B-TUEP group). Preoperative work-up was assessed by administering I.P.S.S., I.I.E.F.-5 and Qol. In traditional TURP and B-TUEP groups, I.P.S.S., I.I.E.F.-5 and Qol, uroflowmetry, TRUS, measurement post-voidal residual urine (PVR), PSA determination and number of reoperations were evaluated. Thus, in traditional TURP and B-TUEP groups were analized operative time, resected tissue weight and perioperative complications. Total postoperative catheter time, total post-operative hospital stay, haemoglobin loss were recorded in the 2 groups.

RESULTS: Comparative data on IPSS symptom score, I.E.F.F.-5 and Qol, PSA, peak urinary flow rates and post-void residual urine volume in the 2 groups are similar but showed a significative improvements regarding baselines value.
The postoperative haemoglobin levels (13.6 ± 0.6 versus 11.4 ± 0.5, respectively), postoperative catheterization, hospital stay and 1-yr overall surgical re-treatment-free rate (5% vs 11.6%, respectively) were better in the Bipolar TURP group.

CONCLUSIONS: B-TUEP has a comparable outcome to Bipolar “traditional” TURP at short and medium term to subjective and objective outcome measures. Its impact on bladder outlet function is also similar to that of Bipolar “traditional” TURP. Improvement in I-P.S.S., QoL index, I.E.E.F.-5, Qmax and post-void residual urine volume were comparable in both group denoting similar efficacy of the techniques.

Source of Funding: none

MP09-07 TRANSURETHRAL ENUCLEATION AND RESECTION FOR PROSTATIC HYPERPLASIA BEYOND 80 CC

Kenji Kawamura*, Ishikawa, Japan

INTRODUCTION AND OBJECTIVES: Transurethral resection of the prostate (TURP) is the standard treatment for men with benign prostatic hyperplasia, but because of the risks of bleeding and TUR syndrome, patients with large prostates are usually offered open removal of prostate tissue. However, the need for an abdominal incision and prolongation of the hospitalization and recovery periods are major disadvantages.

METHODS: We assessed 43 patients with prostates of > 80 cc who underwent transurethral enucleation and resection of the prostate (TUERP) between January 2008 and December 2012. In TUERP, subtotal enucleation is performed with a Olympus detaching blade, and this is followed by removal of the prostatic tissue by TURP.

Figure A, B, C: Incision on urethral mucosa along verumontanum. Figure D, E, F, G: Detaching prostate lobes by inserting the TUEB detaching blade.

RESULTS: The mean preoperative total prostate and adenoma volumes were 96.4 and 56.3 cc, respectively. The mean weight of removed prostate tissue was 51.4 g. The mean duration of surgery was 93 min. The mean decrease in the level of hemoglobin was 0.4 g/dl. At preoperative baseline the mean symptom score was 21.4, mean peak urinary flow rate 7.6 cc/s, and mean post-void residual urine volume 155 cc. At 3 months postoperatively the mean symptom score was 6.0, mean peak urinary flow rate 13.6 cc/s, and mean post-void residual urine volume 10 cc. Significant improvements in all parameters were observed after surgery. There was a significant reduction in prostatic volume (preoperative, 96.4 cc; postoperative, 12.4 cc), and there was a significant reduction in PSA level (preoperative, 10.6 ng/ml; postoperative, 1.4 ng/ml). There were no major complications, and no patients developed transurethral resection syndrome or required blood transfusion.

CONCLUSIONS: The short-term outcomes showed that this technique was a suitable alternative to open prostatectomy and TURP.

Source of Funding: none

MP09-08 2-MICRON LASER TRANSURETHRAL RESECTION OF REPEATED RECURRENCE OF MULTIPLE NON-MUSCLE INVASIVE BLADDER TUMORS: SINGLE-CENTER EXPERIENCE

Yanbo Wang, Jingjing Guan, Min Liu, Haifeng Zhang, Chunxi Wang*, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the safety and efficacy of RevoLix 120 W 2 micron laser transurethral resection of repeated recurrence of multiple non-muscle invasive bladder tumor (RRMNMBT) for high-risk patients.

METHODS: We retrospectively analyzed 31 RRMNMIBT patients underwent transurethral RevoLix 120 W 2 micron laser resection in our hospital from May 2010 to Feb. 2012. Average relapse frequency was 4.5 (2 ~ 13), Average age was 74.3 years (48 years to 95 years). All patients were high-risk patients who could not tolerate radical cystectomy. Patients with a history of cardiac stent were 17, and the remaining patients had varying degrees of hypertension, diabetes, coronary heart disease, stroke and history of cerebral hemorrhage.

RESULTS: The number of tumor was 3 ~ 95 and mean operative time was 23.5 min (8 min ~ 48 min). All patients did not have intraoperative obturator nerve reflex, bladder perforation and blood transfusion. Indwelling Foley catheter was placed about 1 ~ 3d and there were no bladder irrigation. All patients were able to get postoperative pathology specimens. Pathology results of 22 patients were non-muscle invasive bladder cancer (high level), the others were muscle invasive bladder cancer (high level). 25 patients did not show recurrence at 3 month follow-up period. 6 patients were lost to follow-up.

CONCLUSIONS: For high-risk patients, RevoLix 120 W 2 micron laser was a choice to treat non-muscle-invasive bladder tumor.

Source of Funding: none

MP09-09 HOLMIUM LASER ENUCLEATION OF THE PROSTATE VERSUS PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE FOR PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA AND CHRONIC URINARY RETENTION

Christopher Jaeger*, Christopher Mitchell, Lance Mynderse, Amy Krambeck, Rochester, MN

INTRODUCTION AND OBJECTIVES: While poorly defined in the literature, chronic urinary retention (CUR) affects a significant number of aging males, including up to 25% of men undergoing transurethral prostate surgery. Surgical therapy in various forms has been shown to reduce post void residual urine volumes (PVR) to avoid permanent indwelling or clean intermittent catheterization (CIC). We sought to compare outcomes of holmium laser enucleation of the prostate (HoLEP) to photoselective vaporization of the prostate (PVP) in this specific patient population.
METHODS: We retrospectively identified 103 patients with CUR who underwent HoLEP or PVP over a three year time period. CUR was defined as a persistent preoperative postvoid residual (PVR) > 300 mL or refractory retention requiring catheterization despite voiding trials. Exclusion criteria included a history of prostate cancer, prior BPH surgery, history of urethral stricture, neurologic etiology, or acute urinary retention. Preoperative characteristics, perioperative parameters, and postoperative outcomes were compared between groups.

RESULTS: 72 patients who underwent HoLEP and 31 patients who underwent PVP were identified. Patient age, median preoperative AUAS (18 vs. 21, p = 0.24), peak flow rate (Qmax) (5.1 vs. 5.6, p = 0.26), median duration of preoperative catheterization (3 vs. 5 months, p = 0.72) were similar between groups. A larger median prostate volume (88.5 vs. 49 cm³, p = 0.096), and higher preoperative PSA value (4.5 vs. 2.4 ng/mL, p = 0.001) was observed in the HoLEP group. At median 6 months follow-up, 71 (99%) patients in the HoLEP group and 23 (74%) patients in the PVP group were catheter free due to sustained low PVRs (p = 0.0018). Among voiding patients, postoperative median AUASI (3 vs. 4, p = 0.06), Qmax (23 vs. 18 mL/sec, p = 0.28), and PVR (56.5 vs. 54 mL, p = 1.0) were similar between groups. When compared to preoperative parameters, statistically significant improvement in postoperative AUASI, Qmax, and PVR were found in both groups.

CONCLUSIONS: Both PVP and HoLEP are effective at improving urinary parameters, including AUASI, Qmax, and PVR volumes, in men with CUR. Despite larger preoperative prostate volumes, HoLEP had a 99% deobstruction rate, rendering patients catheter free.

Source of Funding: None.

MP09-10 FACTORS AFFECTING DE NOVO URINARY RETENTION AFTER HOLMIUM LASER ENUCLEATION OF THE PROSTATE

Sung Han Kim, Kuanggi, Korea, Republic of, Minsoo Choo, Jae-Seung Paick, Hahn–EY Lee*, Seung–June Oh, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Patients can experience urinary retention after Holmium laser enucleation of the prostate (HoLEP), which requires urinary bladder distension during both enucleation and morcellation procedures. The aim of this retrospective study was to identify factors affecting urinary retention after HoLEP.

METHODS: 336 patients that underwent HoLEP for symptomatic benign prostatic hyperplasia between July 2008 and March 2012 were included in this study. Urethral catheters were routinely removed one or two days after surgery. Urinary retention was defined as the need for an indwelling catheter secondary to failure to void after catheter removal. Demographic and clinical parameters were compared between urinary retention (UR; n = 37) and non-retention (non-UR; n = 299) groups.

RESULTS: Mean patient age was 68.3 (SD 4.6) years and mean operative time was 75.3 (SD 37.4) min. Thirty-seven patients (10.1%) experienced postoperative urinary retention. UR patients voided catheter free after a mean of 1.9 (SD 1.7) days after urinary retention. With regard to causes of retention, 24 (6.6%) experienced clot-related retention and 13 (3.5%) non-clot related retention. Significant differences were found between the UR and non-UR groups with regard to bleeding-related complication, such as, reoperation for bleeding (OR 0.039, CI 0.004-0.383) or transfusion (OR 0.144, CI 0.027-0.877), and for morcellation efficiency (HR 0.701, CI 0.498-0.988) by multivariate analysis (p < 0.05). Age, diabetes, prostate volume, pre-operative post void residual, bladder contractility index, and operative time were not significantly associated with urinary retention (p > 0.05). Learning curve analysis showed no relationship between operator experience and UR (p > 0.05).

CONCLUSIONS: De novo urinary retention after HoLEP was found to be self-limited and not related to learning curve, patient age, diabetes, or operative time. However, the study shows that efficient morcellation and careful control of bleeding to reduce clot formation decrease the risk of urinary retention after operation.

Source of Funding: None.

MP09-11 MEDIUM TERM OUTCOME OF BIPOLAR PLASMA VAPORIZATION IN PROSTATE CANCER PATIENTS – A PALLIATIVE MODALITY OF PRESERVING SPONTANEOUS VoidING

Bogdan Geavlete, Cristian Moldoveanu, Gheorghe Nita, Florin Stanescu, Marian Jecu, Petrisor Geavlete*, Bucharest, Romania

INTRODUCTION AND OBJECTIVES: This retrospective analysis evaluated the efficiency, safety and medium term postoperative results of bipolar plasma vaporization (BPV) in prostate cancer (PCa) cases associating complete urinary retention.

METHODS: A series of 40 patients diagnosed with locally advanced or metastatic PCa and complete urinary retention requiring a Foley catheter indwelling underwent BPV aiming to restore spontaneous voiding. A total of 35 patients completed the one year evaluation protocol consisting of International Prostate Symptom Score (IPSS), quality of life score (QoL), maximum flow rate (Qmax) and post-voiding residual urine volume (PVR), measured at 1, 3, 6 and 12 months after surgery.

RESULTS: BPV was successfully performed in all cases with satisfactory efficiency, as confirmed by the mean operation time (42.8 minutes) and hemoglobin drop (0.7 g/dl). A fast and safe postoperative recovery period was described in this series (hematuria rate – 7.5%; mean catheterization period – 36 hours; mean hospital stay – 2.5 days; early irritative symptoms’ rate – 15%). At 1, 3, 6 and 12 months, satisfactory values were determined in terms of IPSS, Qmax, QoL and PVR. These parameters emphasized a stable evolution throughout the entire follow-up, as 88.6% of the patients maintained spontaneous voiding.

CONCLUSIONS: The present trial confirmed the plasma-button vaporization as a promising therapeutic approach in PCa cases associating complete urinary retention. The technique displayed good efficacy, low perioperative morbidity, short convalescence and satisfactory urodynamic and symptom score parameters during the one year follow-up period.

Source of Funding: None

MP09-12 A PROSPECTIVE COMPARISON BETWEEN NBI AND STANDARD WHITE LIGHT CYSTOSCOPY IN CASES OF NON-MUSCLE INVASIVE BLADDER CANCER

Bogdan Geavlete, Marian Jecu, Florin Stanescu, Cristian Moldoveanu, Leon Adou, Petrisor Geavlete*, Bucharest, Romania

INTRODUCTION AND OBJECTIVES: The trial aimed to assess the impact of narrow band imaging (NBI) cystoscopy in cases of
non-muscle invasive bladder cancer (NMIBC). A single centre, prospective comparison to the standard white light cystoscopy (WLC) was performed.

METHODS: A total of 95 NMIBC suspected consecutive cases were enrolled. The inclusion criteria were hematuria, positive urinary cytology and/or ultrasound suspicion of bladder tumors. All patients underwent WLC and NBI cystoscopy. Standard resection was performed for all lesions visible in WL and NBI-TURBT for only NBI observed tumors.

RESULTS: The overall NMIBC and CIS patients’ detection rates were significantly improved for NBI (96.2% versus 87.2% and 100% versus 66.7%). Also, on a lesions’ related basis, NBI cystoscopy emphasized a significantly superior detection concerning the CIS, pTa and overall tumors (95.2% versus 61.9%, 93.9% versus 85.2% and 94.8% versus 83.9%, respectively). Additional tumors were diagnosed by NBI in a significant proportion of CIS, pTa, pT1 and NMIBC patients (55.5% versus 11.1%, 26.5% versus 10.2%, 30% versus 10% and 30.8% versus 10.3%). More over, pathologically confirmed positive tumoral margins secondary to white light TURBT were found at the NBI control in 10.3% of the cases. The postoperative treatment was significantly improved due to NBI results (16.7% versus 5.1%).

CONCLUSIONS: NBI cystoscopy represents a valuable diagnostic alternative in NMIBC patients, with significant improvement of tumor visual accuracy as well as detection. This approach provided a substantial amelioration to the bladder cancer therapeutic management.

Source of Funding: None

MP09-13 SALVAGE HOLMIUM LASER ENucleATION OF PROSTATE TO TREAT RECURRING BENIGN PROSTATIC HYPERPLASIA

Jin Kyu Oh*, Incheon, Korea, Republic of, Hahn Ey Lee, Seoul, Korea, Republic of, Jungbum Bae, Goyang, Korea, Republic of, Chang Wook Jeong, Jae-Seung Paick, Seung-June Oh, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Application of Holmium laser enucleation of prostate (HoLEP) technique for removing recurring adenoma has not been reported. Salvage HoLEP enables anatomical enucleation of recurring adenoma in patients who have previously undergone surgical treatment. We intended to describe not only anatomical insights into the frequent location of adenoma recurrence but also the salvage HoLEP technique.

METHODS: We retrospectively reviewed a database containing HoLEP video records for 35 patients out of a total of 528 individuals on whom HoLEP was performed by two surgeons (SJP & SFP) between July 2008 and June 2011.

RESULTS: Conventional procedures that were previously performed included sixteen cases of transurethral resection of prostate, seventeen cases of vaporization of prostate, and two cases of transurethral needle ablation. After undergoing salvage HoLEP, the patients were followed for over 6 months. Significant postoperative increase in the maximum urine flow rate and decrease in symptom scores were noted. There were no intra-operative or postoperative complications except minor capsule tearing in one patient which was restored by catheter indwelling. Postoperative transient urinary incontinence was observed in three cases. There was significant remnant tissue around the verumontanum in cases of BPH recurrence which might be predominantly responsible for recurring obstructive symptoms. Additionally, the lateral lobes were also incompletely removed by previous conventional procedures. A significant amount of tissue in the lateral lobes near the prostatic capsule tended to persist, especially in the larger prostate.

CONCLUSIONS: Even for cases of recurring BPH, salvage HoLEP was a feasible and effective procedure for treating recurring adenoma along the anatomical plane.

Source of Funding: None

MP09-14 THREE-YEAR IMPACT OF COMBINED NARROW BAND IMAGING CYSTOSCOPY AND BIPOLAR PLASMA VAPORIZATION IN LARGE NON-MUSCLE INVASIVE BLADDER TUMORS’ CASES – A PROSPECTIVE, RANDOMIZED COMPARISON TO THE STANDARD APPROACH

Bogdan Geavlete*, Razvan Multescu, Dragoș Georgescu, Florin Stanescu, Marian Jecu, Cristian Moldoveanu, Petrisor Geavlete, Bucharest, Romania

INTRODUCTION AND OBJECTIVES: A prospective, randomized, comparison between narrow band imaging (NBI) cystoscopy and bipolar plasma vaporization (BPV) versus standard white light cystoscopy (WLC) and monopolar transurethral resection of bladder tumors (TURBT) was performed, aiming to evaluate the long term recurrence rates specific to the 2 approaches in cases of large bladder tumors.

METHODS: A total of 220 patients with at least one apparently non-muscle invasive bladder tumor (NMIBT) over 3 cm were included in the trial based on abdominal ultrasound, computer tomography and flexible WLC. In one arm, 110 patients underwent WLC, NBI cystoscopy and BPV, while cases in the second arm only benefited from WLC and TURBT. A single postoperative mitomycin-C instillation, standard monopolar Re-TUR at 4 weeks and one year’ BCG immunotherapy were applied in all NMIBT cases. The follow-up protocol included ultrasound, urinary cytology and WLC, performed every 3 months for a period of 2 years and every 6 months in the third year.

RESULTS: In the NBI-BPV series, the CIS (94.6% versus 67.6%), pTa (93% versus 82.4%) and overall NMIBT (94.9% versus 84.3%) detection rates were significantly improved for NBI cystoscopy by comparison to WLC. NBI diagnosed significantly more cases of additional tumors (30.5% versus 9.5%) as well as extended tumoral margins in 10.5% of patients. The obturator nerve stimulation (3.2% versus 18.6%), bladder wall perforation (1.1% versus 7.2%), mean hemoglobin drop (0.2 g/dl versus 0.9 g/dl) and postoperative bleeding (1.1% versus 6.2%) rates were significantly reduced for BPV when compared to TURBT. The catheterization period (47.2 versus 73.6 hours) and hospital stay (2.9 versus 4.1 days) were significantly shorter subsequent to BPV. The overall (6.3% versus 17.5%) and primary site (4.2% versus 13.4%) Re-TUR residual tumors’ rates were significantly lower for NBI-BPV patients. The one (7.9% versus 17.8%), two (11.5% versus 25.8%) and three (16.3% versus 33.3%) years’ NMIBT recurrence rates were significantly reduced in the NBI-BPV group.

CONCLUSIONS: NBI cystoscopy displayed significantly improved diagnostic accuracy and BPV emphasized superior efficacy, reduced morbidity and faster postoperative recovery in large NMIBT cases. The NBI-BPV technique provided a lower Re-TUR residual tumors’ rate as well as reduced 1, 2 and 3 years’ recurrence rates by comparison to the standard approach.

Source of Funding: None
MP09-15 Evaluation and prediction of post-operative complications after primary TURB for non-muscle invasive bladder cancer (NMIBC)

Rafael Sanchez-Salas*, Ana Maria Autran-Gomez, Dominique Prapotnich, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: Approximately 80% of urothelial tumours are NMIBC. The complete endoscopic resection (TURB) is the initial treatment. Although TURB is a standard procedure, it is not morbidity-free.

To evaluate the applicability of the modified Clavien classification system in grading postoperative complications after primary TURB for NMIBC and to determine the potential predictors by occurrence of early complications.

METHODS: 182 consecutive patients with NMIBC who underwent primary TURB at our institution between 2004 and 2012 were evaluated for early complications occurring within 30 days post surgery. The surgical complications were recorded and classified according the Clavien system. All patients underwent a monopolar TURB. The risk factors for morbidity were explored using Cox regression models.

RESULTS: Table 1 shows the general characteristics of study population. 26 surgical complications were identified in 20 (11%) patients. Infectious (42%) was the most frequent event followed of Genitourinary (27%) and Hematologic (23%) respectively. Most of them were classified as Clavien grade 1–2 (85%) and the most common reported were urinary tract infection and haematuria. Early mortality rate was 0%. One patient (5%) required re-intervention due post-operative bleeding. The incidence of high-grade (Grade 3–5) of complications was significantly associated with the size (>3 cms) and number of tumors. A precedent history of cardiovascular disease (p = 0.001) was the only risk factor by occurrence of complications.

CONCLUSIONS: In our cohort, using Clavien grading system, TURB results a safe procedure with low risk of morbidity. Post-operative bleeding was the most significant complication that determined a re-intervention. A precedent history of cardiovascular disease was a significant predictor by occurrence of not serious complications.

Source of Funding: None

Table 1. Clinical and Pathological Characteristics of Study Population

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Table 2. Complications following transurethral resection of bladder tumor (TURB)

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</tbody>
</table>

SD = Standard deviation; TA = Traffic accident; UM = urethral mobilization; CS = corporal separation; IP = inferior pubectomy; UR = urethral rerouting; 1 = t test; 2 = chi-square test; * = Fisher’s exact test. *p < .05 was considered statistically significant. **Time interval between the original urethral injury and the bulbo-prostatic anastomosis or between a previous urethroplasty and the bulbo-prostatic anastomosis. ***Time interval between the bulbo-prostatic anastomosis and the first urethral stricture recurrence.

Table 2. Logistic Regression Analysis for Factors Affecting Surgical Outcome in Patients with Visual Internal Urethrotomy for Recurrence After Transperineal Bulboprostatic Anastomosis (Mean ± SD, (Range))

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Success</th>
<th>Failure</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (% of patients)</td>
<td>182</td>
<td>0.68</td>
<td>0.32</td>
<td>0.0001</td>
</tr>
<tr>
<td>Age (years)</td>
<td>66.26±11.26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIU (mg)</td>
<td>23.6±7.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time interval from injury to TURB</td>
<td>33.6±17.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preoperative urethral bleeding (y/n)</td>
<td>0.6±0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time interval from injury to TURB</td>
<td>23.6±7.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrence time (y/n)</td>
<td>0.6±0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous history of smoking (y/n)</td>
<td>0.6±0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categoric regression analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR, CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Complications following transurethral resection of bladder tumor (TURB)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>P OR</th>
<th>95% CI</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time interval</td>
<td>0.005</td>
<td>0.603</td>
<td>0.834</td>
<td>0.124</td>
</tr>
<tr>
<td>Operative urethral defect (y/n)</td>
<td>0.012</td>
<td>0.757</td>
<td>1.471</td>
<td>1.241</td>
</tr>
<tr>
<td>Previous history</td>
<td>0.011</td>
<td>0.409</td>
<td>0.629</td>
<td>0.329</td>
</tr>
</tbody>
</table>

*Parameters were analyzed as a continuous variable per unit. OR, odds ratio; CI, confidence interval

Time interval between the original urethral injury and the bulbo-prostatic anastomosis or between a previous urethroplasty and the bulbo-prostatic anastomosis.
MP09 TUR SURGERY

Source of Funding: none

MP09-17 TWO YEARS ENDOSCOPIC RESECTION OF BLADDER WITH PHOTODYNAMIC BLUE LIGHT: PRELIMINARY RESULTS.

Tommaso Brancato*, Roma, Italy, Francesca Suriano, Roberto D’Ascenzo, Pietro Nupieri, Gianni Paulis, Giuseppe Orsolini, Albano Laziale Roma, Italy, Rosaria Alvaro, Roma, Italy

INTRODUCTION AND OBJECTIVES: Bladder cancer (BC) is the most common malignancy of the urinary system. Incidence in men is higher than women (4:1). In 2012 an estimated 73,510 new cases were diagnosed and contributed to 14,880 bladder cancer related deaths in USA.

Endoscopic resection (TURB) is the first diagnostic-therapeutic approach. Rate of clinical understaging in non-muscle invasive bladder cancer (NMIBC) after an initial TUR is higher (almost 40%), particularly for high-grade disease with a major impact on prognosis.

Photodynamic cystoscopy and endoscopic resection (PDD) with hexaminolevulinate (HAL) has shown to improve detection and thoroughness of resection of BC enhancing visualisation of BC during TUR compared to standard white light cystoscopy (WLC).

METHODS: This Open Label study started in may 2011 treating all our NMIBC patients with WLC and PDD evaluation and subsequent endoscopic resection to evaluate 5 years long term results of Safety/Efficacy/Disease free/relapse data. All patients, after normal preliminary usual diagnostic procedures are treated previously with HAL instillation and one hour later with WLC/PDD TURB. Demographics, medical history, risk factors, performance of any previous intravescal therapy and the date of the last instillation are recorded.

CONCLUSIONS: In our preliminary experience TURB PDD has proved useful in improving diagnosis and prognosis of patients with BC.

Source of Funding: none

MP09-18 SHOULD WE STOP ASPIRIN BEFORE TURP?

Alireza Farshi Haghiro*, Tabriz, Iran

INTRODUCTION AND OBJECTIVES: Background: Some of benign prostatic hyperplasia patients who are transurethral resection of prostate (TURP) candidates cardiovascular diseases and are under low dose aspirin (80 mg/daily) medication and cessation of the drug prior to surgery may have some procoagulatory risks for the patients and its continuation may pose the patient to the risk of post surgical excessive bleeding. The debate about whether to discontinue aspirin before implementing a TURP or not has been a long discussion and despite the previous recommendations to stop aspirin taking several days prior to surgery, some scientific sources advocate continuation of aspirin specially in high risk patients with previous cerebrovascular complications.

Objective: The general objective of the study was to determine the impact of aspirin on peri-operative blood loss. The specific objectives were to measure effect of aspirin on intraoperative hemorrhage, hemoglobin and hematocrit drop, intraoperative and post operative blood transfusion, time to urinary clearance.

METHODS: Patients and methods: We describe a prospective study composed of 105 TURP candidates who 26 (24.8%) were under aspirin medication and 79 cases (75.2%) didn’t take aspirin in which peri-surgical bleeding of these two groups was compared in a period of 18 months.

RESULTS: Results: The average bleeding in aspirin taking patients was 128.7 and in non aspirin takers 105.4 ml and this difference was statistically insignificant (P=0.11). Also there is no significant difference in hematocrit drop, intraoperative and postoperative blood transfusion and time to urinary clearance. Also blood loss had a significant correlation with the prostate volume and it was not association with type of anesthesia.

CONCLUSIONS: Conclusion: Aspirin cessation could be a detrimental step in pre surgical management of patients especially in cases which take it based upon secondary preventive grounds and there was no significant discrepancy between the two aspirin and non aspirin takers regarding the volume of peri-surgical bleeding but more study seems mandatory for more clarification of the matter.

Source of Funding: Research vice chancellor of tabriz medical sciences university
There is no difference between short and long CONCLUSIONS: QoL, or functional outcomes at 6 weeks and 12 months.

Multivariable regression analysis was used to determine whether pre-operative multi-channel urodynamic study (UDS) may help predict short and long-term quality of life and functional outcomes after HoLEP.

METHODS: A retrospective analysis was performed on 311 patients who underwent HoLEP for LUTS or urinary retention from August 2007 to June 2011. All patients were assessed pre-operatively with an American Urologic Association Symptom Score (AUA SS), Quality of Life score (QoL), post-void residual (PVR), and maximum flow (Qmax). UDS was obtained in select patients at the provider’s discretion. Quality of life (AUA SS, QoL) and functional outcomes (PVR, Qmax) were compared between patients receiving pre-op UDS versus those who did not undergo pre-op UDS at 6 weeks and 12 months after HoLEP. Multivariable regression analysis was used to determine predictors of improved quality of life, defined as a QoL < 3 or AUA SS < 8, and functional outcomes.

RESULTS: Sixty-four patients underwent UDS prior to HoLEP, while 267 proceeded to surgery without pre-operative UDS. Patients who underwent UDS prior to surgery had smaller pre-operative prostate volumes (80.0 cm³ vs. 99.6 cm³; p = 0.02), and a higher prevalence of pre-operative urinary retention (57.8% vs. 27.9%; p = <0.01) and incontinence (27.0% vs. 12.6%; p = <0.01). Short term (6-weeks) and long-term (12-months) AUA SS and QoL after HoLEP was similar between both groups. At 12 months there was no significant difference in the amount of patients with an improved QoL (93.8%; vs. 79.6%; p = 0.17) or improved AUA SS (81.3% vs. 72.8%; p = 0.47) between the two groups. In terms of functional outcomes, Qmax was similar between the two groups at 6 week and 12 month follow up. Post-void residual was significantly higher in patients undergoing UDS prior to HoLEP at 6 weeks (88.9 mL vs. 40.8 mL; p = 0.01) and at 12 months (103.3 mL vs. 46.6 mL; p = 0.04). Multivariable regression analysis did not find pre-operative UDS to be a predictor of improved AUA SS, QoL, or functional outcomes at 6 weeks and 12 months.

CONCLUSIONS: There is no difference between short and long term quality of life outcomes after HoLEP in patients receiving pre-operative UDS compared to those proceeding straight to surgery. UDS prior to HoLEP is not predictive of quality of life or functional outcomes. Patients undergoing pre-operative UDS were associated with a higher PVR after HoLEP, this information can be used for patient counseling.

Source of Funding: n/a

MP09-20 TRANSURETHRAL LOW ENERGY HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP) – A COMPARISON OF SINGLE SURGEON PERFORMANCE IN THE BEGINNING AND IN THE PRESENT

Philip Emanuel Rieker*, Jan T. Klein, Michael Schulze, Marcel Hruza, Koray Genisoglu, Jens J. Rassweiler, Heilbronn, Germany

INTRODUCTION AND OBJECTIVES: In our department 284 laser enucleations (enuc) were done, including 144 with the HolmiumGL (Ho) 45 W laser (StarmedTech, Starnberg, Germany) and 41 with the Ho 45 W laser including a HD camera since 2004. In the beginning, the extraction of the prostatic gland after enuc was done by bipolar resection. Later removal with the Wolf Morcellator (Morc) (Knittlingen, Germany) has become standard. This tool was technically updated once in the end of 2009. Today the standard in our department is the enuc with the Ho 45 W including a HD camera, morcellation (morc) is done using the Piranha Wolf Morc and if necessary resection of residual prostatic gland is performed using the bipolar Storz resectoscope (Tutlingen, Germany).

METHODS: All patients and different parameters were registered using an Excel database (Microsoft, Redmond, USA). To specify progress in performance two groups of patients were selected out of the 284 treated by laser enuc. The first group includes the first 40 patients treated with the Ho 45 W laser and Wolf Morc. The second group includes the last 40 patients treated with the Ho 45 W including a HD camera and the updated Wolf Piranha Morc. Parameters of group one: Mean age at time of surgery 68.7 years, mean preoperative measured size of the prostate 85.8 cm³, mean weight of removed prostatic gland 64.9 g, mean days till catheter removal 3.7, mean days of hospitalization after surgery 5.6. Group two: 73.1 years, 103.65 cm³, 94.6 g, 3.9 days, 6 days. To detect progression of the surgical procedure the performance times were recorded and compared. In group one: mean time of surgery 104.2 min, mean time of laser use and bipolar resection 72.5 min, mean time of morc 24.9 min. In group two: mean time of surgery 91.8 min, mean time of laser use and bipolar resection 63.4 min, mean time of morc 19.4 min.

RESULTS: The mean time of surgery was reduced by 12.4 min but the mean weight of removed prostatic tissue was raised by 29.7 g. In group one the mean resection speed is 0.92 g/min, the mean morc speed 3.79 g/min. In group two the mean resection speed is 1.55 g/min, the mean morc speed 6.69 g/min. The share of mean resection (group one 72.8 %, group two 71.3 %) and morc time (group one 20.3 %, group two 19.7 %) in mean time of surgery is almost the same.

CONCLUSIONS: The speed of resection and morc in HoLEP done by a single surgeon has increased considerably from the beginning until now. On one side this belongs to better equipment but the main part belongs to the growing experience of the surgeon.

Source of Funding: none
Surgically were divided into 5 temporally sequential groups, each of 42 patients. Surgical characteristics (enucleation volume, PSA reduction rate, enucleation time, enucleation efficacy, morcellation efficacy), perioperative variables (hemoglobin decrease), and complications were analyzed.

RESULTS: Mean age and estimated prostate volume were not statistically different between groups. No statistical differences in Hb decrease, resected prostate volume, or PSA reduction were seen. Both enucleation time and efficacy in later groups (4, 5) were shorter than earlier groups (1–3). Morcellation efficacy wasn’t significantly different over time. There were no differences in complications, including urethral strictures and early SUI, between groups.

CONCLUSIONS: Although recent reports have indicated operative learning curves plateau after the first 20 cases, our data suggest that the enucleation step continues to improve with surgical experience. In this series, the surgeon’s enucleation technique progressed rapidly at case 119 (group 3), resulting in subsequent rapid shortening of enucleation times and increasing efficacy. No significant differences in complications among groups were found, though complications tended to decrease; shorter operation times and smoother endoscope handling may reduce urethral stress. While AP-HoLEP can be performed safely and effectively by even inexperienced surgeons, increasing experience continues to provide benefits in terms of time and efficacy. The initial operative learning curve plateau can be improved upon in the subsequent 100 cases.

Source of Funding: none

MP09-23 HARD NODULE RESISTANT TO MORCEL-LATION DURING HOLMIUM LASER ENUCLEATION OF PROSTATE

Jungbum Bae*, Gyang Yang, Korea, Republic of, Hahn-Ey Lee, Kyung Chul Moon, Seung-June Oh, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Holmium laser enucleation of prostate (HoLEP) for benign prostatic hyperplasia (BPH) consists of enucleation and subsequent morcellation. During morcellation, hard prostate nodules resistant to morcellation (HNRM) were not infrequently encountered. To date, however, such HNRM has not been well characterized. We aimed to identify the nature of HNRM and clinical parameters associated with HNRM.

METHODS: Between Jul 2008 and Oct 2011, 246 patients underwent HoLEP for symptomatic BPH by a single surgeon (sjo). Patients had baseline evaluation including international prostatic symptom score (IPSS), uroflowmetry with post-void residual, serum prostatic specific antigen (PSA), transrectal ultrasonography and pressure flow. Patients were divided into two groups (HNRM, non-HNRM groups) according to the necessity for an intraoperative conversion to the salvage conventional transurethral resection to remove HNRM. Clinical parameters were compared between the two groups. Removed prostatic tissues were weighed and sent for pathologic examination. An image analysis was performed after Masson’s trichrome stain of HNRM. Initial 30 patients were excluded from analysis due to learning curve.

RESULTS: Twenty-five (11.6%) patients had HNRM. There were significantly higher total prostate volume (p<0.0001), higher PSA (p=0.018), higher voiding symptom score of IPSS (p=0.015), more operation time (p=0.001) and more morcellation time (p=0.005) in HNRM groups compared with non-HNRM group. However, morcellation efficiency, rates of bladder or prostatic capsular injury were not different between the two groups. Pathological examination revealed that there was no malignant cell and mostly dense fibrous tissue was found in the HNRM. Mean percentage of fibrous tissue was 42.2 (range, 23.7–72.1)% in the HNRM group, while 10.2 (7.8–17.2)% in the non-HNRM group (p<0.05).
CONCLUSIONS: The HNRM, responsible for difficult morcel-
lation, was found in larger adenoma and mostly consisted of
fibrous tissue.

Source of Funding: None

MP09-24 OUR EXPERIENCE OF PHOTOSELECTIVE
VAPORIZATION OF THE PROSTATE (PVP): A SINGLE IN-
STITUTIONAL STUDY OF 168 PATIENTS
Salil Umrani*, Solutton, United Kingdom, Salahuddin Ghiblawi,
Shrewsbury, United Kingdom

INTRODUCTION AND OBJECTIVES: Report our experience
with PVP using the green light laser focusing on patient safety,
outcomes and developing a pathway as a daycare procedure
minimising hospital stay & cost.

METHODS: 168 patients underwent PVP from July 2009 to March
2012 with 24 done as a daycare. Age: 31–89 years. The main
indication was medical therapeutic failure. All patients had a stan-
dard preoperative workup and general/regional anaesthesia. A
standard technique was adopted with catheters usually removed
within 24 hours. Outcome at 3 months were assessed with symp-
tom relief, patient satisfaction, qmax and post void residual.

RESULTS: 163 patients were assessed at 3 months. 74.2% patients
reported satisfaction while 14.1% and 11.7% were unsatisfied or
unclear respectively. 67% of patients were discharged at first
follow up.

Average increase in qmax was 10.99 ml/s while average im-
provement in post void residual was 263 mls.

71% of patients had a successful trial of catheter removal within
24 hours.

70% patients were discharged within 24 hours.

Early and late complications were seen in 13% and 7% of pa-
tients respectively.

CONCLUSIONS: PVP as a modality for the treatment of symp-
tomatic BPH is safe and viable. It has a proven track record for
short and midterm outcomes were comparable to TURP.

Suitable as daycare procedure with either catheters removed
shortly after or within the community.

Limiting factors would include social circumstances, patient
acceptability, support networks in the community etc.

Long term outcomes needed.

Review of the literature supports our findings.

Source of Funding: none

MP09-25 ENDOUROLOGY AND FOREIGN BODIES IN
THE BLADDER: HISTORICAL REVIEW
Michael Moran*, Tucson, AZ

INTRODUCTION AND OBJECTIVES: The urologist has been
involved with the bizarre and macabre history of patients who
have undo interest in placing foreign bodies in their lower urinary
tract. This represents a historical review of this practice and
medical responses through history.

METHODS: Review of the surgical writings from Ancient
to Modern times categorized those mentioning foreign bodies in
the lower urinary tract. In one of the oddest textbooks of urology,
one must rank Wirt Bradley Dakin’s Urological Oddities as one of
the most peculiar. This is a review of these findings.

RESULTS: Wirt Dakin begins chapter four ominously with his
title, Foreign Bodies in the Bladder. He continues for 67 pages
illustrating one odd case after another. He has a total of 212 cases
of foreign bodies in all. New York State was most represented
beating out California 28 cases to 23. In all, 35 States were re-
presented plus D.C., Canada, England, and New Zealand. 111
were males and 61 females, and the remaining 40 cases were not
specified. Every ethnicity was included except for Inuits. Ages
ranged from 4 to 76. Chewing gum was most common (no
mention of flavor), booby or hair pins (22), glass rods (18), ther-
mometers (11), crayons and candles (17), and more macabre ar-
tifacts (nail file, squirrel’s tail, squirrel’s penis, earthworm, snake
(without head), French fry, carrots, snails and such). There are
even more bizarre cases than those just mentioned.

CONCLUSIONS: Giovanni Morgagni’s Book III, Letter XLII,
article 20 is one of the first descriptions of foreign body. “A
country girl...died in her fourteenth year. For having introc’d a
brass hair-bodkin, notwithstanding it was bent in the middle,
very high into the urethra...she was silent as to the true cause of
the pains. For even the bodkin could not be extracted, by reason of
a calculus that was form’d upon it. But the ureters, and the kidnes-
themselves, were in a very bad condition indeed.” Precious little
has been reported to the psychopathology of these individuals,
but they require innovative endourological management at times.
The Western Section of the AUA has annually collected and
presented such bizarre cases at their Round Table portion annu-
ally accompanied by the limericks of Dr. John C. Prince. Also
noted is a rising trend by incarcerated individuals to perform this
self-mutilation activity to gain narcotics and hospitalization.

Source of Funding: None
score, and final pathological report. Biopsies were considered indeterminate when the final result was recorded as “benign renal parenchyma,” “insufficient specimen,” “NOS,” or “N/A.”

RESULTS: A total of 103 renal mass biopsies were performed. Of these, 53 were performed percutaneously, 49 laparoscopically, and 1 open. Sixty-two (60.2%) were performed for male patients, median age was 66.9 years (IQR 60.6, 70.9), median BMI was 29.6 (IQR 25.8, 34.2), and median tumor size was 2.3 cm (IQR 2.0, 3.2). Six of the biopsies were FNA only, 85 were core only, and 12 were both. Of the 103 biopsies, 82 were considered diagnostic (15 benign and 67 malignant) and 21 were indeterminate. Four of the six FNAs were diagnostic. RENAL nephrometry scores for the diagnostic and indeterminate groups were statistically similar for both total score (p = 0.6) and low (score 4–6) vs moderate (7–9) or high (>9) complexity category (p = 0.4). There were no statistically significant differences between the two groups for lesion diameter, size > 2 cm, approach, number of cores, anterior or posterior location, age, gender, BMI, or ASA class. For percutaneous biopsies only, there was a statistically significant difference in mean size, 1.9 cm for the diagnostic group vs 3.0 cm for the indeterminate group (p < 0.001). There was no difference in the diagnostic yield for percutaneous vs laparoscopic biopsy for more complex lesions or anterior lesions.

CONCLUSIONS: Increasing RENAL nephrometry score does not negatively impact diagnostic yield of renal mass biopsy. Although not all were purely diagnostic, this otherwise representative sample suggests that renal mass biopsy for these patients may help guide management decisions for patients with more complex small renal masses. Smaller lesions are better biopsied during treatment if they are being treated laparoscopically.

Source of Funding: None

MP10-03 LABEL-FREE DETECTION OF POSITIVE SURGICAL MARGINS DURING RADICAL PROSTATECTOMY USING COHERENT ANTI-STOKES RAMAN SCATTERING MICROSCOPY

Alvin Goh*, Xiaoyun Xu, Houston, TX, Liang Gao, Rockingham, VT, Haijun Zhou, Michael Thrall, Xi Wang, Xu Chen, Zhengfan Liu, Houston, TX, Ganesh Palapattu, Ann Arbor, MI, Stephen Wong, Houston, TX

INTRODUCTION AND OBJECTIVES: Positive surgical margins after radical prostatectomy can increase the risk of disease recurrence. However, during radical prostatectomy, it is not always possible to clearly distinguish prostate from non-prostate or benign from malignant tissue in real-time, demanding the need of an intra-operative tool to assess surgical margins during surgery. We evaluated the capability of a novel, label-free imaging modality to identify both normal and cancerous prostatic glands with cellular resolution.

METHODS: Human prostate tissues were obtained from 9 patients undergoing radical prostatectomy. These specimens were imaged ex vivo using a coherent anti-Stokes Raman scattering (CARS) microscope tuned to intrinsic signals from symmetric C-H bond stretching. Specimens were then stained with H&E and standard light microscopy was performed by a certified pathologist for comparison.

RESULTS: We were able to obtain real-time label-free CARS images of prostate glands with sufficient resolution and contrast to allow histological identification of prostatic tissues. Twenty-

FIG. 1. CARS and corresponding H&E images of normal (A-C) and cancerous human prostate glands (D-F).
eight samples were imaged of 12 malignant and 16 normal areas. Cancerous tissues were well differentiated from normal and all results correlated well with H&E staining. Fig. 1 illustrates representative CARS images of both normal and malignant prostatic glands and corresponding H&E microscopy.

CONCLUSIONS: CARS imaging is a real-time, high-resolution platform, which can readily identify prostatic glands and differentiate cancer from benign tissue based on intrinsic molecular contrast without the use of any external labels. This novel imaging technology may provide the ability to perform an instant “optical biopsy” of the prostate and periprostatic tissues at the time of radical prostatectomy. Currently we are designing an endoscopic probe to enable intra-operative CARS imaging. Intra-operative identification of benign and malignant prostate tissue by real-time, label-free CARS microscopy may obviate the need for frozen section and improve the ability to achieve negative surgical margins.

Source of Funding: The funding of this research is supported by DoD grant W81XWH-12-1-0575, John S Dunn Research Foundation, and Bioengineering and Bioinformatics Program Grant of The Methodist Hospital Research Institute to Stephen T. C. Wong.

MP10-04 OFFICE-BASED IMAGED-GUIDED PERCUTANEOUS CRYOABLATION OF CLINICAL T1A RENAL MASSES: EXPERIENCE OF A SINGLE PRIVATE-PRACTICE UROLOGIST IN THE COMMUNITY SETTING

James Siegert*, Cameron Jirschele, Thai Nguyen, Joliet, IL.

INTRODUCTION AND OBJECTIVES: Image-guided percutaneous cryoablation is a treatment alternative for selected patients with renal cell carcinoma. Dramatic increases in ownership of CT scanners by nonradiologist physician groups have created new opportunities for many urologists. The objective of the present study is to determine the efficacy and safety of patients undergoing office-based CT-guided percutaneous cryoablation for the treatment of clinical T1a renal masses in a private practice office by a single urologist.

METHODS: We retrospectively analyzed patients undergoing office-based percutaneous renal cryoablations (mean tumor size, 2.65 cm) in fourteen patients (mean age, 69.4 years) performed over 29 months by a single urologist in private practice setting without assistance of interventional radiology. The size of the tumor, procedural complications, renal biopsy pathology, and clinical and radiographic follow-up parameters were recorded. Radiographic surveillance was performed beginning 6 months post-ablation. Charts were reviewed retrospectively for variables during and after cryoablation, and for clinical outcomes, including the efficacy of the procedure in achieving overall, cancer-specific and recurrence-free survival.

RESULTS: Fourteen patients underwent office-based percutaneous renal cryoablation and renal mass biopsy under conscious sedation in a private practice office by a single urologist. The average procedure was 101 minutes in duration. All patients were discharged home following the procedure except 1 patient who suffered a small pneumothorax managed conservatively with inpatient observation. After a median clinical and radiographic follow-up of 34 months, two patients showed locally recurrent disease at 10 and 22 months, respectively, and both were successfully treated with laparoscopic renal cryoablation. All other patients showed a hypodense mass at 6 month CT scan without enhancement. Subsequent examinations showed stable or decreasing lesion size and attenuation without contrast enhancement.

CONCLUSIONS: Office-based CT-guided percutaneous cryoablation is an accessible, well-tolerated and safe treatment option for clinical T1a renal masses with proven efficacy at intermediate follow-up.

Source of Funding: None

MP10-05 FINE TILT TUNING OF A LAPAROSCOPIC CAMERA BY LOCAL MAGNETIC ACTUATION: TWO-PORT LAPAROSCOPIC NEPHRECTOMY EXPERIENCE ON HUMAN CADAVERS

Ryan Pickens*, Knoxville, TN, Massimliano Simi, Duke Herrell, Pietro Valdastri, Nashville, TN

INTRODUCTION AND OBJECTIVES: Magnetic coupling is one of the few physical phenomena capable of transmitting forces across a physical barrier. This ability enables an entirely new paradigm for surgical instruments. Magnetic Anchoring and Guidance Systems (MAGS), introduced in 2007 by UT Southwestern Medical Center, harness magnetic forces to steer and operate completely insertable intracorporeal tools via externally handheld magnets. Constant external pressure to the abdominal wall has to be applied to achieve any upward/ downward tilt motion. To overcome this problem, the concept of Local Magnetic Actuation (LMA) can be applied. LMA, achieved by a mix of anchoring and local actuation couples of permanent magnets linked across the abdominal wall, consists in changing the orientation and/or the position of one magnet of the actuation pair, causing the magnetically coupled surgical camera to locally move on the inside. Building on the LMA concept, we developed a softly-tethered miniature magnetic camera that does not require manual motion of the external handle to achieve tilting of the view in the vertical plane.

METHODS: The LMA camera used in this study consists of two main parts, head (local actuation module) and tail - linked by a fine tilt tuning mechanism.

RESULTS: The fabricated MLS endoscopic robot prototype. The two modules are linked by an elastic PTFE sheath that protect the wires. The camera cable runs in parallel to the flexible joint.
flexible joint - resulting in a 95 mm long and 12.7 mm wide cylindrical device. The tail module embeds two magnets for anchoring, stabilization and manual rough positioning. The head module incorporates a couple of donut-shaped magnets (diametrical magnetization) that can be rotated by an internal miniature motor to achieve local actuation when coupled with an external static magnetic field. The operations were carried out in the Vanderbilt Cadaver Laboratory in accordance with all ethical considerations and regulations related to cadaveric experiments.

RESULTS: We first placed two laparoscopic ports in the abdomen and achieved a pneumoperitoneum. We then placed the LMA camera into the abdomen and measured its total range of motion which averaged 80 degrees. A trained laparoscopic surgeon then performed a standard laparoscopic nephrectomy using the LMA camera. All five cases were successful.

CONCLUSIONS: Cadaver trials described in this work let us conclude that LMA is an effective strategy to provide magnetic cameras with wide and high resolution vertical motion.

Source of Funding: none

**MP10-06 POST-TREATMENT IMAGING CHARACTERISTICS OF RENAL MASSES AFTER CRYOABLATION: RESULTS FROM A MULTI-INSTITUTIONAL DATABASE**


INTRODUCTION AND OBJECTIVES: Post-treatment imaging in cryoablation can often lead to confusing interpretations by radiologists not familiar with the technique. We sought to characterize changes in lesion size and CT enhancement characteristics in 108 renal masses that underwent cryoablation.

METHODS: Data were collected prospectively on 108 renal lesions in 106 patients that underwent tumor ablation at multiple centers in the U.S. Lesion size and CT enhancement characteristics were analyzed pre- and post-procedure. Biopsies were obtained in 103 cases.

RESULTS: The mean patient age was 66.7 ± 9.1 years (mean ± SD). The mean follow-up time was 7.1 ± 4.8 months. Post-procedure imaging demonstrated a significant increase in lesion volume in months 1–3 following cryoablation (+ 7.2 ± 13.8 cm³), no change in size in months 4–6, and a significant decrease in size in months 7–9 (−3.1 ± 8.0 cm³) and beyond 10 months (−5.0 ± 9.7 cm³); (ANOVA, p < 0.001). Overall, lesions demonstrated a significant decrease in contrast enhancement (arterial-noncontrast) on CT following cryoablation (59.3 ± 36 HU pre-procedure vs. 9.1 ± 17 HU post-procedure; t-test, p < 0.001). There was no difference in this change with respect to time since ablation (ANOVA; p = 0.11). The first post-operative single venous phase enhancement was 40 +/− 12 HU. Biopsy of the renal lesions showed clear cell RCC in 29% of cases, papillary RCC in 17%, chromophobe RCC in 4%, oncocytoma in 12%, AML in 3%, benign kidney in 8%, and unclassified/insufficient/unknown in 27%. All subtypes demonstrated a significant reduction in enhancement after cryoablation (t-test, p < 0.05 for all biopsy groups). However, papillary RCC demonstrated significantly less baseline enhancement than clear cell RCC (21 ± 15 HU vs. 65 ± 29 HU; t-test, p < 0.001).

CONCLUSIONS: Apparent growth of a renal tumor in the first three months following cryoablation, with high HU on single phase contrast is not unusual, and constitutes the ablation zone rather than true tumor size. The measurable lesion size returns to the size of the initial lesion in 4–6 months following cryoablation with significant reduction in size in months 7–9 and beyond. Notably, tumors demonstrated an absence of enhancement irrespective of time or histology. Although cryoablation demonstrates efficacy with absence of enhancement on multi-phase CT, care must be taken to not misinterpret an increase in size and high Hounsfield units on single phase early studies.

Source of Funding: Educational support from Galil, medical

**MP10-07 A NEW METHOD TO ESTIMATE URINARY STONE SIZE: SEGMENTATION ALGORITHM-BASED CT**

Xiaobo Ding*, Liang Chen, Jiping Wang, Changchun, China, People’s Republic of, Gang Jin, Herbin, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: The objective of the present study was to develop a reader independent urinary calculus segmentation algorithm using well-known digital image processing steps and to validate the method against size estimations by several readers.

METHODS: 80 clinical CT examinations demonstrating urinary calculi were included. Each calculus was measured independently by 15 readers. The mean value of their size estimations was used as validation data for each calculus. The segmentation algorithm consisted of interpolated zoom, binary thresholding and morphological operations. Ten examinations were used for algorithm optimisation and 40 for validation. Based on the optimisation results three segmentation method candidates were identified.

RESULTS: Between the primary segmentation algorithm using cubic spline interpolation and the mean estimation by 15 readers, the bias was 0.0 mm, the standard deviation of the difference 0.26 mm and the Bland-Altman limits of agreement 0.0–0.5 mm.

CONCLUSIONS: The validation showed good agreement between the suggested algorithm and the mean estimation by a large number of readers. The limit of agreement was narrower than the inter-reader limit of agreement previously reported for the same data. The size of kidney stones is usually estimated manually by the radiologist. An algorithm for computer-aided size estimation is introduced. The variability between readers can be reduced. A reduced variability can give better information for treatment decisions.

Source of Funding: none

**MP10-08 PROSPECTIVE COMPARISON OF FLEXIBLE FIBEROPTIC CO2 LASER AND STANDARD MONOPOLAR CAUTERY FOR ROBOTIC MICROSURGICAL DENERVATION OF THE SPERMATIC CORD PROCEDURE**

Landon Trost, Ahmet Gudeoglu*, Jamin Brahmbhatt, Sijo Parekkattil, Winter Haven, FL

INTRODUCTION AND OBJECTIVES: Microsurgical denervation of the spermatic cord is a treatment option for patients with chronic orchialgia. The procedure requires precise tissue dissection to ensure ablation of small diameter nerve fibers while preserving surrounding structures. Due to inherent precision and minimal energy scatter, laser ablation provides targeted dissection while limiting collateral peripheral tissue injury. Our group sought to evaluate the extent of peripheral tissue damage sustained with the CO2 laser and compare against standard monopolar cautery dissection during robotic microsurgical denervation of the spermatic cord (RMDSC).

METHODS: A cadaveric model was utilized to perform RMDSC on one spermatic cord using monopolar cautery and CO2 laser...
dissection on the contralateral spermatic cord. A flexible fiber-optic CO2 laser system (OmniGuide, Cambridge, MA, set at 14 watts) was utilized to perform RMDSC on one side, while contralateral dissection was performed with standard monopolar cautery (ERBE Inc., Atlanta, GA, set at 80 watts). Following completion of the procedures, corresponding histologic sections were obtained of several regions of the spermatic cord bilaterally and evaluated by a pathologist blinded to dissection technique. Macroscopically, the cord was assessed for collateral injury to surrounding vasculature or vasa deferentia.

RESULTS: Nine histologic sections were obtained bilaterally. Pathologic analysis demonstrated significantly decreased peripheral thermal injury sustained with the CO2 laser (mean 0.17 mm, range 0.15–0.25 mm) compared to monopolar cautery (0.72 mm [0.60–0.75 mm]) (p < 0.001). No injuries to spermatic vasculature or vasa deferentia were identified with either technique.

CONCLUSIONS: Cadaveric RMDSC using a CO2 laser results in significantly decreased collateral thermal injury compared to standard monopolar electrocautery. These initial findings suggest potential advantages of the CO2 laser over traditional monopolar cautery in cases requiring minimal collateral tissue damage.

Source of Funding: None

MP10-09 LASER ACTIVATED NANOPARTICLE ABLATION OF PROSTATE CANCER: A PILOT STUDY IN HUMANS
Joshua Stern*, Larchmont, NY, Elena Elena Sazykina, Mexico City, Mexico, Jon Schwartz, Houston, TX

INTRODUCTION AND OBJECTIVES: Focal ablation technologies are all challenged by the delicate balance between accurate targeting of a tumor bed and preservation of surrounding vital structures. Laser activated gold nanoshell (GNS) thermal ablation represents a new, minimally invasive emerging technology that offers precise, benign tissue sparing thermal ablation of prostate cancer.

METHODS: 150 nm diameter GNSs with a dielectric silica core and a 15nm thick gold shell were provided by Nanospectra Biosciences, Inc. (Houston, TX). Designed to optimize optical scattering and absorption properties, these particles can act as intense near infrared (NIR) absorbers that selectively accumulate within tumor neo-vasculature. A water-cooled optical fiber catheter terminated with a 1 cm-long isotropic diffuser was inserted trans-perineally once into each prostate hemisphere. The optical fiber was energized at 4.5 or 5.0 W for 3 or 4 minutes. Patients underwent a radical prostatectomy 3–4 days after the laser procedure. The resected prostatectomies were reviewed by pathology. Samples from 2 pts were submitted for Nuclear Activation Analysis (NAA) in order to quantify localized GNS concentration.

RESULTS: We are reporting on a safety and laser dosimetry study on 4 patients with localized prostate cancer. The aim was not to accurately ablate all known prostate cancer, as all of these patients subsequently underwent radical prostatectomy. Patients did not have US detected prostate lesions. Future study will follow a protocol of hemi-ablation and will focus on maximizing our laser targeting to a target lesion.

All 4 patients had no changes in serum electrolytes measured at various points over the course of 6 months following GNS infusion. No patient reported any systemic or adverse reaction to nanoshell infusion. H&E consistently shows areas of ablation with sharp demarcation from areas of viable tissue. Areas of unablated tissue represent zones where the laser did not pass. This study was not equipped to accurately target all areas of tumor and as such we are not surprised to see viable unablated tumor. In areas of laser ablation however, we do see very focal and precise tissue ablation. NAA data shows nanoshell accumulation increased nearly 5-fold in cancerous tissue as compared to benign prostate (20.5 μg/g and 4.5 μg/g respectively).

CONCLUSIONS: This pilot study provides evidence that systemically infused nanoshells preferentially accumulate in cancer tissue and that laser activation of these nanoshells can ablate Pca tissue successfully.

Source of Funding: None

MP10-10 DIAGNOSTIC EFFICACY OF CONTRAST-ENHANCED ULTRASOUND FOR SOLID RENAL TUMOR
Il Young Seo*, Tae Hoon Oh, Jae whan Lee, Ilsan, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Contrast-enhanced ultrasound (CEUS) is a recently introduced, promising technique in the evaluation of the kidney. The purpose of this study was to determine whether CEUS could improve the diagnostic confidence of solid renal masses.

METHODS: From January 2011 to December 2012, 51 patients underwent CEUS for evaluation of renal mass. CEUS images were retrospectively analyzed for angiomyolipoma (AML) cases (n = 9) and renal cell carcinoma (RCC) cases (n = 16). The tumor echogenicity, enhancement patterns, degree of enhancement at different phases and Dotlike enhancement were evaluated. The diagnostic efficacy of CEUS in differentiating the two diseases was compared.

RESULTS: On CEUS, the features of wash-out from hyper-enhancement or isoenhancement to hypoenhancement over time (observed in 11.1% of AMLs and 75.0% of RCCs; P < 0.05), diffuse heterogeneous enhancement (observed in 22.2% of AMLs and 81.3% of RCCs; P < 0.05), and an enhanced perilesional rim (observed in 22.2% of AMLs and 62.5% of RCCs; P < 0.05) achieved significant difference between RCCs and RAMLs. The wash-out (early or delayed) and heterogeneous enhancement or enhanced peritumoral rim were found to be characteristic patterns in RCC. The corresponding sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were 93.8% (15 of 16), 77.8% (7 of 9), 88.2% (15 of 17), 87.5% (7 of 8), and 88.0% (22 of 25), respectively.

CONCLUSIONS: Our results suggest that the CEUS features of wash-out, heterogeneous enhancement, and an enhanced peritumoral rim could have a potential diagnostic factor in evaluation of solid renal mass. The CEUS is feasible in differentiating RCC from AML.

Source of Funding: none

MP10-11 CONTEMPORARY UROLOGIC MINI-LAPAROSCOPY: INDICATIONS, TECHNIQUES AND SURGICAL OUTCOMES IN A MULTI-INSTITUTIONAL EUROPEAN COHORT
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INTRODUCTION AND OBJECTIVES: Mini-laparoscopy has been re-discovered over the last 3 years in urologic surgery, based on the rationale of a scarless surgery and thanks to the recent availability of a more reliable instrumentation. Aim of this study is to report a the first large series of contemporary mini-laparoscopy in urology.

METHODS: Cases of urologic mini-laparoscopy performed between 2009 and 2013 at 9 european institutions were retrospectively gathered. Each group performed a variety of procedures according to its own protocols, entry criteria, and techniques. Main demographic data, and surgical outcomes were analyzed. Postoperative complications were recorded using a standardized reporting system.

RESULTS: Overall, 190 patients (mean age 44.5; mean BMI 24.8; mean ASA 1.8; history of previous abdominal surgery: 16%) were included in the analysis. The most common procedure was pyeloplasty (n=103; 54%), but a variety of other extirpative procedures were performed, including adrenalectomies (37; 19.4%), radical prostatectomies (21; 11%), nephrectomies (13; 7%). The most common approach was transperitoneal (68%). A 10 mm scope was most commonly used, placed at level of the umbilicus. Most of the ports were 3 mm (67% of total). No intraoperative complications were recorded, and no conversions to open surgery. Overall, mean OR time was 132 min and mean EBL was 60 ml. Postoperative complications were recorded in 30% of cases, but only 1.5% being major (grade 3) ones.

CONCLUSIONS: This study provides a view of the recent evolution of urologic mini-laparoscopy in multiple European centers. A broad range of procedures can be safely and effectively performed with this newly re-discovered technique, given the current availability of purpose-built instrumentation. By duplicating the principles of standard laparoscopy, but potentially offering less surgical scar and trauma, mini-laparoscopy can be regarded a low-cost approach in the evolving field of minimally invasive urologic surgery.

Source of Funding: None

MP10-12 COMPARISON OF LAPAROSCOPIC AND PERCUTANEOUS APPROACHES FOR CRYOABLATION OF SMALL RENAL CORTICAL NEOPLASM

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INTRODUCTION AND OBJECTIVES: Renal cryoablation can be performed via laparoscopic or percutaneous approaches. We aim to determine any difference in tumor parameters, perioperative outcomes, and adverse events (AEs) in patients undergoing laparoscopic renal cryoablation (LRC) vs. percutaneous renal cryoablation (PRC).

METHODS: An IRB approved multi-institution tumor registry was developed to prospectively collect data on renal cryoablation patients from July 2010 to October 2012. Data on 117 patients from 7 centers was available. One patient underwent an open approach and is excluded from this analysis. Immediate and delayed postoperative AEs within 30 days of surgery were documented using Clavien Classification System.

RESULTS: A total of 121 tumors were treated in 116 patients (51 LRC and 65 PRC). Three patients had multiple unilateral lesions which were all treated via LRC. No significant difference noted for age, BMI, history of abdominal/renal surgery, solitary kidney, or preoperative GFR between the two groups. Mean ASA class was lower in the PRC group (2.48 vs. 2.61, p = 0.04). All patients in the LRC group had general anesthesia, compared to only 27 patients (42%) in the PRC group (38 local/sedation). Operative time and EBL was significantly less for PRC compared to LRC (104 min vs. 142 min and 21 ml vs. 77 ml, respectively). Mean tumor size and Nephrometry Score was not significantly different between the two groups. However, tumors in the PRC group were significantly more likely to be posterior in location. The mean length of stay and drop in post-op hematocrit was similar in the two groups. Sixteen patients (14%, 6 PRC vs. 10 LRC) experienced 22 AEs (8 PRC vs. 14 LRC). The incidence and severity of AEs was not significantly different between the LRC vs. PRC approach. On univariate analysis, only tumor size > 3 cm (p = 0.46) and number of cryoprobes ≥ 5 (p = 0.0008) were significant predictors of AEs. With multivariate analysis, only number of cryoprobes ≥ 5 was significant (p = 0.0101) No AEs were seen in patients with tumors < 2 cm.

CONCLUSIONS: Perioperative outcomes and tumor characteristics appear similar when either a laparoscopic or percutaneous approach to renal cryoablation is utilized. Tumors in a posterior location are more commonly treated with PRC due to difficulty in reaching these tumors via a transperitoneal laparoscopic approach. Interestingly, ASA class was lower in the PRC group, which is more frequently done without general anesthesia. The overall incidence of AEs is low, but larger tumors requiring more cryoprobes is a significant predictor of AEs regardless of approach used.

Source of Funding: none

MP10-13 THREE-DIMENSIONAL VERSUS STANDARD LAPAROSCOPY: COMPARATIVE ASSESSMENT USING A VALIDATED PROGRAM FOR LAPAROSCOPIC UROLOGICAL SKILLS

Riccardo Autorino*, Cleveland, OH, Antonio Cicione, Braga, Portugal, Alberto Breda, Barcelona, Spain, Marco De Sio, Napoli, Italy, Rocco Damiano, Catanzaro, Italy, Francesco Greco, Halle/Salle, Germany, Ferdinando Fusco, Napoli, Italy, Emanuel Carvalho-Dias, Paulo Mota, Cristitina Noguiera, Pedro Pinho, Braga, Portugal, Vincenzo Mirone, Napoli, Italy, Jens Rassweiler, Heilbronn, Germany, Estevao Lima, Braga, Portugal

INTRODUCTION AND OBJECTIVES: Three dimensional imaging (3D) has been introduced in the field of laparoscopic surgery with the potential of optimizing surgical performance. Aim of this study was to compare the last generation of 3D versus standard 2D laparoscopy.

METHODS: A prospective observational study was conducted during the 4th Minimally Invasive Urological Surgical Week Course held in Braga (Portugal) on April 2013. Course participants and faculty were asked to perform standardized tasks in the dry lab setting and they were randomly assigned into two study groups, one starting with 3D, the other with 2D laparoscopy. The five tasks of the European training in Basic Laparoscopic Urological Skills (E-BLUS) (peg transfer, cut a circle, suturing, single knot tying, clip and cut, needle guidance) were performed. Time to complete each of five task and errors made were recorded and analyzed using nonparametric tests and Spearman correlation coefficient (rs). An end-of-study questionnaire was also filled by each participant.
RESULTS: Ten laparoscopic experts and 23 laparoscopy-naïve residents were included. Overall, a significantly better performance was obtained using 3D in terms of time (1115 seconds, IQR 596–1469 vs 1299 seconds, IQR 620–1723; p = 0.027) and number of errors (2, IQR 1–3 vs 3, IQR 2–5; p = 0.001). However, the experts were faster only in the “peg transfer” task when using the 3D, whereas naïves improved their performance in 3 out of the 5 tasks. A linear correlation between level of experience and performance was found. 3D was perceived as “easier” by a third of the laparoscopy-naïve participants (p = 0.027). A higher benefit provided by the 3D was subjectively perceived for the “needle guidance” task. Small sample and dry lab setting represent the limitations of this study.

CONCLUSIONS: 3D imaging seems to facilitate surgical performance of urologic surgeons without laparoscopic background in the dry lab setting. The advantage provided by 3D for those with some degree of laparoscopic experience remains to be demonstrated. Moreover, further studies are needed to determine the actual advantage of 3D laparoscopy over standard 2D laparoscopy in the clinical setting.

Source of Funding: None

**MP10-14 COMPLETE HIFU IN LOCALIZED PROSTATE CANCER**

Christian Chauussy*, Regensburg, Germany, Derya Tilki, Stefan Thueroff, Muenchen, Germany

INTRODUCTION AND OBJECTIVES: High intensity focused ultrasound (HIFU) as definitive therapy for localized prostate cancer is combined with TURP to standardize prostatic volume for complete prostatic ablation with HIFU.

To evaluate efficacy and side effects three treatment strategies were analyzed: A) HIFU Monotherapy (without TURP), B) TURP and HIFU in one session and C) TURP one month before HIFU. Influence of neoadjuvant TURP on PSA levels, side effects and metastasis induction was evaluated.

METHODS: The prospective monocentric Harlaching HIFU Database (n>2.300, since 1996) was the primary data source (managed independently by Harlaching Krebshilfe e.V. cancer foundation). Only T1–2, N0, M0 patients with sufficient follow up were included: Group A) 1998–2000, group B) 2001–2004, group C) 2005–2010. None of the patients had previous long term PCA/PSA influencing therapy. All patients were treated completely with Ablatherm® (EDAP-Lyon-France). No patients with focal or partial HIFU treatments were included.

RESULTS: During a median follow up time of 5.5 years (range 0.5–15 years) a PSA Nadir < 0.1 ng/ml and a PSA velocity of < 0.05 ng/ml/year was observed.

Patients showed median PSA levels of < 0.3 ng/ml after median 5 years of follow up.

Side effects were moderate, infravesical stenosis was the most frequent one (24%) with the need for 2nd TURP.

CONCLUSIONS: TURP before HIFU resolves technical restrictions, expands indications, standardizes any prostate but does not resolve the problem of secondary TURP for fibro-stenotic tissue within the prostate.

PSA Nadir < 0.1 ng/ml, PSA velocity/year of 0.05, last median PSA levels after 5 years of 0.3 ng/ml showed a high oncological efficacy. Retreatment rate for recurrent PCa decreased to 15% within the last 5 years.

Source of Funding: Harlaching Krebshilfe e.V., Lingen foundation

**MP10-15 SUCCESS OF PERCUTANEOUS ABLATION FOR RENAL CELL CARCINOMA IS DEPENDENT ON TUMOR SIZE: A MULTI-INSTITUTIONAL STUDY**

Sara Best*, E. Jason Abel, Madison, WI, Ali Khalifeh, Cleveland, OH, Meghan Lubner, Sutchin Patel, Stephen Nakada, Madison, WI, Jihad Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Tumor diameter is a predictor of outcomes in renal cell carcinoma (RCC) after surgery but few studies have evaluated the impact of tumor size after percutaneous ablation. Success in prior ablation studies has been difficult to interpret since not all cases were biopsy-proven RCC.

The objective of this study was to evaluate the impact of tumor diameter on disease free survival in biopsy proven RCC patients treated with percutaneous ablation.

METHODS: With IRB approval, institutional databases identified all patients with organ-confined, biopsy proven RCC treated with primary percutaneous ablation from 2 institutions and comprehensive clinical and pathologic data was reviewed for each patient. Ablation failures were categorized as incomplete ablation (persistent enhancement on the initial post-ablation imaging study), local recurrence (new enhancement on a follow up imaging study or biopsy-proven RCC), or metastatic.

RESULTS: From 2003–11, 90 RCC patients were treated with percutaneous cryo-, radiofrequency, or microwave ablation and met inclusion criteria. Core biopsy revealed 66 clear cell, 18 papillary, 1 chromophobe and 5 unspecified renal carcinomas. 62 patients who developed metastases, there was a prior history of local recurrence (new enhancement on a follow up imaging study or biopsy-proven RCC). The mean patient age was 64 years (range 41–87) and mean tumor size was 2.6 cm (range 1.0–5.8 cm).

Following initial ablation, 81% of patients remained cancer-free with mean follow up of 31 mo ±21.9. Disease free survival improved to 90% after repeat ablation was performed in 9 patients. Of the 17 failures, 5 were incomplete ablations, 9 were local recurrences and 3 patients developed metastatic disease. In 2 of 3 patients who developed metastases, there was a prior history of RCC that was not treated with ablation. Patients with micrometastases in biopsies and tumors < 3 cm were more likely to remain disease-free after one or two ablation sessions (91 and 95% versus 64 and 82%, p = 0.0003 and
0.036). Tumor diameter was ≥3 cm in 12/17 (70.6%) patients who failed percutaneous ablation. Six of these patients underwent successful reablation and remain NED.

CONCLUSIONS: Percutaneous ablation provides excellent outcomes, particularly in patients with tumors <3 cm (95% disease free). Patients with tumors ≥3 cm should be counseled about the higher retreatment and failure rates.

Source of Funding: None

**MP10-16** DOES STRENGTH OF MRI SCANNER AND TIME BETWEEN BIOPSY AND EMRI SIGNIFICANTLY INFLUENCE THE ABILITY OF ENDORECTAL MAGNETIC RESONANCE IMAGING (EMRI) TO PREDICT EXTRACAPSULAR EXTENSION (ECE) AND SEMINAL VESICLE INVASION (SVI) IN PATIENTS WITH CLINICALLY LOCALIZED PROSTATIC CANCER?

Ziho Lee*, Shailen Sehgal, Reid Graves, Yu-Kai Su, Elton Llukani, Kelly Monahan, Alice Megill, David Lee, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: eMRI, due to its high spatial and contrast resolution, has been suggested as a promising imaging modality for the preoperative staging of clinically localized prostate cancer. Differences in the strength of MRI scanner, and post biopsy hemorrhage and inflammatory changes lasting up to 6–8 weeks, may have the potential to alter eMRI interpretations. Herein, we determine whether strength of MRI scanner, and time between biopsy and eMRI significantly influence eMRI interpretations.

METHODS: We retrospectively analyzed 237 patients with clinically localized prostate cancer who received eMRI prior to RARP at a single institution between January 2007 and December 2010. Indications for eMRI included all patients with clinical stage ≥T2b, preoperative PSA ≥10, and/or biopsy Gleason ≥7. eMRI was performed using a 1.5 or 3T MRI scanner based on scanner availability. All reports were read by staff radiologists with specialized training in abdominal imaging from our institution. eMRI interpretations were dichotomized into positive or negative for ECE and/or SVI, and compared with final histopathology. After grouping patients according to strength of MRI scanner (1.5T, n = 154 vs 3T, n = 83) and days between biopsy and eMRI (≤21d, n vs 21–56d vs >56d), two-tailed chi-square tests were used to determine significant differences (p<0.05).

RESULTS: The overall sensitivity, specificity, and accuracy for eMRI to predict ECE was 24/99 (24.2%), 127/138 (92.0%), and 151/237 (63.7%), respectively; and to predict SVI was 11/40 (27.5%), 193/197 (98.0%), 204/237 (86.1%), respectively. Strength of MRI scanner (1.5T vs 3T) did not significantly influence the sensitivity (p=0.122, p=0.416), specificity (p=0.925, p=0.125), and accuracy (p=0.868, p=0.315) to predict ECE or SVI, respectively. Days between biopsy and eMRI (<21d vs 21–56d vs >56d) did not significantly influence the sensitivity (p=0.700, p=0.394), specificity (p=0.328, p=0.511), and accuracy (p=0.069, 0.650) to predict ECE or SVI, respectively.

CONCLUSIONS: Strength of MRI scanner (1.5T vs 3T), and time between biopsy and eMRI (<21d vs 21–56d vs >56d) does not significantly influence the ability of eMRI to preoperatively detect ECE and SVI.

Source of Funding: None

**MP10-17** HISTOPATHOLOGICAL DIFFERENCES BETWEEN PROSTATE CANCER FOCI THAT ARE DETECTED AND MISSED USING MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING IN KOREAN PATIENTS

Jae Dong Chung*, Seung Hyun Ahn, Jong Kyou Kwon, Tae-Hyoung Kim, Soon Chul Myung, Young Tae Moon, Kyung Do Kim, In Ho Chang, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: We investigated whether multiparametric magnetic resonance imaging (MRI) is appropriate to localize prostate cancer foci in Korean patients.

METHODS: We enrolled 141 tumor foci in 115 prostate specimens from patients with prostate cancer who had undergone radical prostatectomy with pre-op 3 T multiparametric magnetic resonance imaging (mMRI) including T2-weighted imaging (T2WI), diffusion weighted imaging (DWI), and MR spectroscopy (MRS). We investigated the differences in the histopathologic findings between detected and undetected tumor foci on mMRI.

RESULTS: Mean tumor size was 1.9 cm and 31.9%, 48.9%, and 19.9% of the patients had Gleason scores of 6, 7, or ≥8, respectively. The detection rates of tumor foci were 54.6%, 57.4%, 55.3%, and 45.4% on mMRI, T2 WI, DWI, and MRS, respectively. In a multivariate analysis, tumor size ≥1.5 cm (odds ratio [OR], 3.1; 95% confidence interval [CI], 1.31-7.49), Gleason score >7 (4+3) (OR, 2.9; 95% CI, 1.05-8.05), and a malignant epithelium/stroma ratio of ≥60% (OR, 2.9; 95% CI, 1.14-7.20) were significant independent predictors of tumor detection on mMRI and DWI.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Multiparametric MRI Odd ratio (95% CI)</th>
<th>T2 MRI Odd ratio (95% CI)</th>
<th>DWI MRI Odd ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of lesions</td>
<td></td>
<td></td>
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<tr>
<td>Tumor size ≥1.5cm or greater</td>
<td>3.13 (1.31-7.49)</td>
<td>1.84 (0.78-4.31)</td>
<td>3.94 (1.01-13.55)</td>
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<td>Gleason score</td>
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<tr>
<td>6</td>
<td>1.01 (0.35-2.93)</td>
<td>0.97 (0.35-2.65)</td>
<td>1.14 (0.39-3.35)</td>
</tr>
<tr>
<td>7(4+3) or greater</td>
<td>2.91 (1.05-8.65)</td>
<td>2.49 (0.90-6.94)</td>
<td>4.03 (1.44-11.33)</td>
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<tr>
<td>Solid tumor growth pattern</td>
<td>0.48 (0.15-1.48)</td>
<td>0.64 (0.21-1.97)</td>
<td>0.65 (0.21-2.04)</td>
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<tr>
<td>High benign/malignant ratio</td>
<td>0.68 (0.28-1.67)</td>
<td>1.39 (0.57-3.42)</td>
<td>0.89 (0.36-2.20)</td>
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<tr>
<td>High malignant epithelium/stroma ratio</td>
<td>2.66 (1.14-7.20)</td>
<td>1.86 (0.74-4.39)</td>
<td>3.23 (1.27-8.20)</td>
</tr>
</tbody>
</table>

Source of Funding: None
CONCLUSIONS: The multiparametric MRI detection rate was not high and biases existed due to histopathological factors; therefore, MRI is questionable to play a role in selecting patients for active surveillance.

Source of Funding: none

MP10-18 INTRAOPERATIVE OPTICAL BIOPSY DURING ROBOTIC-ASSISTED RADICAL PROSTATECTOMY USING CONFOCAL LASER ENDOMICROSCOPY: INITIAL FEASIBILITY STUDY

Joseph Liao*, Daniel Bui, Jen-Jane Liu, Kathleen Mach, Stanford, CA, Theodore Harris, Palo Alto, CA, John Leppert, Stanford, CA

INTRODUCTION AND OBJECTIVES: Advances in intraoperative optical imaging technologies can potentially improve oncologic and functional outcomes of robotic-assisted radical prostatectomy (RAP). Confocal laser endomicroscopy (CLE) is an emerging technology that enables non-invasive optical biopsy of tissues of interest with dynamic visualization of tissue microarchitecture and cellular features. We report initial feasibility study of CLE during RARP.

METHODS: With IRB approval, seven patients scheduled for RARP were recruited. Probe-based CLE was performed with the Cellvizio® system (Mauna Kea Technologies, Paris France) using either a 0.85-mm (AQ-Flex 19) or 2.6-mm probe (GastroFlex UHD) inserted through the standard laparoscopic port. Intravenous fluorescein (10%) was used as the optical contrast agent. Standard robotic instruments were used to grasp and direct the probe for image acquisition. TilePro™ functionality (Intuitive Surgical, Sunnyvale) was used to integrate 3D-view of the operative field with confocal imaging. In selected patients, additional ex vivo imaging was performed on prostatectomy specimens following removal. Confocal video sequences were recorded for additional image processing after the procedure and compared with standard histopathological analysis.

RESULTS: In vivo confocal endomicroscopy was successfully completed in all 7 patients with 48 video sequences obtained. There were no intraoperative or postoperative adverse events related to image acquisition. Prostatic and periprostatic regions including capsule, neurovascular bundle, urethra, and bladder neck were imaged. Confocal imaging of the neurovascular bundle after nerve-sparing procedure revealed dynamic vascular flow and intact axonal fibers. Imaging of the bladder neck demonstrated normal urothelium. Ex vivo imaging of prostatic tissue slices demonstrated parenchymal glandular and stromal structures with correlation to standard H&E staining.

CONCLUSIONS: We report the initial clinical feasibility and safety of in vivo microscopy during robotic-assisted surgery. Pending further investigation, optical biopsy of prostatic and periprostatic tissues using CLE may be used for intraoperative surgical guidance to improve oncological and functional outcomes of RARP.

Source of Funding: NIH R01 CA160986

MP10-19 FOCAL THERAPY OF LOCALIZED RENAL CELL CARCINOMA. INTERSTITIAL LASER COAGULATION

Oleg Teodorovich, Stanislav Naryshkin*, Gennady Borisenko, Elena Rasschupkina, Alina Ivannikova, Andrey Ryazantsew, David Kochiev, Moscow, Russian Federation

INTRODUCTION AND OBJECTIVES: The last 10 years all over the world is searching for different focal techniques for renal cell carcinoma treatment. Our goal - to develop a method of Nd: YAG laser destruction of small renal masses.

METHODS: The interstitial laser coagulation (ILC) was performed using Nd: YAG laser (wavelength 1064 nm) surgical system «Lasurite» operating in the free running mode.

The laser radiation delivered through a 600μ bare fiber was used in patients with T1N0M0 renal cell carcinoma in cases where it was impossible to perform resection or patients refused surgery. Tumor size varied from 5 to 60 mm. In 3 patients the tumor was located in a single kidney.

The puncture and laparoscopic (1 patient) accesses were used. For puncture access the needles were positioned with stereotactic targeting by ultrasound or multidetector CT (MDCT) guidance.

The laser operated at the output power 16–24 W, 100 Hz repetition rate, exposure time 10–20 s. A single time laser exposure was used to coagulate only a small fraction of tissue which we called “elementary volume” of coagulation, while the required volume of coagulation was achieved by repetitive laser exposure.

During 2008–April 2013 ILC of small renal tumors was performed on 18 patients (13 men and 5 women). Before the ILC all patients underwent needle biopsy.

RESULTS: During ultrasound examination immediately after the exposure the coagulation zone was detected as hypechoic structure, while it looks as structure of low density with areas of destruction on MDCT. In 4 cases, in 3–5 months re-ILC was performed, which improved the results achieved the first procedure.

One year post procedure in 5 patients tumor was fully replaced by scar tissue (the maximum follow up period - 36 months. In the other 5 patients reduction in tumor size and reduced blood flow were detected. Then no tumor growth was found up to now. For one patient from this group after 14 months follow-up, nephrectomy was performed at her request. In the last seven cases, the observation time is too small.

In 2 patients with the largest centrally located tumors, where the total energy during the procedure was high (one of them had a tumor diameter of 60 mm), the postoperative period was complicated by hydronephrosis. In other patients complications were not observed.

CONCLUSIONS: ILC of localized kidney tumors by Nd: YAG laser operating in free running mode is quite safe and efficient and it can be used as an independent method of treatment when...
radical treatment is not feasible, or in combination with targeted therapy. The main problem is a precise navigation of puncture needles.

**Source of Funding:** “none”

**MP10-20  THE DIAGNOSTIC ACCURACY OF MULTI-DETECTOR COMPUTED TOMOGRAPHY WITH MULTI-PLANAR REFORMATTED IMAGING AND VIRTUAL CYSTOSCOPY IN THE EARLY DETECTION AND EVALUATION OF BLADDER CARCINOMA: COMPARISON WITH CONVENTIONAL CYSTOSCOPY**

Amr Abdel Hamid*, El Minia, Egypt

**INTRODUCTION AND OBJECTIVES:** Urinary bladder cancer is a frequently occurring malignancy that is distributed worldwide, with a higher prevalence in developed countries. Basically, urinary bladder cancer has multifocal manifestations with high rate of recurrence. Therefore, it requires reliable diagnostic techniques.

Our objective is to evaluate the diagnostic accuracy of multidetector computed tomography (MDCT) with multiplanar reformatted imaging and virtual cystoscopy (VC) in early detection and evaluation of bladder masses with comparison with conventional cystoscopic findings.

**METHODS:** This prospective study included 35 patients with suspected bladder cancer were studied by computed tomographic cystography (CTC) and virtual cystography (VC) in both the supine and prone positions after distending the bladder with air. The patient population was divided into three groups based on lesion size at conventional cystoscopy (CC). Results of the CT study were compared with those of CC. Main outcome measures: Sensitivity, specificity, positive, and negative predictive value was used to study the association between VC and CC as regarding lesion detection.

**RESULTS:** The size of the tumors varied from 2 mm to occupying more than three quarters of the bladder. Of the 71 lesions detected on CC, 47 lesions were positive in histopathology, 28 were < 4 mm (19 were positive and 9 were negative for neoplasia), and four of these were missed on VC, with one of 3 mm missed on CC and correctly located by VC. Thus, all lesions of > 4 mm were detected by VC and 24 of 28 < 4 mm. The locations of all were correctly described at VC when compared with CC. The overall sensitivity of VC vs. CC was 94.36%, specificity 71.42%, PPV was 97.1%, and NPV was 55.55%.

**CONCLUSIONS:** Cystoscopy remains the standard of reference for the evaluation of the urinary bladder, but MDCT is indicated for examination of patients on whom CC is contraindicated, difficult to perform, unsatisfactory in interpretation, and as an adjuvant tool in the evaluation of areas difficult to assess with CC.

**Source of Funding:** none

**MP10-21  WHITE LIGHT AND NARROW BAND IMAGE OF BLADDER UROTHELIAL CARCINOMA: COLOR COMPONENT ANALYSIS**

Yi-Chia Lin*, Chen-Kun Liaw, Te-Fu Tsai, Kuang-Yu Chou, Hung-En Chen, Thomas I.S. Hwang, Taipei, Taiwan

**INTRODUCTION AND OBJECTIVES:** Bladder urothelial carcinoma (UC) was traditionally detected and diagnosed with white light (WL) cystoscopy. However, the recurrence rate of the bladder UC was still high. Several novel optical technologies have been used to increase the detection of the tumors. Narrow band image (NBI) is an image enhancing technology to highlight the mucosa and submucosal vasculature. We analyze the color component of the bladder UC under WL and NBI.

**METHODS:** Fifteen patients with bladder urothelial carcinoma were recruited. Total 36 tumors were evaluated with WL image and NBI. Photoshop were used for histogram evaluation and the mean distribution of the color level. The color component analysis was performed with a self-made software. The red (R), green(G), blue(B) modes were analyzed. Grey scale, hue and saturation were also calculated.

**RESULTS:** The median age of the patients was 68 (58–84) years old. Median tumor number was 3 (1–7). Ten of the tumors were low-grade tumors and other 26 tumors were high-grade. There was 6 patients were categorized as Ta stage, 7 as T1 and 2 as T3. All of the tumors were urothelial carcinoma. To compare the normal tissue in WL and NBI, G, B and Grey modes were statistically significant different (p < 0.05). As for tumorous tissue in WL and NBI, G, B, grey and saturation mode were statistically different. When comparing normal and tumor tissue in the WL, no difference can be found in all the parameters. As for normal and tumorous tissue in NBI, only hue and saturation mode were significantly different.

**CONCLUSIONS:** The color components of WL and NBI were different especially at green, blue and grey components. No difference in the color component can be found between normal tissue and tumor in WL images. However, hue and saturation component were different between normal tissue and tumor in NBI. The component analysis may be used for future development for auto-detection of bladder tumors.

**Source of Funding:** None

**MP10-22  RADIATION EXPOSURE ASSOCIATED WITH DEDICATED RENAL MASS COMPUTER TOMOGRAPHY PROTOCOL: IMPACT OF PATIENT CHARACTERISTICS**

Matvey Tsivian, Michael Abern, Peter Qi, Durham, NC, John Yoo, Durham, NC, Paul Evans, Charles Kim, Michael Lipkin, Thomas Polasek, Michael Ferrandino*, Durham, NC

**INTRODUCTION AND OBJECTIVES:** Dual phase abdominopelvis computer tomography (CT) is currently the mainstay for diagnosis, characterization and surveillance of small renal masses. We correlated the radiation exposure from this imaging modality to patient characteristics.

**METHODS:** We retrospectively reviewed the records of 247 patients treated for a small renal mass (cT1a) between 2005–2011 at our institution, recorded demographic (age, race, gender, height and weight) and clinical (tumor size, mode of presentation) characteristics as well as the effective dose for dual phase abdominopelvis CT. Body mass index (BMI) was stratified as normal weight, overweight, obese and morbidly obese (≤ 25, 25.1–30, 30.1–35 and > 35.1, respectively). Effective dose was calculated through the dose length product multiplied by a factor coefficient (0.015). Effective doses in millisieverts (mSv) were correlated to patient characteristics.

**RESULTS:** In this cohort, median patient age was 61, median BMI 28.7 kg/m²; 72% were Caucasian and 56% were male. Median effective dose was 26.1 mSv (IQR 20.6–35.3). On univariable analyses, male gender, age, height and weight were positively associated with increased doses. When stratified by BMI, the median effective doses were 18.9, 25.2, 27.7 and 36.2 mSv for normal weight, overweight, obese and morbidly obese...
patients, respectively (p < 0.001). On multivariable analyses, BMI, age and male gender were significantly associated with increased effective dose (p < 0.001, p = 0.023 and p < 0.001, respectively). Compared to normal weight patients overweight, obese and morbidly obese patients' effective doses increased by 6.0, 9.1 and 18.5 mSv (all p < 0.001).

CONCLUSIONS: In this series the median effective dose for dual phase abdomen-pelvis CT was 26.1 mSv. Obesity was independently associated with markedly increased radiation exposure, with morbidly obese patients exposed to almost twice the amount of radiation compared to normal weight. These findings should be considered when assessing management strategies in patients with a renal mass as well as strategies to effectively reduce or limit medical ionizing radiation exposure.

Source of Funding: none

MP10-23 COMPARISON OF ONCOLOGIC OUTCOMES BETWEEN SUBJECTS UNDERGOING ON AND OFF CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY


INTRODUCTION AND OBJECTIVES: An off-clamp approach to laparoscopic partial nephrectomy is being adopted in an effort to avoid ischemia-reperfusion injury associated with clamping of the hilar vessels. We sought to evaluate the oncologic efficacy of the laparoscopic off-clamp technique in comparison to the on-clamp approach.

METHODS: Patients who underwent laparoscopic partial nephrectomy between 2007 and 2011 by either on-clamp or off-clamp techniques were retrospectively evaluated. Progression Free Survival (PFS) and Overall Survival (OS) were assessed using the Kaplan-Meier product-limit method. Survival curves were compared using the log-rank test.

RESULTS: The study population comprised 608 patients, of whom 408 underwent partial nephrectomy with clamping of hilar vessels and 200 who underwent the procedure unclamped. There was no significant difference in age (p < 0.18), BMI (p < 0.47), race (p < 0.10) between both groups. Tumors in the clamped cohort were larger than in the unclamped cohort (mean size 3.4 cm vs. 2.8 cm, respectively; p < 0.001). There was no significant difference in margin status between both groups. Median follow-up times in the clamped group and unclamped groups were 32.73 months (95% CI: 29.90, 36.38) and 27.01 months (95% CI: 23.75, 31.51), respectively. There were a total of 16 recurrences (13 in the clamped cohort and 3 in the off-clamp cohort). A total of 24 death were observed (20 in the clamped cohort, 4 in the off-clamp cohort). No significant difference in PFS survival was observed between clamped and unclamped subjects (p < 0.45). No significant difference in OS was appreciated between clamped and unclamped subjects (p < 0.2).

CONCLUSIONS: Incipient survival outcomes achieved with off-clamp laparoscopic partial nephrectomy are comparable to those with complete hilar control.

Source of Funding: None

MP10-24 IN VITRO COMPARISON OF A NOVEL FACILITATED ULTRASOUND TECHNOLOGY VERSUS STANDARD TECHNIQUE APPROACH FOR PERCUTANEOUS RENAL BIOPSY

Ashleigh Menhadji*, Vien Nguyen, Jane Cho, Ringo Chu, Kathyrn Osann, Philip Bucur, Puja Patel, Achim Lusch, Orange, CA, Elspeth McDougall, Vancouver, Canada, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Advances in the understanding of the biology and epidemiology of renal cortical neoplasms (RCN) have made pre-treatment biopsy increasingly appealing. We evaluated a facilitated ultrasound technology (FUT) in which the needle can be passed through the transducer probe. The FUT allows the needle to follow a virtual “dotted line” on the monitor to the target. We compared the FUT to standard percutaneous biopsy technique.

METHODS: Forty eight participants, including 10 undergraduates, 11 medical students, 12 residents, 6 fellows and 9 attendings were recruited. Participants performed ultrasound-guided biopsies on phantom ultrasound models using both the FUT and the standard (needle deployed percutaneously next to probe) biopsy technique in a randomized sequence. Phantom models consisted of pimento olives embedded in an opaque mold of Metamucil and Knox gelatin. Subjects were given up to ten attempts to
achieve 3 complete specimens (core sample including green-red-green) from the olives. Subjects rated each biopsy technique.

RESULTS: The mean time to obtain 3 complete biopsy specimens was significantly faster for FUT compared to the standard technique (140 seconds vs. 246 seconds, \( p = 0.0001 \)). The mean number of attempts needed to obtain 3 specimens was significantly less with the FUT compared to the standard technique (4.3 vs. 5.6 attempts), \( p = 0.0007 \). Subjects also reported the FUT was significantly easier to use compared to the standard technique \( p = 0.0005 \). No significant order effect (standard versus FUT first) was observed. Level of experience did not affect any of the metrics tested with either technique.

CONCLUSIONS: The FUT increased the efficiency and efficacy of percutaneous biopsy for users of all experience levels. FUT may allow urologists with limited percutaneous renal biopsy experience to perform the procedure reliably and easily. Clinical evaluation of this technology is actively in progress.

Source of Funding: Hitachi Aloka provided the ultrasound machine and ultrasound probe.

MP10-25 IN VITRO COMPARISON OF A STANDARD AND NOVEL ECHOCGENIC NEEDLE FOR ULTRASOUND-GUIDED PERCUTANEOUS RENAL BIOPSY

Ashleigh Menhadji, Vien Nguyen*, Jane Cho, Ringo Chu, Kathyn Osann, Philip Bucur, Puja Patel, Achim Lusch, Orange, CA, Elspeth McDougall, Vancouver, Canada, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Urologists are becoming increasingly aware of the importance of pre-treatment percutaneous renal biopsy of small renal cortical neoplasms. A barrier to the routine performance of ultrasound-guided percutaneous renal biopsy has been the technical challenges associated with the procedure. We evaluated a new modified needle which incorporates an echogenic needle tip, designed to improve the needle tip’s visibility under ultrasound. We evaluated and compared the ultrasonic imaging quality of the echogenic needle (EN) and a standard needle (SN).

METHODS: Forty-eight participants of varying levels of ultrasound experience were recruited to perform ultrasound-guided needle targeting using phantom models consisting of 2 cm water balloons (“cysts”) embedded in an opaque gel mold. Each participant was blinded to the type of needle being deployed and was asked to identify and aspirate the balloon using both needles under ultrasound guidance. Both needles were tested at three ultrasound-aiming angles, \( 0 \), \( 15 \), and \( 30 \) degrees). The quality of needle visibility under ultrasound imaging was assessed via a questionnaire, including needle preference and a visibility scale (Likert scale 1–10) at each aiming angle. Participants were stratified by level of ultrasound experience.

RESULTS: For each angle tested, the EN received higher visibility ratings. Mean visibility scores for the EN versus the SN were 6.44 vs. 5.52 at 0 degrees \( p = 0.001 \), 7.77 vs. 6.96 at 15 degrees \( p = 0.0004 \) and 8.33 vs. 7.54 at 30 degrees \( p = 0.0003 \). Participants reported significantly greater comfort using the EN needle compared to the SN \( p = 0.001 \). These results held true regardless of the sequence of needle tested first. Also there was a significant difference in visibility scores by angle, \( p = 0.0001 \), with larger angles \( 30 \geq 15 \geq 0 \) having larger scores. This difference between angles varied by user experience, with the biggest differences seen in those with the least experience, \( p = 0.03 \).

CONCLUSIONS: Use of the EN improved needle visibility and user comfort regardless of user level of experience, which may lead to its increased adoption during ultrasound-guided renal biopsy procedures.

Source of Funding: Hitachi Aloka provided use of ultrasound machine and probes and COOK medical provided the needles.

MP10-26 VIDEO ASSISTED DOCKING OF THE DA VINCI SURGICAL SYSTEM PATIENT CART

Saum Ghodoussipour*, Kristen Coffey, Tamim Khaddash, John Gaughan, Philadelphia, PA, Michael Louie, Irvine, CA, Phillip Mucksavage, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: As the indications for robotic surgery expand, docking the patient side cart in new or unusual positions could result in significant preparation times. Our aim was to determine if video camera assistance improves accuracy, timing and ease of set up during docking of the patient side cart.

METHODS: After IRB approval, 11 subjects (10 novices and 1 expert) were randomly assigned to drive the patient side cart of Table I: Data Measurements

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Without Video Assistance (Range)</th>
<th>Video Assistance (Range)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Up Time (seconds)</td>
<td>20.7 Â± 15.7 (14.7-62.3)</td>
<td>14.4 Â± 16.3 (14.0-60.3)</td>
<td>0.0194</td>
</tr>
<tr>
<td>Distance From Sweet Spot (cm)</td>
<td>1.80 Â± 1.54 (0.2-7.3)</td>
<td>0.47 Â± 0.42 (0.0-2.7)</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Distance From Side (cm)</td>
<td>3.45 Â± 2.57 (19.5)</td>
<td>2.52 Â± 2.18 (7.5)</td>
<td>0.0730</td>
</tr>
<tr>
<td>Distance From Front (cm)</td>
<td>7.23 Â± 6.15 (1.0-31.0)</td>
<td>3.38 Â± 2.21 (9.5)</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

P values determined by ANOVA Type 3 Test of Fixed Effects with each dependent variable measured against camera assistance.
the da Vinci surgical platform to a predetermined ideal location using video assistance (VA) or without video assistance (WVA) (Figure I, II). Subjects were tested on time, distances from ideal positioning, and overall subjective workload with the task.

**RESULTS:** One subject had prior experience driving the patient side cart and 5/11 (46%) had never seen the da Vinci robot before participating in the protocol. Distance from the “sweet spot” on the camera and front of the robot was significantly better with VA ($p < 0.0001$ for both measurements); however, VA took significantly longer to complete (average 3.7 seconds, $p = 0.0494$) (Table I). Overall, the robot was 4.3 times more likely to be centered with VA (95% CI 1.86-10.05, $p = 0.0007$) and subjective performance was better with VA ($p = 0.0272$) (Table II).

**CONCLUSIONS:** Our study showed VA improves the accuracy of positioning the patient side cart of the da Vinci Surgical Platform. This could aid trainees or experienced operators to help improve OR efficiency.

**Source of Funding:** none

### Table II: Subjective Workload Measurements

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Without Video Assistance (Range)</th>
<th>With Video Assistance (Range)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Demand</td>
<td>3.360 Â± 2.87 (2-12)</td>
<td>3.900 Â± 4.70 (0-12)</td>
<td>0.0937</td>
</tr>
<tr>
<td>Physical Demand</td>
<td>1.091 Â± 1.51 (0-4)</td>
<td>0.800 Â± 1.32 (0-4)</td>
<td>0.2924</td>
</tr>
<tr>
<td>Temporal Demand</td>
<td>4.364 Â± 4.18 (0-12)</td>
<td>3.680 Â± 4.50 (0-12)</td>
<td>0.1203</td>
</tr>
<tr>
<td>Performance</td>
<td>8.818 Â± 4.33 (2-15)</td>
<td>6.090 Â± 5.21 (0-14)</td>
<td>0.0272</td>
</tr>
<tr>
<td>Effort</td>
<td>4.727 Â± 4.43 (1-7)</td>
<td>4.600 Â± 5.61 (0-14)</td>
<td>0.3935</td>
</tr>
<tr>
<td>Frustration</td>
<td>4.181 Â± 3.57 (0-10)</td>
<td>3.950 Â± 3.00 (0-11)</td>
<td>0.4746</td>
</tr>
</tbody>
</table>

The NASA Task Load Index assesses subjective workload based on 6 scales with gradation ranging from 0 for “Very Low” and 20 for “Very High.” $P$ values were determined by Type 3 Test of Fixed Effects with workload measured against camera assistance.

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**V04 BPH & ROBOTICS: LOWER TRACT**

**V04-01 TREATMENT OF LARGE VOLUME BPH WITH “SANDWICH” TECHNIQUE: DIODE LASER VAPORIZATION COMBINED WITH BIPOLAR PLASMA KINETIC TRANSURETHRAL RESECTION**

Joao Padua Manzano*, Frederico Teixeira Barbosa, Gabriel Moulin Gouvea, Adalberto Andriolo Jr, Roberto Soler, Joaquim Francisco De Almeida Claro, Sao Paulo, Brazil

**INTRODUCTION AND OBJECTIVES:** With the increasing effectiveness of drug therapy, surgical treatment for BPH is increasingly delayed. Thus, more and more patients with larger prostates appear at the point of treatment, and, therefore, the new surgical treatment is required to meet this challenge. The association of endoscopic approach has become alternative procedure to open surgery for large prostate. In this video we demonstrate the efficacy and safety of “sandwich” technique with bipolar plasma kinetic (PK) transurethral resection of the prostate combined with 940 nm diode laser vaporization (VP) in management of large prostates (> 120 mL).

**METHODS:** Prospective data were collected from 39 consecutive patients with prostate larger than 120 mL undergoing “sandwich” laser VP and PK resection technique at our institution from January 2011 to November 2012. Perioperative data, surgery-related complications and safety assessments were documented. Comparative analysis between pre and postoperative data was conducted using paired Student’s t test. The same experienced surgeon performed all the surgeries.

**RESULTS:** The “sandwich” technique was successfully performed in all patients with no intraoperative complications. The mean ± SD prostate volume was 146.5 mL ± 31.1 (range 120–264 mL). Mean operative time, proportion of patients needing bladder irrigation and catheterization time was 121.5 ± 30.2 minutes (50–190 min), 46.1% (18 patients) and 33.7 ± 27.3 hours (7–120h), respectively. Mean applied laser energy was 419.4 ± 151.4 kJ. Hospitalization time was 26.9 ± 14.7 h (range 12–72 hours). Rate of rehospitalization in the first 30 days was 2.56% (1 patient), of retreatment was 2.56% and of emergency room visits was 7.69% (3 patients had urinary infection). Urethral stricture and bladder neck stricture developed in one patient each.
(2.5%). Temporary urinary incontinence occurred in 1 patient, none stress incontinence and urge-incontinence occurred. Five patients had early urinary retention (12.8%). Irritative symptoms are not important. No patient required blood transfusion or had TUR syndrome. Statistically significant improvements were noted in all key parameters postoperatively, after 3 months: Qmax (3.9±2.8 vs 15.0±4.9 mL/s; p < 0.0001), IPSS (28.7±4.5 vs 8.9±3.3; p < 0.0001) IPSS-QoL (5.3±0.7 vs 1.5±1.2; p < 0.0001), PVR (212.3±190.2 vs 13.9±17.6 mL; p < 0.0001) and PSA (4.9±2.4 vs 1.9±1.8 ng/mL; p < 0.0001).

CONCLUSIONS: The “sandwich” laser VP and PK resection technique for treatment of large benign prostatic hyperplasia is an effective and safe procedure and less invasive treatment option than open surgery. However, further studies are needed to confirm theses data.

Source of Funding: none

V04-02 THE USE OF THE EVOLVE™ 300 DUAL DIODE LASER FOR THE MINIMALLY INVASIVE TREATMENT OF BENIGN PROSTATIC ENLARGEMENT: TECHNIQUE AND PRELIMINARY RESULTS

Ioannis Kartalas Goumas*, Emanuele Itri, Francesco Dell’Aglio, Fabrizio Pozzoni, Lorenzo Innocenti, Gianpaolo Zanetti, Vimercate, Italy

INTRODUCTION AND OBJECTIVES: To describe the technique and present our preliminary experience in the treatment of benign prostatic enlargement with the Evolve™ Laser System Dual 300.

METHODS: The Evolve diode laser system operates in the dual wavelength of 980 nm and 1470 nm so the laser energy is absorbed by both water and hemoglobin. The laser delivers a maximum power of 150 W. Each wavelength produces a power that is modulated by the total power delivered by the system. We evaluated the technique of prostatic vaporization and vaporsection and recently introduced the enucleation of the prostate. The choice of the technique used depends on the size of the prostate gland: vaporization is performed for glands of less than 40 grams, vaporsection for glands between 40–60 gr, enucleation for glands more than 60 gr. In all cases a 600 nm ‘end-firing’ single use fiber is used. Power settings are defined as follows: 110–130 W for vaporization and vaporsection, using 110 W near the prostatic apex, and only 110 W for prostatic enucleation. After enucleation a morcellator is used in order to remove the prostatic lobes from the bladder.

RESULTS: A total of 16 patients were treated: 8 with vaporization, 4 with vaporsection and 4 with enucleation. There were no intra- or postoperative complications. The transfusion rate was 0%. Retreatment rate was 6% and was observed only on the vaporization group. Acute urinary retention was temporarily observed in 25% of patients, (3 cases post-vaporization and 1 case post-vaporsection).

CONCLUSIONS: We demonstrated the feasibility and safety of the procedure. The Dual diode laser system offers a high simultaneous absorption in water and haemoglobin and combines a high tissue ablative properties with an excellent haemostasis. Concerns have been expressed earlier about the depth of the diode laser coagulation effect. Our preliminary experience indicates that when vaporization is performed using high power settings, there is a higher risk of acute urinary retention or retreatment rate. Enucleation offers the possibility to treat larger prostates using lower power settings with excellent results. Still it is important to emphasize that these are results relative to the learning curve. A greater number of patients and a longer follow-up are needed to reach definitive conclusions.

Source of Funding: none

V04-03 HOLEP: POINT OF TECHNIQUE, TIPS AND TRICKS

Ivano Vavassori*, Yasser Hussein, Giovanni Gliberto, Luca Cau, Francesca Ceresoli, Treviglio, Italy

INTRODUCTION AND OBJECTIVES: Holium Laser Enucleation of the Prostate (Holep) is an endoscopic procedure that was first introduced in 1998 by Peter Gilling. Numerous studies have since confirmed that the technique is efficacious with durable outcomes, and many investigators now consider Holep the new gold standard.

METHODS: The surgeon searches for the capsular plane by making two incisions at the 5 and 7 o’clock positions beginning at the bladder neck and ending at the verumontanum.

It is important at this stage to proceed one layer at a time while opening the bladder neck until the circular fibers of the neck are exposed. The surgeon should then proceed from the neck to the verum. The surgeon should take care at this stage to push laterally with the whole instrument in the apex region detaching the adenoma from the capsule with the laser turned off thus creating an apical incision along the cleavage plane causing subsequent detachment of the lateral lobe.

The transversal incision in front of the verum makes it possible to detect the central cleavage plane at this stage of the procedure consists in lifting and pushing the median lobe distally detaching it along the groove plane until the circular fibers of the neck are visualized.

Another useful suggestion concerns the central incision which, at the level of the neck, must be extended laterally from the 12 to 1 o’clock positions and from the 12 to 11 o’clock positions, separating the lateral lobes and creating a space in which the instrument can be inserted. The lobe should be pushed in a posterior direction in order to uncover the cleavage plane which is opened by the laser’s pulsating action.

At this point the surgeon proceeds to enucleate the lateral lobe beginning at the cleavage plane at the 6 o’clock position until detachment is attained at the level of the neck.

RESULTS: During the hemostasis, the surgeon uses warm irrigation fluid, inspects for only small arteries and defocuses the laser to 2–3 mm. Coagulation should be carried out using a high energy for 2–3 seconds.

After engaging the piece of the prostate and bringing it to the center of the bladder, morcellation should be carried out using warm irrigation liquid with the distended bladder.

CONCLUSIONS: To conclude, during the learning curve we suggest that surgeons attempt medium adenomas weighing 30–40 grams while they are under strict tutoring; prostate volume is an independent variable for expert surgeons; the time necessary for morcellation does not depend on the surgeon’s experience but on the composition of the adenomatous tissue; always search for and detect the cleavage plane and the sphincter, surgeons need tutoring during the learning curve.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: The morbidity of transurethral resection of the prostate necessitates constant attempts of modifications of standard equipment and technique.

Recently the TURIS-plasma vaporization (TURIS-V) technique uses Olympus UES-40 Surgymaster generator and ‘button’ vapor-resection electrode, was introduced in clinical practice. We evaluated prostate Transurethral Enucleation with Button electrode for the treatment of BOO due to BPH.

METHODS: Between July 2011 to March 2012, the same urologist, performed 18 Prostate Transurethral Enucleation with Button electrode using Gyrus PK system.

The average age was 69 yrs.

The investigation protocol included DRE, PSA, IPSS, QoL, uroflowmetry with PVR and TRUS assessing prostate volume. Before surgery we performed Hbg dosage and we repeat it the day after. Catheter duration, hospital stay and eventual transfusions were also valued.

The surgical technique consists on enucleation of the two adenoma’s lobes starting from an apical incision at 5 and 7 using Button electrode. Exploiting its ability to vaporise and cut, it is easy to find out a bloodless cleavage of the adenoma that with a gentle traction from the apex to the bladder neck permits to create an adenoma’s pedicle, easily attacked with a traditional loop, making the demilune tissue rapid and safety.

The weight of tissue resected was 35 gr.

RESULTS: The mean operating time was 30 minutes, the median catheterization time was 36 hours and the mean hospital stay was 48 hours. Mean bleeding loss were 0,8 gr/dl. No death during peri or post-operative follow-up.

CONCLUSIONS: Prostate Transurethral Enucleation with Button electrode (TUEP-B) using Gyrus PK system is a rapid and safety technique.

Source of Funding: none
V04-07 TRANSURETHRAL RESECTION OF THE PROSTATE WITHOUT POSTOPERATIVE IRRIGATION

Mohammed Lezrek*, Khalil Bazine, Adil Slimani Alaoui, Hicham Tazi, Mohammed Alami, Meknes, Morocco

INTRODUCTION AND OBJECTIVES: We present a video of our experience with transurethral resection of the prostate, with ideal hemostasis and possibly without postoperative irrigation.

METHODS: 33 consecutive patients were operated by one surgeon, recruited without selection through his consulting room. The patients had a mean age of 59 years, and presented with benign hyperplasia of the prostate unresponsive to medical treatment, with or without urinary retention. The average prostate size was 40 to 150 g.

Operative technique: Under spinal anesthesia and lithotomy position, an injection of 10 ml of 2% lidocaine adrenaline solution is performed, in each para-prostatic space via a supra-pubic route. Then a monopolar transurethral resection of the prostate is performed with a slow progression of the cutting loop, throughout the entire procedure. At the end of the resection, the entire surface of resection was systematically coagulated with a barrel-shaped coagulating electrode. Patients were hydrated intravenously, with the help of intra venous 20 mg of furosemide, if needed, in order to have a good diuresis immediately when the 3-way catheter is inserted. If the urine is clear or pink, postoperative irrigation is not installed.

RESULTS: The average time of the procedure was 70 min. The intraoperative bleeding was minimal, and no complications were noted. Postoperative irrigation was performed only in 4 patients. For the other 29 patients, no irrigation was needed in the theater room or after. No patient presented late hemorrhage or clotting. The mean hemoglobin loss was 1,25 g/dl. The catheter was removed after a mean 56 hours. The patients were reviewed at one month and no complications were reported, especially late hemorrhage.

CONCLUSIONS: Postoperative bleeding is not a normal result of TURP. Hemostasis almost perfect is possible. Most of the times, a single postoperative drainage, without irrigation, can be enough. We think that the injection of adrenaline in para-prostatic space seems to provide a better homeostasis and a secure TURP. Only a comparative study, with or without adrenaline, can tell.

Source of Funding: None

V04-08 ROBOTIC SUPRAPUBIC PROSTATECTOMY: AN INTRAVESICAL APPROACH

Marc Bjurlin*, Arielle Miller, Suzannah Sorin, Benjamin Brucker, Michael Stifelman, New York, NY

INTRODUCTION AND OBJECTIVES: Compared to endoscopic transurethral resection of prostate open prostatectomy allows for more complete removal and lower retreatment rates. Proposed disadvantages of the open approach include the need for an abdominal incision, longer hospitalization and recovery. We believe that mimicking the open suprapubic prostatectomy with minimally invasive robotic technology afford the surgeon the advantages of open prostatectomy without the potential disadvantages. As the first step in testing this notion, we present our surgical technique for suprapubic prostatectomy, an intravesical approach.

METHODS: Using the daVinci Si robot, with port placement similar to a robotic radical prostatectomy, a suprapubic prostatectomy in preformed and described. The steps needed to achieve enucleation of prostatic adenoma are systematically presented. We present potential advantages of the intravesical approach and results of our series.

RESULTS: The critical steps of the robotic suprapubic prostatectomy are illustrated and described in our video. The surgeon first drops that bladder from the anterior abdominal wall. The bladder neck is then opened in a horizontal fashion. The bladder mucosa is circumscribed at the bladder neck, allowing for the development of a plain between the adenoma, bladder mucosa and prostatic capsule. The enucleation is carried out from the bladder neck to the apex. The prostatic adenoma is removed with little blood loss and excellent visualization though out. Two figure-of-eight sutures are placed achieving excellent hemostatis. A running v-lock suture is used to recreate the trigone. The bladder is then closed using another v-lock suture. This technique has been used in 5 patients, the results of which are shown in Table 1.

CONCLUSIONS: The video presents our technique for managing benign prostatic hypertrophy causing lower urinary tract symptoms when traditionally an open approach would have been performed. In our early experience the steps of this technique mimics those of the open approach with improved visualization ease of reconstruction than an open approach.

Source of Funding: None

V04-09 ROBOTIC ASSISTED LAPAROSCOPIC PARTIAL CYSTECTOMY WITH CYSTOSCOPIC GUIDANCE FOR URACHAL CARCINOMA

Jacob Khurgin*, Ronak Gor, Justin Harmon, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Urachal carcinoma is a rare malignancy, representing less than 1% of all bladder cancers. The understanding of this disease has evolved greatly since its first description by Hue and Jacquin in 1863. Contemporary literature supports surgery as the mainstay of disease management: the goal is en bloc resection of the bladder dome, urachus, posterior rectus fascia and peritoneum with negative margins and pelvic lymphadenectomy. A minimally invasive approach to urachal carcinoma is first reported in 2006, with laparoscopic excision described by Milhoua et al and Wadhwa et al. The first robotic partial cystectomy for this disease is described in 2007 by Rabah et al. Cystoscopic assistance is mentioned by several
INTRODUCTION AND OBJECTIVES: Although transurethral resection of the prostate (TURP) accounts for greater than 90% of surgery performed for BPH, indications such as large prostatic volume and concurrent bulky bladder stone burden are important indications for simple prostatectomy. Combination cystolithotomy and simple prostatectomy is most commonly addressed using a suprapubic transvesical approach, popularized by Freyer in 1900. While effective, transfusion rates for this approach range from 0–36%, with the largest series of 1800 patients describing a rate of 12%. This video describes the first case in our institution’s series of robotic simple prostatectomy, and illustrates the transvesical approach in a case of innumerable bladder stones.

METHODS: L.S. is a 67 year-old Cape Verdean man with a long history of bladder stones on maximal medical therapy. He is a status post cystolithotomy with EHL in 2006 and 2008. His preoperative AUA-SI score was 20 with a bother score of 4. Pelvic CT demonstrated innumerable bladder stones and a large median lobe of the prostate.

Surgical technique

Our video demonstrates our technique for robotic-assisted laparoscopic cystolithotomy and transvesical simple prostatectomy. Pneumoperitoneum was established with a veress needle. Ports were placed similarly to as in robotic radical prostatectomy. A large vertical midline bladder incision was made, and all stones were placed into a 10 mm Endo-catch bag. We obtained transvesical exposure of the bladder neck and placed a 0-silk retracting stitch into the adenoma. We then enucleated the adenoma using a combination of sharp and blunt dissection and removed it en bloc using a separate 10 mm Endo-catch bag. The prostatic urethral stump was reaproximated with the posterior bladder neck with a single 2-0 vicryl stitch to encourage remucosalization and for additional hemostatic compression. The bladder was closed in two layers.

RESULTS: Total operative time was 150 minutes. Estimated blood loss was 50 cc. No continuous bladder irrigation was required postoperatively. 85 grams of bladder stones and 27 grams of prostatic adenoma were removed. Hospital stay duration was 2 days, and Foley catheter duration was 7 days. The patient’s one month post-operative AUA-SI score was 2 with a bother score of 1.

CONCLUSIONS: The robotic assisted laparoscopic approach to transvesical cystolithotomy and simple prostatectomy is feasible and may offer the advantages of superior visualization and hemostasis compared to the traditional open approach. This video abstract represents the first in our series of robotic simple prostatectomy at our institution.

Source of Funding: None
**V04-12** THULIUM LASER ENUCLEATION AS CONSERVATIVE RESECTION OF PROSTATIC URETHRA UROTHELIAL CANCER NEAR SPHINCTER

Shih-Che Tseng*, Wei-Ting Kuo, Jentai Lin, Kaohsiung, Taiwan

**INTRODUCTION AND OBJECTIVES:** Urothelial carcinoma over prostatic urethra involving apex is rare. We presented a case who was not suitable for radical surgery. Conservative resection was made with Thulium laser enucleation and stress incontinence was transient.

**METHODS:** An 88 y/o man was diagnosed to have urothelial carcinoma in UB and had received nine TUR surgeries during 5 years. Recurrence developed over prostatic urethra about 3 months before and was managed by Greenlight laser vaporization. He then completed BCG instillation for six but followup scopy revealed tumors over left prostate apex. Thulium laser radical enucleation of the whole left prostate lobe was done. Prostate stromal invasion by the tumor was noted during the procedure.

**RESULTS:** Stress incontinence last for about 1 month after the surgery. Then he had the full control of urination. As prostatic stromal invasion was noted pelvic radiation (55.8 Gy) without systemic chemotherapy was done. CT scan did not show evidence of lymph node metastasis until 12 month after that surgery. Small recurrence in UB was noted twice in 24 months after that surgery. He remained good in function as hematuria seldom occurred.

**CONCLUSIONS:** Using laser as conservative resection for urethral tumor may have the least adverse effect on continence. Enucleation may be better than vaporization ablation when stromal invasion exists.

**Source of Funding:** None

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**V05-01** APPLICATION OF SINGLE NEEDLE RUNNING SUTURE BY TWO HANDS IN LAPAROSCOPIC RADICAL PROSTATECTOMY

Ma Lulin*, Zhang Shudong, Qiu Min, Beijing, China, People's Republic of

**INTRODUCTION AND OBJECTIVES:** Urethrovesical anastomosis is a difficult problem during the laparoscopic radical prostatectomy. Traditional continuous suture or interrupted suture has a long learning curve, and influences urinary continence and wound healing. Based on more than 500 cases of laparoscopic radical prostatectomy, we summarize an effective and easy method named the single needle running suture by two hands.

**METHODS:** Using a 2-0 monocryl (5/8 arc) with a hem-o-lok to suture from the location of 5 or 7 o'clock with continuous suture. Suture to the left when available right hand needle holder, and stitch to the right when the available left hand to hold the needle holder. Sutured to the location of 1 o'clock, and used the left hand needle clamping to tighten the suture line. Then lift the tail in the location of 3 o'clock, and knotted suture after cut hem-o-lok. The suture was complete.

**RESULTS:** Almost no urine leakage with this method after suturing. The catheter can be removed after 1 week, and patient can be early recovery of urinary continence.

**CONCLUSIONS:** The method of single needle running suture by two hands improved success rate of anastomosis, and reduced the postoperative urinary leakage and urethral stricture rate. It also can shorten the operative time and the learning curve of vesicourethral anastomosis. Beginners can quickly grasp the method, so it has high clinical application value.

**Source of Funding:** none

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**V05-02** IATROGENIC DIRECTRECTAL INJURY: AN UNUSUAL COMPLICATION DURING SUPRAPUBIC CYSTOSTOMY INSERTION AND ITS LAPAROSCOPIC MANAGEMENT

Theodoros Tokas*, Ali Serdar GÖZEN, Rakesh Rajmohan, Bernardo Aguilar-Davidov, Jens Rassweiler, Heilbronn, Germany

**INTRODUCTION AND OBJECTIVES:** Suprapubic cystostomy (SPC) is commonly used instead of indwelling urethral catheterization, as indicated, in many pathological conditions. Bowel injury can be a serious complication with the small intestine affected in the majority of cases. It is of utmost importance to recognize it immediately, since primary repair represents the best therapeutic option. We present a case of an accidental rectal injury by a suprapubic catheter misplacement, in a 76 year old demented patient with prostatic hyperplasia and chronic urinary retention.

**METHODS:** Cystography was done after reintroducing a urethral catheter, which showed an intact bladder outline with SPC outside the bladder. After injecting contrast through the SPC, it filled the rectal lumen without signs of extravasation. A primary repair of the rectum, under general anesthesia, was performed using our described five port laparoscopic extraperitoneal
approach, as in our extraperitoneal laparoscopic radical prostatectomy technique. A cautious dissection, initially around the SPC and then downwards, following the catheter towards the rectum, was performed. Two stay sutures were placed on the rectal wall, after an adequate dissection, and the catheter was removed. The rectum was then closed in 3 layers, with interrupted 3/0 vicryl sutures followed by a running 3/0 V-loc suture, and tested for the absence of leakage. Finally, a drain was left in place and a rectal tube was placed.

RESULTS: The patient was kept on intensive care unit for 2 days. The postoperative course was uneventful apart from mild pyrexia during the first two days. Parenteral antibiotics were administered for 7 days and total parenteral nutrition for 5 days. The drain and rectal tube were removed on 3rd and 5th postoperative day respectively. The patient was discharged after 10 days.

CONCLUSIONS: The above method, in experienced hands, can be an effective primary treatment option for such rare but devastating complications. The case and management is unique as, to our knowledge, no similar cases have been presented.

Source of Funding: None

V05-03 PELVIC LYMPH NODE DISSECTION IN LAPAROSCOPIC RADICAL CYSTECTOMY - THREE-YEAR RESULTS
Wing Hang Au*, Chi-fai Kan, Ho-yin Ngai, Lap-yin Ho, Steve Wai-hee Chan, Kowloon, Hong Kong

INTRODUCTION AND OBJECTIVES: We report the three-year results of pelvic lymph node dissection in laparoscopic radical cystectomy in our centre.

METHODS: Laparoscopic pelvic lymph node dissection was performed according to the template proposed by Roth et al (2010) in patients with bladder cancer undergoing laparoscopic radical cystectomy in our centre since May 2010. Patient demographic data, operative data, pathology finding and post-op complications were recorded in a prospective database.

RESULTS: Twenty-four patients (17 male and 7 female; mean age 67 years, range 43 to 84 years) received laparoscopic pelvic lymph node dissection from May 2010 to Apr 2013. On average an additional 2 hours required for the procedure. Mean total number of lymph nodes retrieved was 26.6 (9 to 51). 3 and 5 patients turned out to have N1 and N2 disease respectively and the rest of the patients have N0 disease. One patient was readmitted for serous discharge from drain wound which resolved with conservative treatment.

CONCLUSIONS: Laparoscopic pelvic lymph node dissection using the proposed template yielded an adequate number of lymph node for N-staging in patient undergone laparoscopic radical cystectomy.

Source of Funding: none

V05-05 LAPAROSCOPIC CLOSURE OF FAILED MITROFANOFF CATHETERISABLE STOMA - IS IT FEASIBLE
Manickam Ramalingam*, Kallappan Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

INTRODUCTION AND OBJECTIVES: Augmentation cystoplasty with continent catheterisable channel based on Mitrofanoff principle is performed for neurogenic bladder. Intervention may be needed in case of complications like obstruction or leakage. We report the laparoscopic approach for closure of Mitrofanoff continent catheterisable conduit to control the persistent leak of urine from stoma.

METHODS: A 51 yr old male diabetic presented with nocturnal enuresis and voiding symptoms. Urodynamic study revealed low compliant overactive bladder. After failed trial of anticholinergics and non compliance with clean intermittent catheterisation (CIC), he underwent laparoscopy assisted ileocystoplasty with Mitrofanoff continent catheterisable conduit (Casale modification). Post operatively he was doing (CIC) through the channel for about a year. However the patient had significant leak through the stoma in between CIC. This was causing distress to the extent that he developed suicidal tendencies. Urodynamic evaluation revealed reduced overactivity and improved compliance and stomal leak was present even at a detrusor pressure of 25 cm H2O. Under general anesthesia, with the patient in supine position, pneumo peritoneum was created and 3 ports were placed. The intraperitoneal adhesions were released and the catheterisable conduit was completely delineated. The stoma was disconnected from the skin by a circumstomal incision and dissected till the bladder end of the conduit. The mesentery of the
conduit was ligated and divided with ultrasonic shears. The conduit was pushed into the peritoneal cavity. The rectus sheath was closed. The bladder end of the conduit was cut flush with bladder and closed with 2-0 polyglyactin suture. The excised specimen was removed through the 10 mm port. Tube drain was placed and port sites were closed after achieving hemostasis.

RESULTS: The operative duration was 140 minutes and blood loss was negligible. Post operatively, patient was discharged on third day after drain removal. Cystogram was done after 21 days to confirm integrity of the bladder and urethra and then urethral catheter was removed. Since then he is able to comfortably drain his bladder by CIC 3-4 times daily for the past 12 months.

CONCLUSIONS: Laparoscopic closure of Continent catheterisable conduit is an effective, safe and precise technique to manage stomal leak, in selected patients in whom alternative urinary drainage channel (urethra) is available.

Source of Funding: None

V05-06  LAPAROSCOPIC URETEROCYSTOPLASTY WITH FASHIONING OF URETER.
Manickam Ramalingam*, Kallappan Senthil, Anandan Murugesan, Mizar Ganapathy Pai, Coimbatore, India

INTRODUCTION AND OBJECTIVES: Augmentation Cystoplasty is usually done with ileum. Urothelium lined ureter is preferred for augmentation when suitable (non functioning kidney with dilated ureter). We present the video of Completely Laparoscopic Ureterocystoplasty in a child.

METHODS: A 11 yrs old boy who had PUV fulguration at one year, presented now with urge incontinence and Azotemia (Se.Cr1.8). Left Kidney was moderately hydronephrotic due to stricture at VUJ and Right Kidney had gross hydronephrosis with thinned out cortex He was evaluated and found to have poorly compliant overactive bladder. Trial of anticholinergics was unsuccessful and hence he was planned for augmentation cystoplasty. Under GA, with patient in supine position, pneumo peritoneum was created and 4 ports were inserted. Left ureteric reimplantation was done for left VUJ obstruction. After right nephrectomy, the dilated ureter was detubularised, refashioned to fit over the small capacity bladder and sutured to the vertical cystotomy.

RESULTS: The operative time was 360 min. Blood loss was 150 ml. Patient was tube free by 3 weeks. He is presently on CIC and his creatininine is 1.2 mg. Compliance improved post operatively.

CONCLUSIONS: Completely Laparoscopic Ureterocystoplasty is safe effective and preferred modality of management of poorly compliant overactive bladder (valve bladder) in selected patients.

Source of Funding: None

V05-07  LAPAROSCOPIC EXCISION OF A BLADDER CARCINOID TUMOR
Abraham Kurien*, Nagarajan Palaniappan, Ranjit Vijayan, Ashish Verma, Chennai, India

INTRODUCTION AND OBJECTIVES: The occurrence of primary carcinoid of urinary bladder is extremely rare with less than 20 previously reported cases in the literature as per our knowledge. To our knowledge this is the first time a bladder carcinoid tumour is excised completely using laparoscopic techniques.

METHODS: A 48 year old lady presented with complaints of giddiness on passing urine since last two months. Physical examination was normal. Patient had no relevant past medical or family history. On screening ultrasound a bladder mass was seen at the base of the bladder. CT Scan confirmed an enhancing mass lesion in the bladder base. To rule out a bladder pheochromocytoma, 24 hr urinary VMA, metanephrines and normetanephrines were done and were all found to be within normal limits. MIBG scan was also negative. A cystoscopy done revealed a 1.3 cm sessile sub mucosal mass in the midline 2 cms above the trigone. During the procedure it was noticed that the BP increased from 100/60 mm of Hg to 190/100 mm of Hg on bladder distraction. Endocrinology opinion was sought and decision was taken to excise the mass completely laparoscopically after two weeks of phenoxybenzamine.

RESULTS: Cystoscopically using Collings knife the bladder was incised around the bladder mass keeping a 1 cm margin after placing bilateral ureteric catheters. Then, transperitoneally, through standard 3 ports with camera port at the umbilicus and with patient in trendelenburg position the peritoneal reflection between bladder and uterus was incised and the bladder was dissected off the uterus and vagina. Through a posterior cystotomy the tumour was approached and the tumour was completely excised. The cystotomy was closed intracorporeally with 2-O vicryl sutures in single layer. The operative time was 176 minutes. Estimated blood loss was 50 ml. Patient did not require any analgesics after 2nd post operative day. The ureteric catheters were removed the next day and a tube drain placed was removed after two days. The urethral catheter was removed on the 6th day and patient was discharged. There were no complications.

CONCLUSIONS: Laparoscopic excision of a bladder carcinoid tumour is feasible and safe with no significant morbidity.

Source of Funding: None

V05-08  ROBOTIC-ASSISTED INGUINAL LYMPHADENECTOMY FOR URETHRAL CARCINOMA
Thomas Frye*, Alex Gorbonos, Springfield, IL

INTRODUCTION AND OBJECTIVES: A 69 year old female with history of distal invasive urethral squamous cell carcinoma treated with distal urethrectomy was found to have an enlarged left inguinal node during surveillance 17 months after the operation. Positron emission tomography (PET)/computed tomography (CT) showed a 1.5 cm lymph node (LN), which displayed increased activity on PET. Biopsy of this lesion revealed poorly differentiated squamous cell carcinoma. This video describes our technique for a robotic-assisted inguinal lymphadenectomy, runtime 6 minutes 30 seconds.

METHODS: The patient was placed on the split leg table. A 2 cm incision was made down to fascia lata in the mid-thigh 18 cm inferior to the inguinal ligament. Blunt dissection was used to create this plane above fascia lata. A Hassan-type 10 mm trocar was placed through the 2 cm incision and insufflation to 15 mm Hg was initiated. Two robotic ports were placed under direct vision 8 cm on both sides of the camera port. A 10 mm assistant port was also placed in between the camera and the lateral robotic ports. The DaVinci Si robot was docked, and fenestrated bipolar grasper and monopolar scissors were used throughout the case as dissecting instruments. The saphenous vein was identified and followed to its insertion into the femoral vein. The split and roll technique was used to remove lymphatic tissue around vessels. Weck and metallic clips were used for vascular and lymphatic control. The boundary of the lymph node dissection was the
inguinal ligament superiorly, adductor longus muscle medially, and sartorius muscle laterally. Lymph nodes from above and below fascia lata were sent separately as superficial and deep lymph node packets, respectively. Adequate hemostasis was ensured and a 15 Fr Blake drain was placed through a robotic port site.

RESULTS: The robotic console time was 3.5 hours with minimal blood loss. There were no intraoperative complications. Post-operatively, she developed minimal lower extremity lymphedema managed with compression stockings and neuropathy managed effectively with gabapentin. She was discharged home on post-op day 2. The drain was removed in the clinic on POD 13. Final pathology revealed 1 out 10 LNs positive for metastatic squamous cell carcinoma.

CONCLUSIONS: Robotic-assisted inguinal lymphadenectomy can be performed safely for treatment of distal urethral carcinoma while utilizing the same technical principles as the standard open surgical approach. The minimally invasive approach may lead to fewer post-operative complications, particularly related to wound healing, while maintaining good oncologic outcomes.

Source of Funding: none

V05-09 ROBOTIC RADICAL PROSTATECTOMY FOLLOWING SLEEVE GASTRECTOMY WITH CONCOMITANT ABDOMINOPLASTY CASE REPORT

René Sotelo*, Juan Castro, Ruben Contreras, Oswaldo Carmona, Javier Manrique, Robert De Andrade, Golina Fernandez, Roberto Garza, Roberto Cisneros, Caracas, Venezuela, Mihir Desai, Los Angeles, CA

INTRODUCTION AND OBJECTIVES: Robotic surgery may be difficult in patients with morbid obesity. Even patients undergoing rapid weight loss present challenges due to an often large and redundant pannus. We present a novel approach of concomitant robotic radical prostatectomy following and abdominoplasty in a morbidly obese patient with prostate cancer.

METHODS: A 53 years old male with a BMI of 55.16 kg/m2 (grade III obesity) presented with a PSA of 4 ng/ml and Gleason 6 (3+3) adenocarcinoma of the prostate without evidence of metastatic disease. First, a laparoscopic partial gastrectomy was performed resulting in a weight loss of 26 kg in 8 weeks (BMI 45.7 kg/m2). Second, we performed robotic-assisted laparoscopic prostatectomy (RALP) and concomitant abdominoplasty described by Regnault. The excessive skin and subcutaneous tissues was excised using “fleur de lis” technique, resulting in an inverted “T” shape scar. Subsequently, robotic access and subsequent prostatectomy was performed through the exposed abdominal fascia devoid of overlying integument. Lastly, the port sites were closed and the skin flaps re-approximated thereby completing the abdominoplasty. We left 2 subcutaneous drains without placing any intra-abdominal drain.

RESULTS: The procedure was technically successful without need for conversion to open surgery. Total operative time was 270 min (180 minutes for the abdominoplasty and 90 minutes for the robotic prostatectomy). Estimated blood loss was 1000 cc (abdominoplasty 900 cc, prostatectomy 100 cc). The skin excised from the abdominal wall weighed 24 kg. The hospital stay was 4 days, and Foley catheter was removed on the 12th postoperative day. Final pathology confirmed adenocarcinoma Gleason score 6 (3+3) with negative surgical margins. At 1 month follow-up the patient reported mild urinary incontinence (1 pad/day) and SHIM score of 15 with PDE5-inhibitors (baseline SHIM 23).

CONCLUSIONS: Combined abdominoplasty and robotic radical prostatectomy offers an attractive option for surgical treatment in morbidly obese individuals with prostate cancer. This principle may be extended to various conditions in obese patients that require surgical treatment.

Source of Funding: None

V05-10 ROBOTIC ASSISTED LAPAROSCOPIC REPAIR OF IATROGENIC BLADDER INJURY

Ahmet Gudeloglu*, Jamin Brahmbhatt, Sijo Parekattil, Winter Haven, FL

INTRODUCTION AND OBJECTIVES: Robotic assisted laparoscopic hysterectomy is a common procedure. Iatrogenic bladder repair is a potential complication. This video illustrates robotic assisted laparoscopic repair of an iatrogenic bladder injury.

METHODS: 37-year-old female that had recently undergone robotic assisted laparoscopic hysterectomy. On post-op day 3, she had intractable abdominal pain and distension accompanied by acute serum creatinine elevation. CT cystogram confirmed an iatrogenic intra-peritoneal bladder injury. Intra-op cystoscopy confirmed a perforation of the bladder dome. No extravasation of contrast was seen on bilateral retrograde pyelogram. Two-layer bladder repair was then performed utilizing a robotic assisted laparoscopic technique through the previous robotic port sites.

RESULTS: The robotic portion of the procedure took approximately 30 minutes. Serum creatinine was normal post-op. The patient was discharged on post-op day 2. Foley catheter was removed after no leak was seen on cystogram 1-week post-op. At 6 month f/u patient is without complaints.

CONCLUSIONS: This video demonstrates the ability to repair iatrogenic bladder injuries in the early post-operative period after robotic assisted laparoscopic hysterectomy using previous port sites in a minimally invasive manner.

Source of Funding: None

V05-11 ROBOTIC POST-CHEMOTHERAPY RETROPERITONEAL LYMPH NODE DISSECTION WITH ASSOCIATED DUPLICATED INFERIOR VENA CAVA

Christopher Keel*, Erik Castle, Benjamin Woodson, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Robotic Retroperitoneal Lymphnode Dissection (RPLND) is an emerging option for those undergoing both primary and post-chemotherapy treatment. While open RPLND has traditionally been the standard of care, as surgeons become more accomplished utilizing robotic assistance, so to has this procedure evolved.

The post-chemotherapy patient usually presents a specific challenge due to the dense desmoplastic fibrosis associated with chemotherapy.

In this video we present particularly unique case in a patient with duplicated inferior vena cava, and demonstrate an interesting and safe means of RPLND utilizing robotic assistance in the post-chemotherapy setting.

METHODS: A robotic approach was utilized to perform a bilateral template dissection of the retroperitoneum sparing the right sympathetic chain and superior hypogastric plexus. Estimated blood loss was 150 cc.
RESULTS: Final Pathology yielded an 8 cm mature teratoma. No Embryonal Carcinoma was seen in zero of 31 lymph nodes.

CONCLUSIONS: Robotic RPLND in the post-chemotherapy is a safe and feasible alternative to open RPLND with reduced morbidity. Further studies are needed to validate the oncologic efficacy of the approach against the standard open approach.

Source of Funding: none

V05-12 ROBOTIC BLADDER BOARI FLAP RECONSTRUCTION FOR REPLACEMENT OF DISTAL URETER

Mathew Oommen, Janet Colli, Ashley Bowen, Kush Patel, Philip Dorsey*, Andrew Fridjian, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Replacement of the lower ureter is needed for indications such as ureteral strictures of different etiologies and select cases of lower ureteral tumors.

METHODS: We describe and analyze our innovative 5-PANG (5 Part percutaneous Access Needle With Glidewire) -version-2 system for miniPCNL, antegrade ureterorenoscopy and conventional PCNL.

RESULTS: We performed TUEB-RT in 16 patients with the HK. 15 patients were solely operated with the HK, in 1 patient the procedure was finished using conventional TUR-BT. Mean resection time per lesion was 27 minutes (range 15–35 minutes). No major complications (>Clavien II) nor a significant drop in hemoglobin (>1 g/dl) was observed. Postoperative irrigation was stopped on the day of surgery in all patients. Pathology revealed 4 benign results, 3 Cis, 7 pTa, 2 pT1 and 1 pT2a tumors. Even in cases of accidental obturator stimulation handling was safely possible in all patients with a low risk of perforation.

CONCLUSIONS: TUEB-RT was feasible and reproducible in all cases. The technique is a promising attempt to implement oncological principles of tumor resection into endourological treatment of bladder tumors. A prospective randomized multcentre study to evaluate the applicability as well as the functional and oncological outcome was initiated in September 2012.

Source of Funding: None

V06-02 “5-PANG SYSTEM”-VERSION 2: A MULTIJUTILITY SYSTEM FOR PERCUTANEOUS RENAL ACCESS

Ashish Rawandale*, Lokesh Patni, Preeti Patil, Dhule, India

INTRODUCTION AND OBJECTIVES: We describe and analyze our innovative 5-PANG (5 Part percutaneous Access Needle With Glidewire) -version-2 system for miniPCNL, antegrade ureterorenoscopy and conventional PCNL.

METHODS: The 5-PANG-version 2 system (fig 1); designed, fabricated, patented by our institute, consists of 11 parts allowing puncture, initial tract dilatation, 12 Fr miniPCNL/antegrade ureterorenoscopy or conventional PCNL. Puncture is performed with the first/inner 2 parts. Part 1 is removed and a glide wire is inserted into the pelvicalyceal system. Parts 3,4 & 5 are telescoped over part 2. Part 2,3&4 removed. A flexible or rigid ureterorenoscope (4.5 Fr) can then be passed through part 5 and miniPCNL completed. The option of introducing a safety wire exists at this stage. For conventional PCNL; a specially designed dilator rod can be used to continue telescopic dilatation to required sheath.
size (retaining part 5). 73 successive “5-PANG PCNLs” were prospectively evaluated for advantages, disadvantages, safety, efficacy.

RESULTS: 5-PANG system reduces exchange of dilators thus making the tract establishment fast. Low radiation, conversion to conventional method and transfusion rate (due to continuous tract tamponade) were observed. Extrarenal wire kinking/slippage were not seen. It facilitated PCNLs in previously operated kidneys. No failure, limitations, early or late complications related to the system, were observed.

CONCLUSIONS: 5-PANG (version 2) is a versatile PCNL system. It makes initial tract dilatation easy, safe and cheap. It prevents extrarenal wire kinking and slippage, straightens curved puncture tracts, avoids extravasation of contrast, decreases procedure and radiation time. It is fluoroscopy/ultrasound compatible and reusable. Can be used for mini and conventional PCNLs.

Source of Funding: NONE

V06-03 A PERITONEAL WALL ANCHOR TECHNIQUE USING A NEW DEVICE FOR LAPAROSCOPY-ASSISTED CATHETER PLACEMENT IN PERITONEAL DIALYSIS
Yoshiyuki Miyaji*, Keita Hirata, Hiroyasu Takasaki, Seiitsu Kin, Aya Takahara, Kazuhiko Fukumoto, Mikako Kaifu, Tomohiro Fujii, Yoshimasa Jo, Teruhiko Yokoyama, Atsushi Nagai, Kurashiki, Japan

Table 1.

<table>
<thead>
<tr>
<th>PATIENT DATA</th>
<th>5-PANG SYSTEM</th>
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<td>Renal units</td>
<td>73</td>
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<tr>
<td>Mean age in years</td>
<td>35.55 (2-65)</td>
</tr>
<tr>
<td>Sex - M: F</td>
<td>19:1</td>
</tr>
<tr>
<td>History of previous renal surgeries</td>
<td>18 (24.65%)</td>
</tr>
<tr>
<td>Time: Rod placement to sheath placement (sec)</td>
<td>50.14 (26.2-453)</td>
</tr>
<tr>
<td>Radiation: Puncture to Rod placement (sec)</td>
<td>23.13 (15-300)</td>
</tr>
<tr>
<td>Radiation: Rod placement to sheath placement (sec)</td>
<td>2.27 (1.3-30)</td>
</tr>
</tbody>
</table>

Calyx punctured
- Upper: 8 (10.95 %)
- Middle: 13 (17.80 %)
- Lower: 52 (71.23 %)

Antegrade flexible URS
- 12 Fr Miniperc: 7 (9.8 %)

Conventional PCNL tract size
- 20Fr: 5 (6.84 %)
- 23Fr: 8 (10.95 %)
- 24Fr: 39 (53.24 %)
- 26Fr: 7 (9.58 %)
- 28Fr: 2 (2.73 %)

Visual clarity
- Good: 62 (84.93 %)
- Tolerable: 8 (10.95 %)
- Poor: 3 (4.16 %)

Intraop complications
- Minor: 2 (2.73 %)
- Major: 3 (4.19 %)

Transfusion (patients): 1 (1.36 %)
Conversion to conventional method: 0
Post operative complications: 0

INTRODUCTION AND OBJECTIVES: Preparation and maintenance of favorable peritoneal access are important for improvement of the therapeutic outcome of peritoneal dialysis (PD). Catheter malposition in PD is a complication that causes difficulty in infusion and drainage of dialysate and markedly influences continuation of PD. In 2003, Fukazawa et al. described the peritoneal wall anchor technique (PWAT) for prevention of catheter malposition, in which the catheter is fixed to the abdominal wall with nylon thread inserted through the abdominal wall to shorten the mobile region of the catheter in the abdominal cavity.

Presented here is a new technique for single port laparoscopy-assisted PD (LAPD) catheter placement with PWAT with using a Loop Fixture II (Create Medic Co.), which is used for abdominal and gastric wall fixation in percutaneous endoscopic gastrostomy.

METHODS: Operative technique: A small incision is made in the upper abdomen for preparation of a camera port. A region without adhesion is selected for safe catheter placement in the low abdominal rectus muscle and created an abdominal tract. PD catheter is advanced with laparoscopic guidance to an appropriate region in the pelvic floor. A site for PWAT is identified at several centimeters below the catheter insertion site. Two needles of the Loop Fixture II are inserted so as to position the catheter between the both needles. The thread holding loop is formed below the needle for thread insertion, and a nylon thread is passed through the loop. The loop is accommodated in the needle by pushing the release button, through which the nylon thread is held at the needle tip. Withdrawing the device from the body, the thread is guided out of the body via the site for puncture with each of the 2 needles while slinging the catheter. A subcutaneous tunnel is prepared on the fascia for the proximal end of the catheter.

RESULTS: We successfully performed single port LAPD catheter placement with a simplified process for slinging the catheter over the abdominal wall by using a new device. PWAT with one hand using Loop Fixture II was accomplished easily in a short operative time. None of the patients had post-op catheter malposition.

CONCLUSIONS: Simple and reliable slinging of a PD catheter is possible with only a single port using the Loop Fixture II, gastric wall fixation device.

Source of Funding: None

V06-04 URETERIC AND BLADDER ENDOSCOPIC SUTURING IN NEPHROURETERECTOMY WITH ENDOSCOPIC URETERAL DETACHMENT: INITIAL EXPERIENCE
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

INTRODUCTION AND OBJECTIVES: For percutaneous endopyeloplasty, we perform endoscopic sutures using a needle
METHODS: we present a case of 70-years-old woman, with a transitional cell carcinoma of the left renal pelvis and upper calyxes. Diagnosed by ultrasound and CT-scan for gross hematuria, retrograde flexible ureteroscopy and biopsy confirmed the carcinoma.

Operative technique:

The left nephroureterectomy is performed with “pluck” transurethral detachment of the intramural ureter. Under general anaesthesia, the patient is placed in the lithotomy position. An Amplatz dilator and sheath of 26-F is placed in the bladder via urethra. Cystoscopy is performed using a 24 F nephroscope. The ureteral orifice is closed using a figure of eight suture using a 3.5-mm needle holder through the nephroscope and a 13-mm needle suture. After a good bladder washing, the ureteral orifice is detached using the resectoscope. The bladder wound is sutured with a 5.0 nylon mosquito needle suture. After a good bladder washing, the ureteral orifice is closed using a figure of eight suture using a 5.0 nylon needle holder through the nephroscope and a conventional suture. With the same technique, we evaluate the feasibility of bladder suturing. We present a video of our initial experience of endoscopic sealing by suturing of the ureteral orifice before the intramural ureter is detached in the first part of nephroureterectomy; and then the bladder is sutured.

RESULTS: the endoscopic suturing of the ureteral orifice and then, the bladder suturing was successfully completed in the first try. The Foley catheter was removed in the third postoperative day. No peri-operative complication was noted.

CONCLUSIONS: the endoscopic sealing of the ureteral orifice, before detachment in the first part of nephroureterectomy, and the endoscopic suture of the bladder wound are feasible. It is just an initial experience that suggests the feasibility of the endoscopic bladder suture using a needle holder through the nephroscope and a conventional suture. This bladder suture might be used for transvesical Notes or in case of bladder rupture.

Source of Funding: None
V06-07 FOCAL SALVAGE CRYOSURGERY FOR PROSTATE CANCER IN A POST RADIATION THERAPY PATIENT: TECHNIQUE

Aaron Katz*, Ajayram Ullal, Anne Darves-Bornoz, Maureen Regan, Scott Quarrier, Mineola, NY

INTRODUCTION AND OBJECTIVES: Salvage cryosurgery is a recognized option for patients that fail primary radiation therapy for prostate cancer. Studies reporting long term follow-up for primary and salvage focal cryosurgery are now reaching the literature. We present the surgical technique utilized in our center for focal salvage cryosurgery.

METHODS: We present a salvage right focal cryosurgery performed in an ambulatory setting. The patient had a history of prostate cancer treated by radiation therapy. Radiation failure was detected by elevated PSA (10). Post radiation treatment biopsy confirmed Gleason 7 (4 + 3) low volume disease confined to the right prostate. The Galil cryotherapy surgical system (Galil Medical, Inc., Arden Hills, MN) was used.

RESULTS: Right focal salvage cryosurgery of the prostate was performed with no complications. The blood loss was minimal. Patient left the ambulatory facility post op day # 0. A foley catheter was placed at the end of the procedure and was draining clear urine. Continuous bladder irrigation was performed for 1 hour post-op. The foley catheter was removed on post-op day 4.

CONCLUSIONS: Focal salvage cryosurgery is a viable option that should be considered for select patients. Oncologic control can be obtained from an ambulatory procedure with a minimal complication profile. More studies looking at focal treatment in the radiation failure patient must be conducted.

Source of Funding: None

V06-08 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR CLINICAL STAGE I TESTIS CANCER

Gautam Jayram*, Mark Ball, Trinity Bivalacqua, Mohamad Allaf, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Retroperitoneal Lymph Node Dissection is a therapeutic and prognostic treatment option in the management of Stage I NSGCT. We now describe our technique and outcomes for robotic RPLND for clinical stage I testis cancer.

METHODS: Patients are given a limited mechanical bowel prep prior to surgery. Updated cross-sectional imaging is obtained the week of surgery to confirm no new anatomical changes. Patients are positioned in full flank position with the tumor side up. Robotic port positioning is similar to robotic renal surgery with 2 robotic ports and 2 12-mm assist ports. A 4th arm can be utilized in obese or very muscular patients.

RESULTS: See Table

CONCLUSIONS: Early experience with robotic RPLND for clinical stage I disease suggests safety and feasibility. Adequate nodal yield appears to reflect good access to all major anatomic landing zones. Larger experiences with longer follow-up are necessary to evaluate oncologic outcomes.

Source of Funding: none

V06-09 FEASIBILITY OF INTERNAL ORGAN RETRACTOR SYSTEM FOR UROLOGIC LAPAROENDOSCOPIC SINGLE-SITE SURGERY: INITIAL EXPERIENCES IN 17 PATIENTS

Wonho Jung*, Seol Ho Choo, Seong Soo Jeon, Hyung Keun Park, Deok Hyun Han, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Laparoscopic single-site surgery (LESS) is a developing technique in minimally invasive surgery. Many urologic surgeries are performed by LESS. However, LESS is not a popular method yet because of its technical difficulties. One of major obstacles in LESS is the accomplishing optimal retraction of adjacent organs, because the number of working instrument is limited and the working space is small between instruments. Although many retraction methods have been published, there are not ideal retractors yet. Herein we introduce our experience with the Internal Organ Retractor (IOR, Aesculap AG, Tuttlingen, Germany) and its feasibility.

METHODS: IOR is an internally anchored retracting device. It is composed of atraumatic clip and silicone ring with anchoring needle (Figure 1). It is introduced into the abdomen through 12-mm port using the clip applier and applied directly to the structure that is to be retracted. The anchoring needle is grasped with a needle holder and anchored to the abdominal wall (Figure 2). During renal and adrenal surgeries, the IOR was used to retract liver in right side and spleen and pancreas in left side. It was also used for retraction of descending and sigmoid colon during nephroureterectomy. A total of 17 patients who underwent LESS using IOR between December 2012 and May 2013 were identified. 8 nephrectomies, 6 adrenalectomies, 1 pyeloplasty and 2 nephroureterectomies were performed. Complications related to IOR and Application/removal times of IOR were measured.

RESULTS: We accomplished adequate retraction in all cases. IOR helped to maintain a consistent operating field throughout the surgery. Mean application and removal time for each IOR

| Cases | 11 |
| Mean Age | 29.6 |
| Mean LN Yield | 33.8 |
| pN0 | 91% |
| Mean LOS | 11 days |
| Mean EBL | 50 cc |
| Mean OR time | 230 min |
| Clavien > 2 complications | 0 |
| Mean follow-up | 4 months |
were 108.3±10.9 seconds and 85.8±10.9 seconds. Average 2.1 set of IOR was used (range: 1–4) and mean total application and removal time were 222.9±45.1 seconds and 121.1±23.2 seconds in a single operation. There were no perioperative complications associated with IOR.

CONCLUSIONS: IOR provided satisfactory retraction during LESS and its application/removal was very simple and easy. IOR reduced necessity of additional laparoscopic ports for retraction. We believe that it could be an attractive retraction method during LESS and possibly even in multiport laparoscopic surgeries.

Source of Funding: none

V06-10 SINGLE PORT LAPAROSCOPIC DONOR NEPHRECTOMY: FIRST CASE REPORT IN THAILAND
Wisoot Kongchsreonsombat*, Bangkok, Thailand

INTRODUCTION AND OBJECTIVES: To report the first case of single port donor nephrectomy in Thailand.

METHODS: A 48-year-old healthy Thai man would like to donate his kidney to his son. His son was 18-year-old suffer from Ig A nephropathy and end up with ESRD. The CTA shows single renal artery and vein both kidney. So we selected the lt. side for harvesting. His blood chemistry; BUN/Cr 13/0.9.

The donor was in Flank’s position under GA. And we used the seven-centimeter gel port then one ten and two centimeters port were placed pneumoperitoneum was made with CO2 by 15 mmHg limited pressure.

RESULTS: The operative time take for 3 hours. The estimated blood loss was 50 mL and no blood transfusion was required. after the operation he need only 3 mg of morphine. Then donor could discharge home safely without any complication. His son after received the kidney the urine come out very well and the serum creatinine was 1.2 mg/dl at the second day after operation.

CONCLUSIONS: The single port donor nephrectomy is feasible and safe in experience team. The pain and surgical scar is less than open or conventional laparoscopic. But the operative time is longer than the other technique.

Source of Funding: none

V06-11 ROBOTIC-ASSISTED LAPAROSCOPIC TRANS-ABDOMINAL VASOVASOSTOMY
Dinesh Samarasekera*, Riccardo Autorino, Christopher Starks, Edmund S Sabanegh, Jihad H Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Microsurgical vasectomy reversal can be technically challenging. Recently, robotic-assisted vasovasostomy has been performed by surgeons via a scrotal incision. Robotic assistance has been shown to provide the microsurgeon with improved visualization, elimination of tremor, and decreased fatigue. Early results have been comparable to the standard microsurgical vasovasostomy. We present a unique case of a transabdominal robotic-assisted laparoscopic vasovasostomy in the accompanying video.

METHODS: A 34 year old male under went a transabdominal vasectomy at the time of a diagnostic laparoscopy for the evaluation of inguinal hernias. He presented post vasectomy with chronic bilateral orchalgia, which was unresponsive to analgesia. The patient had been evaluated by the chronic pain service, and had no resolution of his symptoms. He was diagnosed with post-vasectomy pain syndrome, and referred for a vasectomy reversal. Additionally, he has three children with his current partner, however the couple was now interested in additional children. His BMI was 27.67 kg/m2 and his past surgical history included the diagnostic laparoscopy/vasectomy, and a laparoscopic cholecystectomy. A urinalysis was negative. All options were presented to the patient, and decision was made to proceed with a robotic-assisted laparoscopic vasovasostomy. The patient was placed in the lithotomy position, in steep trendelenberg. Port placement was similar to that of a radical prostatectomy, in a W-configuration. The robot was docked between the patient’s legs in a standard fashion. The surgical clips on each vas were removed, and the vasovasostomy was performed with 9-0 monofilament suture, after patency had been documented.

RESULTS: Operative time was 300 minutes, and estimated blood loss was 50 cc. There were no intraoperative complications. The patient was discharged home the same day. Semen analysis 6 months post-procedure revealed normal volume and concentration, but 99% immotility. Anti-sperm antibody testing was positive, and the patient is being treated with steroid therapy. Additionally, he has had complete resolution of his post vasectomy pain syndrome.

CONCLUSIONS: Transabdominal vasovasostomy is technically feasible. This represents a unique case, as most vasectomies are not done in a transabdominal fashion. However, this demonstrates the ability to perform complex reconstructive procedures robotically. Advantages include elimination of tremor, excellent visualization, and precise dissection and suturing with robotic micro-instruments.

Source of Funding: none

V06-12 ROBOT-ASSISTED LAPAROSCOPIC DIVERTICULECTOMY USING INTRAOPERATIVE CYSTOSCOPY FOR RECURRENT BLADDER CANCER
Andrew Harbin*, Nathan Rojek, Mohan Verghese, Jonathan Hwang, Washington, DC

ABSTRACT WITHDRAWN
INTRODUCTION AND OBJECTIVES: 65,000 new patients were diagnosed with renal cell carcinoma (RCC) in the United States in 2011. The incidence of RCC increased by 3% per year from 1975–1995. Three to four percent of these patients will present with bilateral renal masses (BRM). Our objective was to assess timing of contralateral resection and assess renal function, and also to review the intermediate term oncologic and functional outcomes after the surgical management of bilateral renal masses.

METHODS: After obtaining Institutional Review Board approval, the Tulane renal surgery database (n=890 patients) was queried for patients presenting with bilateral enhancing renal masses (n=36 renal units), we performed a retrospective chart review evaluating oncologic and functional outcomes over this 56 month period, specifically with respect to local recurrence and metastatic disease. We also reviewed changes in estimated GFR for patients during this time interval.

RESULTS: Of the 18 patients (average age: 63.7 years) comprising 36 renal units, 28 kidneys harbored malignancy (77.8%). The average pathologic tumor size was 3.4 cm. The 36 kidneys were treated as follows: 25 robotic partial nephrectomy, 8 lap nephrectomy, 3 lap cryo ablations, 1 open nephrectomy, and one presented with bilateral enhancing renal masses. Oncologic outcomes appeared durable based on these results, combined with the ability to avoid dialysis and its associated morbidity and mortality by offering durable based on these results, combined with the ability to avoid dialysis and its associated morbidity and mortality by offering nephron sparing surgery whenever clinically possible, especially in T1a lesions, in which properly selected patients should be offered nephron sparing treatment. Oncologic outcomes appeared durable based on these results, combined with the ability to avoid dialysis and its associated morbidity and mortality by offering nephron sparing treatment.

CONCLUSIONS: Our data continues to support robotic partial nephrectomy as a means of treating renal cell carcinoma (RCC), especially in T1a lesions, in which properly selected patients should be offered nephron sparing treatment. Oncologic outcomes appeared durable based on these results, combined with the ability to avoid dialysis and its associated morbidity and mortality by offering nephron sparing treatment.

Source of Funding: Departmental
CONCLUSIONS: In the retroperitoneal laparoscopy for parapelvic cyst, some techniques should be keep in mind: (1) The relationship between cyst and peripheral vessels and collective systems should be decided preoperatively. (2) Be careful to avoid injure renal pedicle vessels when mobilizing the cyst. (3) If it is difficult to differentiate cyst and dilated pelvis, retrograde ureteral catheterization can be done preoperatively and methylene blue is administrated through it during the operation. (4) The reniporal fat can be filled into the parapelvic cyst to prevent recurrence.

Source of Funding: none

MP11-04 PRACTICAL AND INTUITIVE SURGICAL APPROACH RENAL RANKING (SARR) TO PREDICT OUTCOMES IN THE TREATMENT OF RENAL TUMORS: A NOVEL SCORE TOOL

Mathew Tannus, Salvador, Brazil, Suzan Goldman, Cassio Andreoni*, Sao Paulo, Brazil

INTRODUCTION AND OBJECTIVES: Surgery continues to be the main form of treatment for renal tumors. We create a more practical and intuitive score for renal tumor classification.

METHODS: 80 patients underwent surgery for renal tumors and were prospectively enrolled. The tumors were classified using the following variables: (1) tumor size, (2) endophytic or exophytic tumor, (3) longitudinal location of the tumor, (4) the extent of the impairment renal parenchyma, (5) relationship with the renal sinus, (6) anterior or posterior.

RESULTS: The mean operative time, tumor size and bleeding increased proportionally to the increased complexity of the tumor measured by scores (p < 0.0001, p < 0.0001 and p = 0.036, respectively). The mean total score was 8.7 points for patients undergoing partial nephrectomy (PN) and 14.4 points for those undergoing radical nephrectomy (RN) (p < 0.0001). Larger tumors, completely endophytic, which exceeded the renal medulla and centrally located underwent radical nephrectomy (RN) more often (86.7% - p < 0.0001, 64% - p = 0.01, 77% - p < 0.0001 and 78.9% - p < 0.0001, respectively). In univariate analysis, RN was associated with tumors larger than 7 cm (p = 0.001), tumors that exceeded the renal medullary (< 0.001), centrally located tumors (OR = 150 p < 0.001) and tumors of high complexity (p < 0.001). Analysis showed no association between complications and variables in the score.

CONCLUSIONS: SARR is a simple, practical and intuitive classification for renal tumors that can be used in the decision-making process and to predict outcomes in the surgical treatment of renal tumors.

Source of Funding: None

MP11-05 THE INTRAOPERATIVE TRENDS FOR RADICAL AND PARTIAL NEPHRECTOMIES IN LOCALIZED CANCER IN LARGE UROLOGY GROUP

David Albala*, Colin O’Keefe, Po Lam, Andres Madissoo, Angelo DeRosalia, Elan Salzhauer, Harvey Sauer, Ilija Aleksic, Vladimir Mouraviev, Syracuse, NY

INTRODUCTION AND OBJECTIVES: Robotic assisted laparoscopic partial nephrectomy (RALPNx) is an increasingly utilized modality for primary definitive therapy. da Vinci Surgery is considered as minimally invasive robotic-assisted surgery. When compared to open surgery, da Vinci Surgery provides patients with the following potential benefits: shorter hospital stay, less blood loss, lower risk of complications, less pain and faster recovery and return to normal activities.

METHODS: We analyzed the results of the 549 patients who underwent the definitive treatment for localized kidney cancer in our group from January 2008 to August 2012 in order to define intraoperative trends. The following treatment modalities were used: RALPNx, open (OPNx) or laparoscopic partial nephrectomies (LPNx) versus (vs.) robotic assisted radical nephrectomy (RARNx), open (ORNx) or laparoscopic radical nephrectomy (LRNx).

RESULTS: The median and range of estimated blood loss (EBL) for partial nephrectomies (PNx) for each surgical technique are as follows: LPNx was 200 ml blood (25–900 ml), OPNx - 250 ml (50–700 ml) and RALPNx - 200 ml (50–3000 ml), respectively (Fig. 1). The median and range of EBL for radical nephrectomies (RNx) were as follows: LRNx- 100 ml (50–2000 ml), ORNx: 250 ml (50–3500 ml), RALRNx- 200 ml (50–850 ml) (Fig. 1). The average hospital stay after RNx nephrectomies was 4 ± 4.29 days, while after PNx was shorter as of 2.5 ± 2.19 days. For PNx the average blood transfusion rate was 0.06 ± 0.41 unit and for Rx was of 0.08 ± 0.52 unit. The positive surgical margins rate was 4.5% (17 out of the 375 patients) for RNx vs. 7.4% (13 out of 174) in PNx group (p ≤ 0.05).

CONCLUSIONS: Our results suggest that despite increased estimated blood loss after partial nephrectomies and positive margins rate, a struggle for nephron-sparing approach is feasible and worthwhile in community setting.

Source of Funding: none

MP11-06 ROBOTIC PARTIAL NEPHRECTOMY IN RENAL UNITS WITH MULTIPLE RENAL ARTERIES

Kyrollis Attalla*, Emad Rizkala, Riccardo Autorino, Ali Khalifeh, Dinesh Samarasekera, Humberto Laydner, Georges Pascal-Haber, Robert Stein, Jihad Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Multiple renal vessels can at times be perceived as adding to the complexity of a partial nephrectomy case. We aim to assess and compare robotic partial nephrectomy (RPN) peri- and post-operative outcomes in kidneys with single renal artery versus those with multiple renal arteries.

METHODS: Data of patients who underwent RPN between May 2007 and April 2012 was collected and analyzed from a database that was prospectively maintained in an investigative review board (IRB)-approved protocol. Patients were divided into two groups based on the number of vessels identified on pre-operated
RESULTS: A total of 428 patients were identified: 338 patients in Group 1 and 90 patients in Group 2. Patient characteristics of age, sex, body mass index, American Society of Anesthesiology (ASA) classification, tumor laterality, R.E.N.A.L. Nephrometry score, and hilar location of tumor were similar between both groups (Table 1). Group 2 had a slightly higher pre-operative estimated glomerular filterate rate (eGFR), as compared to Group 1 (p = 0.026). Perioperative outcomes were similar between both groups in terms of blood loss (p = 0.803), operative time (p = 0.958), and warm ischemia time (WIT) (p = 0.512) (Table 2). Postoperative outcomes were similar with regard to length of stay (p = 0.530) and pathologic findings (p = 0.273). Intraoperative complications (p = 0.165) and postoperative complications between both groups (p = 0.760).

CONCLUSIONS: There is no difference in peri-operative and post-operative outcomes between RPNs performed in renal units with single versus multiple renal arteries. In specific, complications, bleeding and WIT were similar in both groups. Thus, complex renal vasculature should not be a deterrent to the performance of RPN.

Source of Funding: None

MP11-07 FIRST CLINICAL USE OF THE 3 DIMENSION (3D) HIGH DEFINITION (HD) ENDOEYE FLEX LAPAROSCOPIC TECHNOLOGY AND EVALUATION OF IMPAIRING SYMPTOMS USING A VALIDATED SIMULATOR SICKNESS QUESTIONNAIRE (SSQ) QUESTIONNAIRE DURING LAPAROSCOPIC PYELOPLASTY

Fernando Kim, David Sehrt, Wilson Molina*, Kyle Rove, Jason Phillips, Aurora, CO

INTRODUCTION AND OBJECTIVES: Three-dimensional laparoscopy has been shown to improve laparoscopic experience by enhancing the depth perception during surgery. Yet there are limited reports of symptoms such as nausea and fatigue incurred during observation of this technology in the operating arena. We describe our initial experience with 3D HD EndoEYE Flex Laparoscopic Technology during a laparoscopic pyeloplasty and investigate the symptoms experienced by operators using a validated questionnaire.

METHODS: The 3D HD EndoEYE Flex Laparoscopic Technology system utilized polarization technology requiring a specialized articulating laparoscope, 3D monitors, and passive glasses. On April 8th, 2013, the first laparoscopic pyeloplasty and nephrolithotomy was performed in a 33 year old man with a history of symptomatic right Uretero-pelvic junction (UPJ) obstruction and renal stone at the UCD. All medical staff who wore the glasses for the entire procedure was provided a validated 16 item Simulator Sickness Questionnaire (SSQ) which evaluated Nausea and Oculo-Motor symptoms. Each item of the questionnaire was graded from 0 to 3 points categorized by “None”, “Slight”, “Moderate”, and “Severe”, respectively. Descriptive statistics were generated from the SSQ.

RESULTS: The entire procedure was successfully performed in the 3D mode (Figure 1). There were no intraoperative or short-term complications. A total of 5 staff members completed the SSQ. There were single reports of “slight” discomfort, “slight” fatigue, and “slight” difficulty focusing. All other symptoms were reported as “none”. The average Nausea Score of the SSQ was 0.25/27 and Oculo-motor Score was 0.5/21. One resident reported blurred vision while wearing a plastic protective shield with the 3D glasses. This was corrected by removing the shield.

CONCLUSIONS: The utilization of 3 Dimension HD EndoEYE Flex Laparoscopic Technology safely enhances laparoscopy by providing accurate perception of depth to the surgical field. Observers reported insignificant sickness symptoms from the 3D laparoscopic system.

Source of Funding: none

MP11-08 POSTERIOR RETROPERITONEOSCOPIC ADRENALECTOMY FOR ADRENAL TUMORS

Zhong Wu*, Hao wen Jiang, Chen-chen Feng, Peng Gao, Lu jia Wang, Qiang Ding, Shanghai, China, People’s Republic of
INTRODUCTION AND OBJECTIVES: To evaluate the safety and efficacy of posterior retroperitoneoscopic adrenalectomy (PRA) for treatment of adrenal tumors.

METHODS: From April 2010 to January 2013, 85 patients with adrenal tumors underwent PRA. Patient demographics, diagnosis, length of hospital stay, histology and and all operative and post-operative details were evaluated.

RESULTS: 85 PRAs were successfully performed (79 unilateral and 6 bilateral). Indications were pheochromocytoma in 14 patients, Cushing’s syndrome or Cushing’s disease in 10 patients, aldosteronoma in 38 patients, and non functional adenoma in 23 patients. No conversion to open surgery was needed and no major complications developed. No patient needed blood transfusion. Mean follow up was 6.1 months, all patients showed improvement in hypertension after surgery. The plasma renin activity and aldosterone returned to normal—and no patient required potassium supplements postoperatively in 38 patients with aldosteronoma.

CONCLUSIONS: PRA is a safe and effective alternative for a variety of adrenal lesions—fulfilling the criteria for the ideal minimally invasive procedure—and can provide very favorable surgical outcomes.

Source of Funding: none

MP11-09 HAND ASSISTED RETROPERITONEOSCOPIC NEPHROURETERECTOMY WITH BLADDER CUFFING AFTER BOTH PRE- AND RETRO-PERITONEAL PERIVESICAL BALLOONING

Kwang Taek Kim*, Chang Hee Kim, Khae Hawn Kim, Sang Jin Yoon, Incheon, Korea, Republic of

INTRODUCTION AND OBJECTIVES: To carry out hand-assisted retroperitoneoscopic nephroureterectomy (HARNU) with open bladder cuffing after both pre- and retro-peritoneal perivesical ballooning.

METHODS: Twenty-six consecutive patients with upper tract transitional cell carcinoma received HARNU and open bladder cuff excisions. The concept is that repeated retropubic pre- and retroperitoneal ballooning have excellent perivesical dissection effects and if an extraperitoneal ballooning state is maintained, a low positioned extraperitoneal hand port incision can be made near the bladder without peritoneal injury, through which bladder cuffing may be easily performed by open surgical method. The procedure was carried out through the 7.5 cm lower Gibson incision and two or three additional laparoscopic ports. 1) Camera port incision at post axillary line 2) Multiple and repeated pre-and retroperitoneal ballooning at both post axillary line and umbilicus. 3) 7.5 cm sized skin incision from suprapubic to the low inguinal area with extraperitoneal ballooning state maintained. 4) Hand assisted laparoscopic retroperitoneal nephroureterectomy 5) Cessation of gas 6) Either intra- or extravesical cuffing by open surgical method.

RESULTS: All procedures were performed without complication. The mean estimated blood loss was 250 mL. The mean operation time was 190 minutes. Morphine (mean, 17.6 mg) was administered for pain relief for 1–3 days following surgery. The mean time for recommencing oral intake was 1.2 days, and that to ambulation was 1.5 days. There were one wound complications related to main wound. The 7.5 cm sized main scar could be hidden by underwear.

CONCLUSIONS: The HARNU seems to be a reasonable surgical procedure, because the lower Gibson incision can be utilized, not only as a route for hand assistance, but also as a window for open surgery when resecting the distal ureter as well as for extravesical separation of surgical specimens. The procedure is a safe alternative to conventional open surgery or other laparoscopic nephroureterectomy for upper urinary-tract tumors from oncologic and cosmetic viewpoints.

Source of Funding: none

MP11-10 RENAL RECURRENCE AFTER ZERO ISCHEMIA PARTIAL NEPHRECTOMY

Rocco Papalia*, Giuseppe Simone, Mariaconsiglia Ferriero, Salvatore Guaglianone, Manuela Costantini, Michele Gallucci, Rome, Italy

INTRODUCTION AND OBJECTIVES: to evaluate renal recurrence (RR) and incidence of positive surgical margins (PSMs) in patients who underwent zero ischemia partial nephrectomy (ZIPN) regardless the approach performed (open, laparoscopic and robot-assisted).

METHODS: we retrospectively analyzed data of 534 consecutive patients with diagnosis of renal tumors and treated with open, laparoscopic and robot-assisted ZIPN between 2002 and 2012. Survival curves were estimated with Kaplan Meier method and compared with Log Rank test.

RESULTS: At a median follow-up of 28 months (range 1–120); renal recurrence was observed in 31 patients (5.8%) with a median time to renal recurrence of 16 months (range 2–80). PSMs were observed in in 23 patients (3.8%). Five years renal recurrence free survival (RRFS) was 89%. After stratifying for:

- Fuhrman grade 5 yrs RRFS was 93% for G1–G2 vs 74% for G3–G4 [p = 0.001];
- Histological subtype 5 yrs RRFS was 100% for chromophobe renal tumors, 100% for papillary type 1, 86% for papillary type 2 and 87% for ccRCC [p = 0.008];
- Tumor size 5 yrs RRFS for pT1a and pT1b was 89% and 90% respectively [p = 0.2];
- Positive and negative surgical margins 5 yrs RRFS was 89% in both groups [p = 0.75].

Disease free survival (DFS) for G1–2 and G3–4 patients was 86% and 60%, respectively. Adjusted for histological subtype DFS was 92% for chromophobe renal tumors, 89% for papillary type 1, 53% for papillary type 2 and 79% for ccRCC. pT and PSMs didn’t show any impact on renal recurrence.

CONCLUSIONS: Based on our results avoiding hilar clamping doesn’t undermine oncologic outcomes in terms of 5 years renal recurrence.

Source of Funding: none

MP11-11 UROLOGIC RECONSTRUCTIVE SURGERY OF THE UPPER TRACT: IMPACT OF THE ROBOT

Aaron Boonjindasup*, Daniel Rittenberg, Eric Shaw, Phillip Dorsey, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Trauma to the upper urinary tract can lead to severe progressive renal damage due to stricture disease. Reconstruction of the ureter is often necessary. Robotic assisted surgery has allowed surgeons to complete meticulous reconstruction in a minimally invasive fashion, reducing patient morbidity. We present our initial experience with robotic assisted upper urinary tract reconstruction, including ureteroneocystostomy, ureteroureterostomy, and Boari flap creation.
METHODS: A retrospective review of robotic assisted upper urinary tract cases was performed at a single institution between 2009 and 2013 after IRB review. Basic preoperative patient information including gender, laterality, BMI, and age was obtained. We also obtained detailed information on the stricture including laterality, etiology of stricture, type of previous surgery, previous endourologic procedure, and presence of tumor was determined. Perioperative information of estimated blood loss, operative time, conversion rate, and complications were also obtained.

RESULTS: 34 robotic-assisted upper tract procedures including ureteroneocystotomy (n = 19), ureteroureterostomy (n = 9), Boari flap creation (n = 4), ureterolysis (n = 2). Median estimated blood loss was 100 mL, median operative time was 264 minutes, mean length of stay (LOS) was 2.18 days. 44% (15) of our cases were from iatrogenic injuries with the majority (12) coming from previous minimally invasive surgeries. 5 patients underwent previously failed endourologic treatment for their stricture disease.

CONCLUSIONS: Upper urinary tract reconstruction can be achieved with a robotic approach. This offers the patient a minimally invasive option with a short hospital stay and minimal patient morbidity. The increasing use of laparoscopic monopolar cautery is a major source of ureteral injury. A robotic approach may offer the patient a reasonably attractive option to repair an iatrogenic injury. Long-term post-operative renal function and reconstruction success should be determined.

Source of Funding: none

MP11-12 MINIMALLY INVASIVE PARTIAL NEPHRECTOMY WITHOUT HILAR CLAMPING IN PATIENTS WITH SOLITARY KIDNEY

Papalia Rocco*, Giuseppe Simone, Mariaconsiglia Ferriero, Salvatore Guaglianone, Manuela Costantini, Michele Gallucci, Rome, Italy

INTRODUCTION AND OBJECTIVES: Partial nephrectomy (PN) without vascular clamping may reduce the risk of acute renal failure (ARF) and chronic kidney disease (CKD). Therefore we evaluated feasibility, safety, functional and oncologic outcomes of 12 patients with solitary kidney underwent laparoscopic PN without hilar clamping.

METHODS: Between May 2005 and June 2012, 7 laparoscopic partial nephrectomies (LPN) and 5 robotic assisted partial nephrectomies (RAPN) were performed for renal tumors in solitary kidney. Data, including tumor characteristics, surgery details, complications, postoperative renal function and oncological outcomes, were collected in a prospective maintain. Five patients underwent LPN after preoperative superselective transarterial embolization, 2 patients with low nephrometry score underwent "zero ischemia" sutureless LPN and the last 5 patients underwent "zero ischemia" RAPN with controlled hypotension.

RESULTS: All cases were successfully completed. No early and late complications occurred. Median tumor size was 3.1 cm. Median blood loss was 160 cc (50–350).

No patients required intraoperative transfusions. Three patients (25%) required transfusion postoperatively. No major complications occurred.

Histopathologic evaluations revealed clear cell renal cell carcinoma in 9 patients (75%) and oncocytomas in 3 patients (25%). All margins were negative.

Median pre and postoperative serum creatinine levels were 1.29 mg/dl and 1.6 mg/dl, respectively. Postoperative dialysis wasn’t necessary in any patient.

Two (16.6%) patients had preoperative CKD, while seven (58.3%) of them developed CKD postoperatively.

At median follow-up of 48 months three patients had local recurrence, two of them at 24 months and one patient 11 months after surgery. Two patients with local recurrence experienced distant metastasis at 11 and 45 months, respectively. Four year cancer specific survival and overall survival were 100% and 91.7%, respectively.

CONCLUSIONS: In patients with solitary kidney minimally invasive PN without hilar clamping is feasible. All procedures were safely completed with satisfactory oncologic and functional outcomes.

Source of Funding: none

MP11-13 SAFETY AND FEASIBILITY OF A NEW ABSORBABLE CLIP DURING SLIDING CLIP RENORRHAPHY IN ROBOTIC PARTIAL NEPHRECTOMY

Christopher Reilly*, Elton Ilukani, Blake Moore, Zihoe Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: The sliding clip renorrhaphy technique during robot assisted partial nephrectomy, as popularized by Bhayani et al., has been shown to be reproducible and effective. The described technique uses clips that are non-absorbable. Due to the potential for clip migration and erosion into the urinary tract, we have modified the technique using absorbable clips (Lapro-clip®, Covidien) for renorrhaphy during robotic partial nephrectomy. We present the short term perioperative data from our early experience to show that this clip is a safe and feasible alternative.

METHODS: Starting in October 2012, a total of 33 patients underwent robotic partial nephrectomy by a single surgeon (DDE) at our institution with a modified sliding clip renorrhaphy, utilizing the Lapro-clip® absorbable clip. This self-retaining 12 mm long hemostatic clip, is constructed of polyglycolic acid and polyglyconate and is reported to reabsorb within 180 days. It is deployed via a 10 mm diameter reposable applicator. Patient preoperative and perioperative data were reviewed retrospectively.

RESULTS: Mean patient age was 64.9 years (41–86), mean BMI 28.9 (20.7–40.1), mean ASA 2.78 (1–4), mean pathologic tumor size 4.14 cm (0.9–11.8 cm), mean RENAL nephrometry score 7.46 (4–10). Mean console time was 133.3 min (67–229), mean warm ischemia time 18.7 min (12–31), mean EBL 217.4 ml (50–600), and mean hospital length of stay 1.16 days (1–2). There were no positive margins and all procedures were completed as planned without open conversion or intra-operative complications. There were no reported misfires, clip or applicator malfunctions. There have been no transfusions or postoperative complications to date.

CONCLUSIONS: In this limited and short term study, using a Lapro-clip® absorbable clip to perform sliding clip renorrhaphy during robotic partial nephrectomy appears to be safe and effective with no significant complications.

Source of Funding: none

MP11-14 PNEUMOVESICULAR APPROACH TO EN-BLOC LAPAROSCOPIC NEPHROURETERECTOMY WITH BLADDER CUFF EXCISION FOR UPPER TRACT UROTHELIAL CANCER: INITIAL EXPERIENCES OF 7 CASES

Mohammed Bhuiyan*, MF Islam, ZH Bhuiyan, KMH Tawhid, NIU Ahmed, K Salahuddin, Dhaka, Bangladesh
INTRODUCTION AND OBJECTIVES: Nephroureterectomy with cuff of urinary bladder is the treatment for upper tract transitional cell carcinoma. To maintain oncological principal it is important to close lower ureter. Here we reported initial experiences of Pneumovesicum approach to en-bloc laparoscopic nephroureterectomy with bladder cuff excision for upper tract urothelial cancer.

METHODS: From January 2008 to July 2012, 7 patients with upper tract urothelial cancer were underwent Pneumovesicum approach for Laparoscopic Nephroureterectomy with bladder cuff. Laparoscopic ports were inserted into the bladder via a suprapubic route, and carbon dioxide Pneumovesicum was induced. Laparoscopic dissection of the lower ureter and excision of the bladder cuff were then performed. The bladder defect was securely closed using laparoscopic suturing, and standard Laparoscopic Nephroureterectomy was followed.

RESULTS: Age range was 50-75 years. Among the seven patients four had renal pelvic tumor, two had upper ureter tumor, one had midureter tumor. Five patients had T1 and two patients had T2 diseases. All of the patients had Grade II (GII) diseases. Average operation time was 180 minutes. Average hospital stay was 3 days. Analgescic requirement was single dose of inj. Pethedine as per body weight. No significant perioperative and post operative complication were observed.

CONCLUSIONS: Pneumovesicum approach for Laparoscopic Nephroureterectomy with bladder cuff is safe and effective. Pneumovesicum approach strictly maintain the oncological principal. Hospital stay and return to normal activity is faster than open procedure. We dream for robot assisted laparoscopic procedure.

Source of Funding: none

MP11-15 ROBOTIC UROLOGIC SURGERY IN THE ELDERLY: IS THERE AN INCREASED RISK OF COMPLICATIONS?

Kristen Scarpato*, Farmington, CT, Halil Kiziloğlu, Kyle Finnegan, Ryan Dorin, Steven Shichman, Anoop Meraney, Joseph Wagner, Stuart Kesler, Hartford, CT

INTRODUCTION AND OBJECTIVES: Elderly patients are increasingly referred for robotic surgical procedures. Robotic surgery has been associated with decreased perioperative morbidity, but concerns remain regarding trendelenberg positioning and prolonged pneumoperitoneum in this population.

METHODS: A single institution, prospectively managed database of patients undergoing robotic urologic surgery from 2005 to 2012 was reviewed. Patients ≥ 75 years of age undergoing partial nephrectomy (PN), radical cystectomy (RC), radical prostatectomy (RP), or upper tract reconstructions were included. Patient characteristics including age, sex, body mass index (BMI), and American Society of Anesthesiologists (ASA) score, as well as surgery type, length of stay (LOS), and estimated blood loss (EBL) were recorded. Early postoperative complications were reviewed and graded according to the 2004 Clavien System. Complication rates were compared to a younger cohort (<75 years of age) at the same institution.

RESULTS: Seventy-nine elderly patients underwent 82 robotic surgeries during the study period, including 39 PN, 20 RC, 17 RP, and 6 reconstructive procedures. Mean age at surgery was 77.8 years, mean BMI was 26.5, with a median ASA of 3. Mean LOS and EBL were 4.8 days and 333 ml, respectively. Major complications, all Clavien 3, occurred in 3 patients, and there were 26 minor complications in 19 patients for an overall complication rate of 23%. Infectious and gastrointestinal complications were the most common. Cardiopulmonary complications occurred in 2 patients. ASA score (p = 0.049) and type of procedure (p < 0.05) were significantly associated with the development of complications. When compared with patients < 75 years, complication rates showed a trend but were not significantly higher in the elderly patients (p > 0.05 for all surgery subgroups). (Figure 1).

CONCLUSIONS: Elderly patients undergoing robotic surgery did not have a significantly higher rate of early postoperative complications. Complications were more common with high ASA score and robotic cystectomy.

Source of Funding: None

MP11-16 RENAL NEPHROMETRY SCORE PREDICTS RENAL PARENCHYMAL ATROPHY AFTER ROBOTIC PARTIAL NEPHRECTOMY

Young Eun Yoon*, Kyung Hwa Choi, Kyo Chul Koo, Joo Yong Lee, Won Sik Ham, Koon Ho Rha, Young Deuk Choi, Woong Kyu Han, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Preservation of functional renal parenchyma is essential for those who undergoing partial nephrectomy. Renal parenchymal atrophy (RPA) after partial nephrectomy possibly results from ischemia-reperfusion injury. We aim to determine whether RENAL nephrometry score has impact on the RPA for patients undergoing robotic partial nephrectomy (RPN).

METHODS: Present study was conducted to evaluate 101 patients underwent RPN between January 2008 and July 2010. Of these, complete information, preoperative and postoperative CT images were available for 92 patients. Postoperative images obtained at a median of 14.1 months after RPN and RPA was calculated by the ratio of postoperative-to-preoperative parenchymal thickness. Univariable analysis and logistic regression analysis were used for factors associated with RPA after RPN.

RESULTS: Mean age was 52.2 years. Mean RENAL nephrometry score was 7.0 and mean renal parenchymal atrophy was 3.7%. On univariable analysis, RPA was associated with size (R) (p = 0.003), nearness to collecting system (N) (p = 0.032) and location relative to polar lines (L) (p = 0.036). In addition, there was also a correlation between overall RNS complexity and RPA (p = 0.003). In the severe RPA group (>10% RPA), postoperative GFR change was greater than those who showed mild RPA (~15.2 ± 12.2 and ~1.5 ± 17.4, respectively; p = 0.006). On the logistic regression, high complexity was a significant predictor of severe RPA (high vs mild complexity) (OR: 18.50; 95% CI, 2.54–134.83; p = 0.004).
CONCLUSIONS: Renal nephrometry score was associated with RPA after RPN and severe RPA group showed lower levels of GFR postoperatively. These findings can be used to predict which patients will likely have changes in GFR after RPN.

Source of Funding: none

MP11-17 COMPLICATIONS IN LAPAROSCOPIC UROLOGY: 8 YEARS’ EXPERIENCE WITH 793 CASES

Oner Sanli, Tzevat Tefik*, Tayfun Oktar, Mazhar Ortac, Selcuk Erdem, Emre Salabas, Mohammad Khodir, Serkan Karakus, Asif Sadiqli, Feyyaz Ural, Baris Yuvel, Faruk Ozcan, Ismet Nane, Murat Tunc, Istanbul, Turkey

INTRODUCTION AND OBJECTIVES: To evaluate the laparoscopic operations performed in our department according to modified Clavien classification system of complications.

METHODS: Between September 2005 and February 2013 a total of 793 laparoscopic cases were performed. Simple nephrectomy (120), radical nephrectomy (191), partial nephrectomy (143), donor nephrectomy (10), adrenalectomy (7), simple nephroureterectomy (26), radical nephroureterectomy (27), renal cyst decortication (34), heminephroureterectomy (6), pyeloplasty (42), ureterouretrostomy (5), renal cyst decortication and pyelolithotomy (1), pyelolithotomy (1), ureterolithotomy (29), ureterolysis (5), excision of retroperitoneal liposarcoma (1), excision of local recurrence (6), retroperitoneal residual mass excision (12), radical prostatectomy (78), radical cystectomy (21), Fowler Stephens orchidopexystage I. and II. (24), oophorectomy (1),

Table 1. Patients Characteristics and Postoperative Outcomes According to the Severity of Renal Parenchymal Atrophy

<table>
<thead>
<tr>
<th></th>
<th>≤ 10% RPA</th>
<th>&gt; 10% RPA</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>74 (84.8)</td>
<td>14 (15.2)</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>52.5 ± 11.7</td>
<td>50.6 ± 15.9</td>
<td>0.558</td>
</tr>
<tr>
<td>Male (%)</td>
<td>48 (61.5)</td>
<td>10 (71.4)</td>
<td>0.480</td>
</tr>
<tr>
<td>Right renal mass (%)</td>
<td>40 (61.3)</td>
<td>6 (42.9)</td>
<td>0.582</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>24.3 ± 3.1</td>
<td>14.6 ± 2.6</td>
<td>0.769</td>
</tr>
<tr>
<td>ASA score (%)</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>60 (76.9)</td>
<td>8 (57.1)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16 (20.5)</td>
<td>5 (35.7)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2 (2.6)</td>
<td>1 (7.1)</td>
<td></td>
</tr>
<tr>
<td>Renal parenchymal atrophy (%)</td>
<td>1.2 ± 3.4</td>
<td>17.7 ± 3.5</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>RENAL nephrometry score</td>
<td>6.7 ± 1.6</td>
<td>8.4 ± 1.6</td>
<td>0.001</td>
</tr>
<tr>
<td>Tumor size (cm)</td>
<td>3.0 ± 1.5</td>
<td>4.0 ± 1.4</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Operative time (min)</td>
<td>183.7 ± 78.3</td>
<td>214.1 ± 64.7</td>
<td>0.174</td>
</tr>
<tr>
<td>Warm ischemia time (min)</td>
<td>24.1 ± 10.3</td>
<td>38.4 ± 9.9</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Estimate blood loss (ml)</td>
<td>238.0 ± 244.1</td>
<td>395.0 ± 374.7</td>
<td>0.046</td>
</tr>
<tr>
<td>Preoperative GFR (mL/min per 1.73m2)</td>
<td>91.1 ± 14.3</td>
<td>87.0 ± 22.2</td>
<td>0.364</td>
</tr>
<tr>
<td>GFR at last follow-up (mL/min per 1.73m2)</td>
<td>89.6 ± 21.4</td>
<td>71.8 ± 19.6</td>
<td>0.002</td>
</tr>
<tr>
<td>GFR change value (mL/min per 1.73m2)</td>
<td>-1.5 ± 17.4</td>
<td>-15.2 ± 12.2</td>
<td>0.006</td>
</tr>
</tbody>
</table>
obturator lymphadenectomy (2) and Burch colposuspension (1) were the performed laparoscopic operations. The peroperative complications were evaluated according to the modified Clavien classification system of complications.

RESULTS: A total of 184 (23.2%) complications were observed according to the modified Clavien classification. Minor (Clavien 1–2) and major (Clavien 4 ve 5) complication rate was 20.1% (n = 159) and 3.2% (n = 21), respectively. Clavien I was the mostly encountered complication. The rate of complications were higher in the radical cystectomy operations (81%). Complications according to procedures were mentioned in the table.

CONCLUSIONS: Awareness of the complication rates contributes significantly to the quality of the performed surgery. The complications encountered in our laparoscopic surgery experience are predominantly minor and acceptable.

Source of Funding: none

MP11-18 ROUTINE EN BLOCK STAPLING OF THE RENAL HILUM DURING LAPAROSCOPIC NEPHRECTOMY IS SAFE AND EFFECTIVE

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INTRODUCTION AND OBJECTIVES: En block hilar ligation is not routinely performed due to the concern for risks of arterovenous (AVF) fistula formation. Traditionally, most urologists dissect out both the renal artery and vein and ligate them separately using either clips or staples. This can cause increased operative times and an increase risk of vascular injury.

METHODS: A retrospective chart review was performed on patients undergoing laparoscopic nephrectomy between 2010 and 2013. We identified 188 consecutive patients that underwent laparoscopic nephrectomy. Approximately 87 patients underwent en block hilar stapling while 101 patients underwent dissection of the artery and vein individually. Radical nephrectomy was carried out for a variety of different renal pathologies. Tumor characteristics, pathologic stage, operative time, blood loss, follow up imaging modalities, clinical exam for evidence of abdominal bruit or complications were evaluated.

RESULTS: Eighty-seven patients underwent laparoscopic nephrectomy with en block stapling of the renal hilum using a vascular stapler. (Forty-six right renal units, 41 left renal units). The mean operative time was 160 minutes (range 80–350 minutes). The mean estimated blood loss (EBL) was 122 mL (range 50–400 mL). The mean tumor size was 6.6 cm, (range 4.3–11.9 cm). Seventy-six percent of patients received post procedure imaging; 21% had a CT scan with IV contrast, 20% had a non-contrast CT scan, 12% had an ultrasound with Doppler and 24% had an MRI with contrast. The predominant pathology was renal cell carcinoma in most of the patients. Other pathology included oncocytoma and XGP. No complications were noted at the time of surgery. No patients (0%) developed clinical evidence of an AVF with a mean follow up of 19 months (no abdominal bruit and the lack of a palpable abdominal thrill). Imaging studies confirmed the absence of AVF.

CONCLUSIONS: Ligation of the renal hilum with en block stapling during laparoscopic nephrectomy is a safe and effective procedure. No patients in our cohort developed any immediate surgical complications as a result of en block ligation. Also, no patients developed any clinical or radiological evidence of AVF on follow up.

Source of Funding: none

MP11-19 MINIMAL-MARGIN ROBOTIC PARTIAL NEPHRECTOMY: ZERO-ISCHEMIA TECHNIQUE

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INTRODUCTION AND OBJECTIVES: We present a technique of minimal-margin, zero-ischemia robotic partial nephrectomy (MMRPN) to maximize volume preservation while eliminating clinical-discernable global renal ischemia.

METHODS: Technique: All patients underwent preoperative 0.5 mm-cut CT with 3-D reconstruction in order to delineate renovascular anatomy. During MMRPN, vascular microdissection was performed to obtain superselective tumor devascularization. The contour of the tumor was followed during the entirety of resection in the near-enucleative plane in order to attain a 1 mm margin.

Renal Functional Assessment: To test validity of MMRPN, volumetric calculations were performed for 10 patients and used to calculate predicted eGFR. From pre-operative CT, total functional kidney volume (total parenchymal volume excluding tumor volume) was calculated. Post-operative resection volumes were measured by water displacement or post-operative CT and used to calculate functional parenchymal loss. eGFR was calculated for the pre-operative period, at discharge, and at follow-up (1–6 months) using the MDRD formula. Univariate and multivariate analysis was performed.

RESULTS: Between September 2011 and October 2012, 47 patients underwent MMRPN by a single surgeon. Of these, 20 patients had 6 months follow-up renal function data available and were included. Median tumor size was 4.3 cm (1.5–14), 47% were central, median RENAL score was 7.3. All margins were negative; median margin width was 2 mm (< 14). Median pre-operative, discharge and follow up eGFR was 89 (44–124), 88 (46–124) and 74 (39–124) respectively. Median percent decrease in eGFR was 0% (− 27 to 43) at discharge and 10% (− 27 to 3) at follow up. In the test group of 10 patients, median preserved functional volume was 98%, while median percent decrease in eGFR was 5%. On univariate and multivariate analysis of the entire cohort, there was no difference in follow-up eGFR regardless of EBL, use of hemostatic suture, microbulldog clamp or bolster.

CONCLUSIONS: MMRPN is technically feasible, and early renal functional outcomes are acceptable. Given the discrepancy between the measured change in volume and the actual change in eGFR, it is likely that there are factors other than parenchymal volume loss that contribute to postoperative renal functional outcomes. A larger cohort and further follow up is required to fully determine the impact of this technique on renal functional preservation.

Source of Funding: none

MP11-20 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR R.E.N.A.L NEPHROMETRY SCORE 7 TO 9 HILAR TUMORS

Ben Xu*, Qian Zhang, Jie Jin, Beijing, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: To report our initial experience in retroperitoneal laparoscopic partial nephrectomy (LPN) for hilar tumors with the R.E.N.A.L. nephrometry score (RNS) 7 to 9 and summarize the feasibility of the retroperitoneal laparoscopic approach.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: To compare the treatment outcome of laparoscopic and open nephrectomy with thrombectomy for renal masses with level I to II tumor thrombus. METHODS: Clinical data of 49 consecutive patients (34 male and 15 female) with renal masses with level I to II tumor thrombus were analyzed retrospectively between January 2009 and January 2013 at our institution. The initial diagnose including the detailed level of tumor thrombus was confirmed by the computed tomography and/or magnetic resonance imaging preoperatively. All of them received surgical treatment by laparoscopic or open approach. They were divided into 2 groups based on the surgical approach applied. Group 1 (laparoscopic surgical group) consisted of 17 patients (34.7%) and group 2 (open surgical group) consisted of 32 patients (65.3%). In group 1, the mean tumor size was 7.9 cm (range 5.0–16.0 cm), 5 patients (29.4%) were classified into level I tumor thrombus and 12 patients (70.6%) into level II tumor thrombus. In group 2, the mean tumor size was 9.4 cm (range 5.1–15.3 cm), 13 patients (40.6%) were classified into level I tumor thrombus and 19 patients (59.4%) into level II tumor thrombus. Patient demographics, intraoperative variables and postoperative outcomes were reported and analyzed.

RESULTS: All operations were performed successfully without severe complications. No case in group 1 was converted to open surgery until the completion of laparoscopic procedure. In group 1, the mean operative time was 208.5 min, the mean estimated blood loss was 147.1 ml, the mean postoperative hospital stay was 5.8d and 2 patients (11.8%) accepted blood transfusion with a mean quantity of 23.5 ml. In group 2, the figures were 268.3 min, 1345.3 ml, 12.5d and 17 patients (53.1%) with a mean of 790.6 ml respectively. The differences of all these parameters were statistically significant between the two groups (p < 0.05). There were no positive margins of pathological specimen in both groups. During a mean follow-up of 15.2 months (range 1–30 months), 13 patients (76.5%) in group 1 and 26 (81.3%) in group 2 survived without any recurrence or metastasis.

CONCLUSIONS: Although it remains technically complex, demanding and challenging for renal masses with level I to II tumor thrombus, the laparoscopic surgery can make remarkable results in well-selected patients compared with traditional open approach with experienced hands. We also recognize the retrospective nature, limited follow-up and sample size as shortcomings of this clinical research.

Source of Funding: none

MP11-22 LAPAROSCOPIC ANATROPHIC NEPHROLITHOTOMY FOR MANAGEMENT OF COMPLETE STAGHORN RENAL STONE: CLINICAL EFFICACY AND INTERMEDIATE-TERM FUNCTIONAL OUTCOME
Alireza Aminsharifi, Firoozeh Afsar*, Shiraz, Iran

INTRODUCTION AND OBJECTIVES: To report the clinical efficacy and intermediate-term functional outcome after laparoscopic anatrophic nephrolithotomy (LAN) as an alternative treatment modality for complete staghorn renal stone. METHODS: The demographic and perioperative parameters as well as the intermediate outcome of 10 adults (9 men) who

FIG. 1. After complete dissection of renal pedicle, the renal artery was temporary clamped by a bulldog clamp (A), the stone was extracted through a nephrotomy incision (B) which was closed with free hand sutting and Hem-o-Lok clips instead of knot tying (C). The extracted staghorn stone (D).
underwent transperitoneal LAN for complete staghorn renal stone were analyzed. Functional imaging studies consisted of intravenous urography and technetium-99 dimercaptosuccinic acid scintigraphy (99Tc-DMSA) renal scan done before the operation and at the last follow-up visit.

RESULTS: Mean age of patients was 48.7 years (range: 37–64 years). Mean stone size was 67.3 mm (50–90 mm). Mean operative time was 192 minutes (110–240 minutes) and mean warm ischemia time was 32.8 minutes (15–40 minutes). During follow up period early after the operation, we detected an 8 mm lower caliceal stone and a 25 mm mid-caliceal stone in 1 patient each (stone free rate: 80%). After a mean follow up of 11.9 months (6–19 months), 85.5% of corresponding renal unit function was preserved; however, there was a significant mean decrease in 99Tc-DMSA uptake from 48.4% ± 8.83 before surgery to 41.4% ± 13.98 afterwards. (−7% ± 6.53; P = 0.008). Nevertheless, renal units were completely functional at follow-up IVU with a significant improvement in obstruction in all patients.

CONCLUSIONS: In centers with enough laparoscopic experience, LAN is a feasible and promising alternative minimally invasive approach for one-session management of patients with complete staghorn renal stone. It offers acceptable rates of stone clearance and operative complications but has a minimal loss of function in the affected kidney during an intermediate-term follow up period. Long-term significance of this functional loss is yet to be determined.

Source of Funding: none

FIG. 2. Preoperative plain X-ray and IVU (A,B) and 12-month postoperative plain X-ray and IVU(C,D) showing completely functional renal units.

training at an academic institution. Clinical variables, operative parameters and renal functional outcomes were analyzed. Student t-test analysis was used for comparisons of mean variables between the two groups and Pearson Chi-square analysis was used for categorical data comparisons.

RESULTS: Pre-operative patient and tumor characteristics were comparable between both groups except for tumor size (LPN 3.1 cm vs. RPN 4.0 cm, p = 0.017). Surgery time was similar (LPN 224 min vs. RPN 239 min, p = 0.174) for both groups, however clamping time was shorter in the LPN group (21 min vs. 28 min, p = 0.004). There were no intraoperative complications in the LPN group and five (7.7%) in the RPN group (p = 0.057); both groups had eight (LPN 16.7% vs. RPN 12.3%, p = 0.516) post-operative complications. There were three (6.3%) positive margins in the LPN group and four (6.2%) in the RPN group (p = 0.116). Estimated blood loss, length of stay, immediate post-operative creatinine and 3-month post-operative creatinine were similar for both groups.

CONCLUSIONS: Perioperative outcomes were comparable for LPN and RPN in this single surgeon cohort of patients. Robotic surgery continues to emerge as the minimally invasive modality of choice for partial nephrectomy in patients with feasible T1a and T1b renal masses.

Source of Funding: None

MP11-23 A COMPARISON OF LAPAROSCOPIC VS. ROBOTIC PARTIAL NEPHRECTOMY PERIOPERATIVE OUTCOMES: A SINGLE SURGEON ANALYSIS

Junjian Huang*, Zachary Klaassen, Qiang Li, W. Bruce Shingleton, Kelvin A. Moses, Martha K. Terris, Rabii Madi, Augusta, GA

INTRODUCTION AND OBJECTIVES: Robotic surgery is gradually replacing laparoscopy as the preferred approach for partial nephrectomy. The objective of this study was to report the perioperative outcomes of 113 consecutive patients treated with partial nephrectomy by a single surgeon using either a laparoscopic or robotic approach.

METHODS: Between August 2006 and April 2013, 113 consecutive patients underwent laparoscopic partial nephrectomy (LPN) (n = 48) and robotic partial nephrectomy (RPN) (n = 65) by a single surgeon with minimally invasive and oncology fellowship training at an academic institution. Clinical variables, operative parameters and renal functional outcomes were analyzed. Student t-test analysis was used for comparisons of mean variables between the two groups and Pearson Chi-square analysis was used for categorical data comparisons.

RESULTS: Pre-operative patient and tumor characteristics were comparable between both groups except for tumor size (LPN 3.1 cm vs. RPN 4.0 cm, p = 0.017). Surgery time was similar (LPN 224 min vs. RPN 239 min, p = 0.174) for both groups, however clamping time was shorter in the LPN group (21 min vs. 28 min, p = 0.004). There were no intraoperative complications in the LPN group and five (7.7%) in the RPN group (p = 0.057); both groups had eight (LPN 16.7% vs. RPN 12.3%, p = 0.516) post-operative complications. There were three (6.3%) positive margins in the LPN group and four (6.2%) in the RPN group (p = 0.116). Estimated blood loss, length of stay, immediate post-operative creatinine and 3-month post-operative creatinine were similar for both groups.

CONCLUSIONS: Perioperative outcomes were comparable for LPN and RPN in this single surgeon cohort of patients. Robotic surgery continues to emerge as the minimally invasive modality of choice for partial nephrectomy in patients with feasible T1a and T1b renal masses.

Source of Funding: None

MP11-24 COMPARISON BETWEEN RETROPERITONEAL LAPAROSCOPIC AND OPEN DISMEMBERED PYELOPLASTY (WITH 63 CASES)

Min Qiu*, Beijing, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the clinical value of retroperitoneal laparoscopic surgery for UPJO, and compare this with open dismembered pyeloplasty.

METHODS: 63 patients underwent dismembered pyeloplasty operation, and 47 patients were laparoscopic surgery, 16 patients were open surgery. Using t-test to compare operation time, estimated blood loss, postoperative length of hospital stay, and length of keep drainage tube between the two kinds of surgery.

RESULTS: Retroperitoneal laparoscopic dismembered pyeloplasty and open dismembered pyeloplasty have no statistical difference on operation time (157.7 VS 150.9 min), estimated blood loss (69 VS 100 ml), postoperative length of hospital stay (7.5 VS 9.5 d), and length of keep drainage tube (5.7 VS 5.4 d).

CONCLUSIONS: Retroperitoneal laparoscopic dismembered pyeloplasty is effective for UPJO, and can be comparable with open dismembered pyeloplasty. Retroperitoneal laparoscopic dismembered pyeloplasty would be recommended as the gold standard for treating UPJO.

Source of Funding: none

MP11-25 ROBOTIC PARTIAL NEPHRECTOMY FOR ANTERIOR VERSUS POSTERIOR TUMORS: ANALYSIS OF PERIOPERATIVE OUTCOMES

Gordon Fifer*, Michael Woods, Matthew Nielsen, Eric Wallen, Mathew Raynor, Chapel Hill, NC

INTRODUCTION AND OBJECTIVES: Partial nephrectomy has become a standard practice for the surgical management of small renal masses. Tumor location can affect operative approach and outcomes. We sought to examine whether anterior or
INTRODUCTION AND OBJECTIVES: Shortening warm ischemia time is the biggest challenge in partial nephrectomy. The feasibility of either laparoscopic or robotic zero ischemia partial nephrectomy has been widely accepted recently. The surgeons are supposed to be quite skilled for cutting renal parenchyma under normal blood flow mainly because of the possibility of excessive blood loss. However, the benefit of zero ischemia partial nephrectomy is probably promised as long as it would be properly done. We have started normotensive laparoscopic zero ischemia partial nephrectomy without hilar preparation on 2012. We compared these cases to previous hilar-clumped laparoscopic partial nephrectomy.

METHODS: This surgeon had already done 15 laparoscopic partial nephrectomies before starting zero ischemia partial nephrectomy. Of these, 3 traditional laparoscopic partial nephrectomies for T1b tumor were excluded for comparison. Approximately 5 mm thick of normal parenchyma was resected with tumor. Zero ischemia partial nephrectomies have been done to 5 cases since October, 2012. Renal parenchyma was incised under normotensive status without hilar preparation in 4 cases. In these cases, perioperative parameters were analyzed.

RESULTS: Pneumoperitoneum time was significantly shorter in Zero-ischemia group (65.2 vs 149.6 min). Amount of blood loss was also significantly less in Zero ischemia group (14.0 vs 79.4 ml). eGFR ratio (first post-operative day/before operation) was also significantly less in Zero ischemia group (14.0 vs 79.4 ml). eGFR ratio (first post-operative day/before operation) was also significantly less in Zero ischemia group (14.0 vs 79.4 ml). Percentage of patients with no anuric postoperative renal dysfunction was higher in Zero ischemia group (85.7 % in Zero-ischemia group vs 79.4 % in traditional partial nephrectomy group).

CONCLUSIONS: Zero ischemia partial nephrectomy is a novel procedure to remove renal mass with the true advantage to prevent renal damage. In this procedure, considering the possibility of excessive blood loss, hilar preparation for vessel clump is usually recommended. However, bleeding from tumor base is usually limited especially in T1a tumor. Our result suggested this new procedure is beneficial to shorten warm ischemia time, to shorten operation time and to reduce blood loss. Furthermore, it has been safely undergone even by a less experienced surgeon. Technical limitation would be discussed with the indication of this procedure. However, normotensive laparoscopic zero ischemia partial nephrectomy could be next standard for certain cases.

Source of Funding: None

MP12-01 IN VIVO AND EX VIVO COMPARISON OF OPTICS AND PERFORMANCE OF A NOVEL DUAL CHANNEL FIBEROPTIC URETEROSCOPE

Achim Lusch*, Zhamshid Okhunov, Renai Yoon, Michael A Del Junco, Ramtin Khanpour, Ashleigh Menhadji, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Vision during ureteroscopic laser ablations of large kidney stones or upper tract transitional cell carcinomas can be challenging due to the diminished flow during the procedure. Hence we evaluated and compared characteristics of a novel dual working channel fiberoptic ureteroscope Ureteroscope [Cobra] [Wolf Cobra, Richard Wolf, Knittlingen, Germany] to two single channel fiberoptic ureteroscopes [Viper]. [X2] [Wolf Viper, Richard Wolf, Knittlingen, Germany and Storz X2, Karl Storz, Tuttingen, Germany] and to a single channel distal standard definition sensor digital ureteroscope URF-V [SD-DS] [Olympus America Inc., Center Valley, USA].

METHODS: Four new ureteroscopes (Cobra, Viper, X2, SD-DS) were compared for active deflection, irrigation flow and optical characteristics (resolution, grayscale imaging, color representation, depth of field and image brightness). Each ureteroscope was evaluated with an empty working channel and with various accessories. We performed a porcine ureteroscopy and measured the time for cleaning the middle calyx after injection of 10 cc’s of an standardized bloody solution.
RESULTS: The SD-DS showed a higher resolution [7.42 lines/mm] compared to the fiberoptic ureteroscopes; among the fiberoptic ureteroscopes the Cobra had the highest resolution compared to Viper and X2 [4.86 vs. 4.33 vs. 3.56 lines/mm, p = 0.0001]. Grayscale distribution and color representation was identical for the fiberoptic ureteroscopes, whereas the SD-DS provided a superior color representation and a significant higher depth of field. The dual channel ureteroscope provided superior flow with empty working channel [86 [Cobra] vs. 68 [Viper] vs. 62.5 [X2] vs. 62 cc/min [SD-DS], p = 0.0001] and with various accessories in the working channel [p < 0.0001]. With regards to deflection the X2 and the Cobra provided superior deflection up and down with empty working channel and several accessories [p < 0.0001], except for downward deflection with a guide wire and 3.2 F delta wire grasper, where the SD-DS showed superior results. When evacuating a standardized bloody field, the Cobra provided significant shorter evacuation times compared to Viper, X2 and SD-DS [36.6 sec vs. 72 sec vs. 65.6 sec vs. 72.6 sec, p = 0.0001].

CONCLUSIONS: In this in vitro and porcine evaluation the dual channel ureteroscope Cobra provides superior flow without and with various accessories. The additional working channel may improve vision and performance during challenging ureteroscopic cases by providing an increased flow, but has to be balanced with a larger ureteroscope diameter.

Source of Funding: None

MP12-02 DOES PREOPERATIVE STENTING, ANESTHESIA AND STONE SIZE IMPACT IN-SITU TREATMENT OF LOWER POLE STONES?

Sri Sivalingam*, Priyanka Sehgal, Stephen Nakada, Madison, WI

INTRODUCTION AND OBJECTIVES: We sought to evaluate preoperative stenting and stone size on in-situ ureteroscopic treatment of lower pole renal calculi, and whether endotracheal intubation (ETT) vs laryngeal mask airway (LMA) yielded any differences in outcomes.

METHODS: After institutional research ethics approval, retrospective review was conducted for all ureteroscopic stone procedures between 2005 to 2009 performed. Factors evaluated included demographic information, stone size, location, preoperative stent placement, type of anesthesia, procedural details, and outcomes including success rates (SR), operative times and complications. The goal of ureteroscopy was to fragment stones to completion. SR was defined as residual fragments < 4 mm, and was based on post-operative KUB imaging.

RESULTS: 449 patients who underwent ureteroscopic lithotripsy were reviewed, and the results were filtered to include only those treated for lower pole calculi by a single surgeon. 79 patients were included in the final analysis (42 males, 37 females, p = 0.80). All stones in this subset were treated in-situ in the lower pole location using a 270 micron laser fiber, without stone distraction or fragment extraction. 62 (78%) patients were not pre-stented, while 17 (22%) patients were pre-stented. 52 (66%) patients had ETT and 27 (34%) had LMA. There were no differences in gender (p = 0.29), stone size (p = 0.29 or 0.19) and laterality (p = 0.053) between groups. Overall SR was 72%; the SR was significantly higher for stones < 10 mm vs > 10 mm (83.3% vs 58%, respectively; p = 0.012). There were no differences in SRs between the non pre-stented vs pre-stented groups (73% vs 71%, respectively; p = 1.0), or in the ETT vs LMA groups (69% vs 78%, respectively; p = 0.60). The SR of left vs right-sided procedures was 67% vs 79%, respectively (p = 0.3). Mean operative time was 50.1 min, with significantly shorter operative times in the non-stented group (46.4 min vs 65.1 min, p = 0.003), and no difference in the ETT vs LMA group (52 min vs 45.3 min, respectively, p = 0.19). No major complications were observed in either group.

CONCLUSIONS: We observed 83% SRs for stones < 10 mm compared to 58% in stones > 10 mm after in situ ureteroscopy for lower pole renal calculi. We did not find an advantage with preoperative stent placement with respect to SRs, operative times, or complication rates. Additionally, we did not observe any benefits in using ETT over LMA, suggesting LMA controlled anesthesia might be sufficient for the treatment of lower pole stones.

Source of Funding: None

MP12-03 URETEROSCOPY WITH LASER LITHOTRIPSY IN PATIENTS WITH NEUROLOGIC CONDITIONS AND NEUROGENIC BLADDER: SAFETY AND EFFICACY

Didi Pathak*, Mark Katz, Richard Babayan, David Wang, Boston, MA

INTRODUCTION AND OBJECTIVES: Upper urinary tract stones are common in patients with neurologic conditions, such as spinal cord injury and spina biﬁda. Ureteroscopy (URS) with laser lithotripsy is increasingly used in this patient population to treat renal and ureteral stones. We sought to review our experience with URS and laser lithotripsy in patients with neurologic conditions such as spinal cord injury, multiple sclerosis, cerebral palsy, stroke, and other neurodegenerative conditions.

METHODS: We retrospectively reviewed patients who underwent URS and laser lithotripsy for upper urinary tract stones between 2007 and 2012 conducted by one surgeon and identiﬁed 480 patients, of which 80 were identiﬁed as having neurologic conditions. Data collected included presentation of patient, procedure performed, stone size and location, preoperative and postoperative urosepsis, ICU admission, length of stay, and stone-free rate. We also sought to identify predictors for success and complication rate for different neurologic conditions.

RESULTS: A total of 80 patients were surveyed, with overall 68 patients (85%) being stone-free. A total of 33/80 patients (41%) presented with urinary tract infections. Twenty-one patients (26%) required either a stent or percutaneous nephrostomy tube prior to URS with laser lithotripsy. Following URS, 71 patients (89%) had a stent inserted postoperatively, all of which were removed in the outpatient clinic. Only 2 patients (3%) experienced post-operative urosepsis, with an average ICU stay of 7.5 days. Of note, 24/80 patients (30%) had repeat procedures for persistent or recurrent stones. Bilateral URS was performed in 18 cases (23%). There were no differences in success rate, complication rate, sepsis rate, or retreatment rate in unilateral versus bilateral cases. Overall, there were no cases in which access to the upper urinary tract was not possible through URS, even in those patients with severe lower extremity flexion contracture deformities. There were no differences in outcomes or complication rates when the data were stratified for different neurologic conditions.

CONCLUSIONS: URS with laser lithotripsy is a safe and effective method for treating renal and/or ureteral stones in patients with neurologic conditions and neurogenic bladder, with a very low rate of postoperative urosepsis and overall low complication rate. Patients in this cohort required more procedures to clear stones and/or for recurrent stones than the general population.

Source of Funding: None
**MP12-04**  
A PROSPECTIVE, MULTI-INSTITUTIONAL STUDY OF FLEXIBLE URETEROSCOPY FOR PROXIMAL URETERAL STONES <2 CM

Elias Hyams, Lebanon, NH, Manoj Monga, Cleveland, OH, Margaret Pearle, Dallas, TX, Vernon Pais, Lebanon, NH, Glenn Preminger, Michael Lipkin, Durham, NC, James Lingeman, Indianapolis, IN, Brian Eisner, Boston, MA, Ojas Shah, New York, NY, Roger Sur, San Diego, CA, Michelle Semins, Pittsburgh, PA, Dean Assimos, Birmingham, AL, Brian Matlaga*, Baltimore, MD

**INTRODUCTION AND OBJECTIVES:** Although ureteroscopy has emerged as the first-line treatment approach for distal ureteral calculi, the optimal approach for proximal ureteral stones remains unclear. This may be related, in part, to the dearth of prospective evidence regarding the outcomes of ureteroscopic treatment of these patients. Therefore, we designed a prospective, multi-institutional study of outcomes for ureteroscopic management of proximal ureteral stones <2 cm to determine benchmark efficacy of this approach.

**METHODS:** Adult patients with proximal ureteral calculi <2 cm were prospectively identified. Patients with concomitant ipsilateral renal calculi or prior ureteral stenting were excluded. Flexible ureteroscopy, Holmium laser lithotripsy, and ureteral stent placement was performed. Ureteral access sheath use, laser settings, and postoperative analgesia were based on individual surgeon preference. Stone clearance was determined by renal ultrasound and KUB results at 4–6 weeks postoperatively.

**RESULTS:** Forty-three patients were enrolled (25 male, 18 female) at 11 centers. Mean age was 46.2 years (range 28–82). ASA scores were 1 in 11 patients, 2 in 23 patients, 3 in 7 patients, and 4 in 2 patients. Mean BMI was 31.6 (range 21–45). Mean stone size was 7.4 × 8.0 mm. Mean OR time was 53.2 minutes. All cases were performed under general anesthesia. Access sheaths were used in 50% of cases. There was 1 intraoperative complication (ureteral abrasion from sheath). There were 5 postoperative complications including urinary retention (2 patients), urinary tract infection (2), and flash pulmonary edema (1). 94% of patients were stone free; there were 2 cases of 3 mm residual fragments seen on ultrasound.

**CONCLUSIONS:** Flexible ureteroscopy is associated with excellent clinical outcomes when applied to proximal ureteral stones <2 cm. These data compare favorably with treatment outcomes reported for shock wave lithotripsy, and may serve as benchmarks for future study. With the increasing pressure on outcomes reported for shock wave lithotripsy, and may serve as benchmarks for future study. With the increasing pressure on resource utilization in our health care environment, these findings will better inform the debate regarding the optimal treatment of stone-forming patients.

**Source of Funding:** None

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**MP12-05**  
CONTEMPORARY PRACTICE PATTERNS IN THE MANAGEMENT OF ACUTE OBSTRUCTING URETERAL STONES: A SURVEY OF ENDOUROLOGISTS

Sri Sivalingam*, Ian Stormont, Stephen Nakada, Madison, WI

**INTRODUCTION AND OBJECTIVES:** Acute renal colic from ureteral stones, in the absence of fever or pyuria, can be managed with pain control, hydration, observation or medical expulsive therapy. However, if pain is unrelenting, management options are narrowed to ureteral stenting, percutaneous nephrostomy or treatment of the offending stone with ureteroscopy or SWL. The purpose of our study was to elucidate the practice patterns amongst endourological society members.

**METHODS:** A practice pattern survey was designed and sent to all members of the endourological society using the Survey Monkey platform. The following question stem was given: “Patient presents to the ER with acute renal colic and intractable pain, no signs of infection and no pyuria. Stone is obstructing, and causing intractable pain; thus observation or MET is not appropriate”. A follow-up stem was provided for specific scenarios: “Calculus measuring x mm at × location. What is your preferred management option?” The options given for immediate management included SWL, URS, stent placement or percutaneous management.

**RESULTS:** 416 complete responses of approximately 2000 were received. Detailed responses categorized by stone size and location are shown in Table 1. There was a significant difference in management choice based on stone location (P < 0.001) and stone size (P < 0.001). Ureteroscopy was the predominant modality used for urgent treatment of acute proximal ureteral stones from 5, 10 and 15 mm except for calculi of 20 mm, where the preference was for percutaneous management. Immediate ureteroscopy was the preferred choice for all distal and mid ureteral stones, regardless of size. The use of stents versus percutaneous nephrostomy drainage was similar (18% versus 16%, respectively) for proximally obstructing calculi, while stent insertion was preferred over NT for mid and distal stones.

**CONCLUSIONS:** Current practice patterns among endourologists indicate a strong preference for immediate ureteroscopic management over stent placement or SWL for acutely obstructing ureteric calculi with exception to 20 mm stones in the proximal ureter, where the preference was for percutaneous management.

**Source of Funding:** none

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**MP12-06**  
IN-VIVO EVALUATION OF A REVERSE THERMOSENSITIVE POLYMER FOR URETEROSCOPY WITH LASER LIHOTRIPSY: PORCINE MODEL

Jonathan Mobley*, Goutham Vemana, Robert Figenshau, Gerald Andriole, Marshall Strother, Joel Vetter, Brian Benway, St. Louis, MO

**TREATMENT PREFERENCES FOR ACUTELY OBSTRUCTING URETERAL CALCULI, GROUPED BY STONE SIZE AND LOCATION**

<table>
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<th>STONE LOCATION</th>
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INTRODUCTION AND OBJECTIVES: A new reverse thermosensitive polymer (RTP) is commercially available for the prevention of stone retropulsion during ureteroscopy (URS). The polymer is injected as a gel into the ureteral proximal to the stone. At body temperature, the RTP forms a soft plug preventing stone retropulsion. After completion of the procedure, the RTP is dissolved and flushed from the ureter with cold saline. We evaluated the effects of the RTP on stone migration lengths, operative times, and intrapelvic renal pressures during URS in an in-vivo porcine model.

METHODS: Three pigs underwent general anesthesia followed by bilateral nephrostomy tube placement for the measurement of intrapelvic renal pressures. Two uniform 3 mm stone phantoms, composed of BegoStone (BEGO USA, Lincoln, RI), were placed retrograde into each ureter through a ureteral access sheath. Ureteroscopy with laser lithotripsy was then performed in one ureter with the RTP and in the contralateral, control ureter without RTP. Stone migration length, operative time, laser time, laser energy usage, and intrapelvic pressure were compared for both sides.

RESULTS: The RTP was successfully deployed and dissolved in all three pigs. The mean operative times were 25.7 ± 8.73 vs. 32.7 ± 8.73 minutes per side for the RTP and control groups (p = 0.306). The mean time required to deploy and dissolve the RTP was 11 ± 6 minutes. The time required to deploy the RTP decreased with each pig and was 4 minutes for the final pig. The mean laser time for the URS with RTP was 14.7 ± 5.5 minutes compared to 31.0 ± 10.1 minutes for the control (p = 0.030). The required laser energy was 2007 ± 980 Joules for the RTP URS vs. 3020 ± 810 Joules for the control URS (p = 0.168). The retropulsion length for the RTP and control was 2.0 ± 1.8 vs. 4.67 ± 0.58 cm (p = 0.177), with complete antegrade propulsion of fragments into the bladder noted in one instance of RTP usage. The average pelvic pressures were 19 ± 7.6 vs. 16.4 ± 2.9 minutes for the RTP and control groups (p = 0.551).

CONCLUSIONS: The use of a RTP for URS resulted in a significant decrease in laser times by over 50%, while laser energy usage decreased by 34%. Operative times and retropulsion lengths were decreased in URS with RTP but, perhaps due to the small sample size, did not reach statistical significance. We anticipate a continued trend towards significance with further study.

Source of Funding: Funding for this project was supported by the Midwest Stone Institute’s Research Director’s Fund.

MP12-07 FLEXIBLE URETEROSCOPY WITH A URETERAL ACCESS SHEATH: WHEN TO STENT?

Bryan Hinck*, Fabio Torricelli, Shubha De, Mark Noble, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Postoperative ureteral stenting after flexible ureterorenoscopy (URS) is still controversial. Most of surgeons routinely leave a stent at the end of the procedure. Herein, we aim to compare intra- and postoperative data of patients who underwent URS with and without postoperative stenting.

METHODS: Patients were randomly assigned to one of two surgeons; one who routinely stents after flexible ureteroscopy and a second who selectively stents. Outcomes were retrospectively reviewed from our database identifying patients; 51 patients were stented and 51 patients were not stented after URS. Patients were matched by operative time as a surrogate measure of complexity of the procedure. Intra- and postoperative data were compared. We also analyzed if preoperative stenting or sheath diameter had any impact on postoperative pain score for each group. Significance was set at p < 0.05.

RESULTS: Patients in the postoperative stented group were significantly older than patients left without a stent (p < 0.001). Patients stented postoperatively had significantly larger ureteral access sheaths (p < 0.001) as well as greater stone burden (p < 0.001). Patients who were not postoperatively stented had a greater pain score (p = 0.025) as well as sought medical assistance for pain more often than stented patients (p = 0.007). The lack of a pre-operative stent was associated to a greater pain score in patients who were not receive a post-operative stent (p = 0.047). (Table 1).

CONCLUSIONS: Postoperative stenting after flexible URS with a ureteral access sheath should be considered to decrease postoperative pain, especially if the patient was not pre-stented.

Source of Funding: None

MP12-08 DOES TUMOR SIZE INFLUENCE THE ACCURACY OF URETEROSCOPIC BIOPSY FOR UPPER TRACT UROTHELIAL CARCINOMA?

Sima Porten, Andrew Park, Charles Guo, Ashish Kamat, Lianchun Xiao, Surena Matin*, Houston, TX

INTRODUCTION AND OBJECTIVES: Select low-grade tumors of the upper urinary tract can be effectively managed with nephron-sparing endoscopic therapy. Unfortunately, some patients who present with low grade disease based on current staging paradigms are upstaged after surgery. We examine clinicopathologic factors associated with accuracy of diagnostic biopsy for upper tract urothelial carcinoma (UTUC), in particular the utility of tumor size.

METHODS: Clinicopathologic records of patients diagnosed with UTUC and treated surgically by a single urologist without neoadjuvant systemic therapy were reviewed. Clinical cTx staging was assigned when the degree of invasion was not apparent.
on biopsy and imaging findings. All pathologic specimens were re-reviewed by an experienced genitourinary pathologist (CG) and tumor size was assessed by 4 types of measurement: 1) surface area (cm²) 2) index tumor volume (cm³) 3) aggregate volume (cm³) of all tumors 4) index tumor single dimension (cm). Diagnostic biopsy grade (bG) was compared with pathologic grade (pG) and stage with McNemar’s test of agreement. Fisher’s exact or Wilcoxon rank sum was used to determine the association of clinical and pathologic features to changes in grade and stage.

RESULTS: We identified 66 patients meeting inclusion criteria. The majority were male (61%) and Caucasian (92%), with mean age of 74.6 years (SD 9.9). 17 of 40 low bG patients (43%) were upgraded and 2 of 26 (8%) with high bG were downgraded at nephroureterectomy (NU). Overall, bG was significantly different from pG (p = 0.006) or stage (p = 0.025). Age, sex, clinical stage, multifocality were not associated with change in bG. The predictive value of low bG for non-invasive disease at NU was 80% and the predictive value of high bG for muscle invasive disease at NU was 62%. In cTx patients tumor surface area was significantly associated with higher pT stage (p = 0.049). Patients with low bG found to have advanced stage at NU were more likely to have an index tumor dimension > 3.8 cm.

CONCLUSIONS: Overall, low bG can predict candidates without invasive disease for nephron sparing therapy in 80% of cases. In patients with low bG, tumor dimension < 3.8 cm and (cTa, cT1, cTis, cTx) and tumor surface area < 8.1 cm² (cTx), may help select those least likely to be upstaged.

(Drs. Porten and Park contributed equally to this work.)

Source of Funding: none

MP12-09 A CRITICAL EVALUATION OF THE THERMEDX FLUID MANAGEMENT SYSTEM (TFMS) IN A URETEROSCOPIC (URS) MODEL
Shubha De, Fabio Torricelli, Ganesh Kartha*, Carl Sarkissian, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: TFMS is an automated pressurized irrigation system that allows concurrent temperature control. The objective of this study was to critically appraise the functional characteristics and precision of the device, regarding irrigation temperature, flow and pressure during URS.

METHODS: Using an in vitro model the TFMS was assessed with a short semi-rigid URS (Wolf 478532). Pressures and temperatures were measured using digital sensors (Meriam m1550-g0015, and Taylor Digital Thermometer 9842) Stepwise increases in settings were measured with and without a URS (from 60 to 200 mmHg), and safety valve (included with the tubing). Continuous measures (60/min) were recorded, and compared to values reported by the TFMS unit display.

RESULTS: Using a URS at room temp (17.60 c), starting irrigation temp was 19.50 C, increasing to 35.50 C after 431 s at max settings (400 C). Irrigation returned to baseline temp after 402 s, with the heater disabled. Irrigation temp was not affected by pressure settings. The unit’s readings were 4–60 C higher than that measured at the tip of URS.

Flow rates detected at the tip of the URS were 2–8% less then the unit detected (Figure 1). Pressures were between 8–17% higher using URS, and highest values were encountered when the physical safety pop-off valve was removed from the tubing (Figure 2).

CONCLUSIONS: The TFMS provides pressurized/warmed irrigation for URS using sensors within the main unit to provide flow at the end of the scope. This system underestimates actual pressures at the tip of the URS while overestimating the impact on irrigant flow rates and temperatures.

Source of Funding: none

MP12-10 URETEROSCOPIC MANAGEMENT OF LARGE (>2 CM) UPPER TRACT UROTHELIAL CARCINOMA
Nir Kleinmann*, Scott G Hubosky, Kelly A Healy, Marluce Bibbo, Demetrius H Bagley, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: According to the EAU and NCCN guidelines, patients with large upper tract urothelial carcinoma (UTUC) tumors should be treated with radical nephroureterectomy (RNU). The purpose of this study was to evaluate the effectiveness of ureteroscopy (URS) with laser ablation as an alternative treatment for UTUC lesions larger than 2 cm.

METHODS: A retrospective review was performed of all patients undergoing URS for UTUC at our institution from Jan 2001 to Dec 2010. A total of 347 patients underwent URS for evaluation and treatment of UTUC. Of these, 128 patients were identified as...
having initial UTUC tumor size of at least 2 cm. In this cohort, 31 patients underwent immediate RNU while 24 returned to their referring institutions, and one patient underwent percutaneous treatment. The remaining 72 patients were managed ureteroscopically. While 10 (13.9%) patients underwent palliative URS, 62 (86.1%) patients were treated with curative intent. Demographic data as well as tumor characteristics (including tumor size, location and grade) were obtained for all patients. In addition, patients’ courses were reviewed for tumor recurrence, grade progression and for the development of locally advanced or metastatic disease. Subgroup analysis was performed for those patients ureteroscopically treated with curative intent.

RESULTS: Among patients initially managed with intent to cure, mean age was 73.5 years (range 46–91), mean tumor size was 33.4 mm (20–60). Location included: kidney 37 (59.7%), ureter 19 (30.6%) or both 6 (9.7%). Mean follow up was 36.7 months (3–132). Bladder tumors were diagnosed prior to, concomitant with, or after the diagnosis of UTUC in 27 (43.5%), 7 (11.3%) and 16 (25.8%) patients, respectively. Fifty one patients (82.3%) had tumor recurrence during the surveillance period. Mean time to first recurrence was 15.1 months. Seven (11.2%) patients progressed to high grade disease at a mean time of 34.4 months, and 4 (6.5%) developed metastatic disease at a mean time of 26 months. Seven eventually underwent RNU (3 grade progression, 2 extensive disease, 2 ureteral stricture/non-functioning kidney).

CONCLUSIONS: Ureteroscopic treatment of low grade UTUC tumors larger than 2 cm provides reasonable oncologic control. Local recurrences are common and are usually amenable to endoscopic management. Strict ureteroscopic surveillance is essential.

Source of Funding: None

MP12-11 ENDOSCOPIC FORCEPS FOR URETEROSCOPY: A COMPARATIVE IN VITRO ANALYSIS

Giovanni Marchini, Raman Unnikrishnan*, Shubha De, Carl Sarkissian, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: The objective of this study was to compare different grasper devices in terms of opening dynamics, grasping effectiveness, safety, and influence on flexible ureteroscope deflection.

METHODS: The Captura (2.8 F, Cook Medical), Platinum (3.0 F, Bard Urological), TriClaw (2.4 F, UroGyn), Graspit (2.6 F, Boston Scientific), and Tricep (2.4 F, 3.0 F; 3.0 F non-retracting, Boston Scientific) graspers were evaluated (opening dynamics – high resolution imaging; grip strength – tensile force during stone grasping model (fig. 1); perforation forces; ureteroscope deflection/bending radius with grasper in place.

RESULTS: The TriClaw and Graspit had greater grip strengths than all other devices (Fig. 1C). Captura (1.92 N) and Tricep 2.4 F (1.72 N) required the greatest forces to perforate. The Triclops and Captura required the least distance to attain a grasping width of 5 mm. Ureteroscope deflection was least impacted by the Triclop 2.4 F (213°; 1.35 cm radius), Graspit (207°; 1.35 cm radius) and TriClaw (206°; 1.3 cm radius).

CONCLUSIONS: There are significant differences in opening dynamics, grip strength, perforation forces, and ureteroscope deflection among ureteroscopic graspers that may predict clinical performance capabilities.

Source of Funding: none

FIG. 1. Safety profile was evaluated by advancing each grasper through the dilator of a Cook Flexor 12/14 F ureteral access sheath tube and deploying the grasper portion of the device inside a 10 mm inner diameter tubing until perforation of aluminum foil occurred (A). Average maximum force required for each device to perforate aluminum foil is presented in B.

FIG. 2. Total impact on the angle of ureteroscope deflection (A and B), and radii (B) varied among grasper devices.
MP12-12 A COMPARISON OF FLUOROLESS AND CONVENTIONAL URETEROSCOPY

Gaudencio Olgin*, Gene O Huang, Steven R Engebretsen, Don C Arnold II, D Duane Baldwin, Loma Linda, CA

INTRODUCTION AND OBJECTIVES: Patients with kidney stones are exposed to significant amounts of radiation during their initial work-up, surgical treatment, and follow-up. In an effort to reduce patient exposure to ionizing radiation, a technique for ureteroscopy was developed that eliminated the need for intraoperative fluoroscopy. The purpose of this study was to compare outcomes with this technique with a cohort of conventional ureteroscopic patients.

METHODS: A retrospective review of 50 consecutive patients undergoing ureteroscopy using a completely fluorless technique between January 2009 and November 2012 was performed. Fluorless procedures were performed by inserting guidewires and instruments using tactile feedback, direct visualization, and external visual cues to substitute for fluoroscopy. This cohort was compared to 50 conventional ureteroscopies in this time period. Patient characteristics, perioperative factors, complication rates, and stone-free rate were compared.

RESULTS: All fluorless ureteroscopies were successfully performed without image guidance. For this cohort, the mean operative time was 59.2 minutes (25–120 min.), overall stone burden was 91.5 mm² (2–480 mm²), complication rate was 4%, and repeat procedure rate of 8%. When compared to conventional ureteroscopy, there was no statistical difference between operative time, complication rate, repeat procedure, age, gender, ASA, BMI, and laterality. The fluorless patients had statistically larger stone burden 91.5 vs. 56.5 mm² (p=0.042).

CONCLUSIONS: We demonstrate a simple technique that has been developed for performance of fluorless ureteroscopy. If any concerns arise regarding wire or stent placement, radiation reduction can still be achieved using low-dose fluoroscopy. This technique may be particularly useful in younger or pregnant patients, in whom risk from ionizing radiation is highest. Further study and comparison with conventional approaches will be necessary to establish optimal application.

Source of Funding: None

MP12-14 NEEDLEOSCOPY: THE INCORPORATION OF A NEW TECHNOLOGY FOR THE MANAGEMENT OF PEDIATRIC URETERAL CALCULI

Daniel Martinez*, Tampa, FL, Hubert Swana, Mark Rich, Orlando, FL

INTRODUCTION AND OBJECTIVES: The incidence of pediatric stone disease has become more prevalent. Different endoscopic treatment options exist for the management of ureteral calculi which can be challenging due to the small and delicate anatomy of ureters in children. We present our technique and describe our experience using the new Richard Wolf 4.5/6 French 0° blunt needle tip fiber optic cystoscope for cystoureteroscopy and laser lithotripsy in our last five cases of pediatric distal ureteral calculi.

METHODS: Of the five cases in our series, all five were completed using a standardized endoscopic protocol. Cystourethroscopy was...
METHODS: with phantom testing of our second generation prototype.

dooscopy system with ergonomic intuitive controls and proceeded

efficiency of ureterorenoscopy, we developed a robot-assisted en-
surgeon movements, which unnecessarily complicate the proce-
srely on rudimentary manual controls and non-ergonomic, complex 
multiple procedures. However, current endoscopes continue to

screa, the urologist’s skill set for management of distal ureteral calculi in children. In the past the small

CONCLUSIONS: We believe this to be the first report utilizing this new infant cystoscopic technology for therapeutic treatment of distal ureteral calculi in children. In the past the small working channels of these scopes only made them useful for diagnostic evaluation. The Richard Wolf 4.5/6 Fr. 0° Newborn blunt needle tip fiber optic cystoscope supports superior optics, a 3 Fr. working sheath and narrow tip for easier access to the ureter without need for ureteral dilation. Using miniaturized technology that serves both cystoscopic and ureteroscopic functions simplifies the procedure and makes the management of distal urolithiasis less cumbersome than with longer adult ureteroscopes. We believe this new pediatric needle cystoscope should be added to the armamentarium of the pediatric urologist for management of distal ureteral stones and ureteroscopy in children.

Source of Funding: none

MP12-15 ERGONOMICALLY ENHANCED FLEXIBLE ENDOSCOPY SYSTEM: DESIGN, CONTROL AND PHANTOM TESTING

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INTRODUCTION AND OBJECTIVES: Flexible ureterorenoscopy has become commonplace in the urologist’s skill set for multiple procedures. However, current endoscopes continue to rely on rudimentary manual controls and non-ergonomic, complex surgeon movements, which unnecessarily complicate the procedure and increase patient risk. To enhance safety, efficacy, and efficiency of ureterorenoscopy, we developed a robot-assisted endoscopy system with ergonomic intuitive controls and proceeded with phantom testing of our second generation prototype.

METHODS: The robot-assisted endoscopy prototype and software platform were developed with the goals of increased safety, efficiency, and efficacy in renoscopic procedures while consid-

CONCLUSIONS: We believe this to be the first report utilizing this new infant cystoscopic technology for therapeutic treatment of distal ureteral calculi in children. In the past the small working channels of these scopes only made them useful for diagnostic evaluation. The Richard Wolf 4.5/6 Fr. 0° Newborn blunt needle tip fiber optic cystoscope supports superior optics, a 3 Fr. working sheath and narrow tip for easier access to the ureter without need for ureteral dilation. Using miniaturized technology that serves both cystoscopic and ureteroscopic functions simplifies the procedure and makes the management of distal urolithiasis less cumbersome than with longer adult ureteroscopes. We believe this new pediatric needle cystoscope should be added to the armamentarium of the pediatric urologist for management of distal ureteral stones and ureteroscopy in children.

Source of Funding: none

MP12-16 NEPHRON SPARING ENDOSCOPIC APPROACH FOR UPPER TRACT LOW GRADE TRANSITIONAL CELL CARCINOMA COMPARED TO NEPHROURETERECTOMY: MID TERM FOLLOW-UP RESULTS

Azik Hoffman, Danjuma U Kalba*, Ofir Yossepowitch, Dov Lask, Pinhas M Livne, Ronen Holland, David Lifshitz, Tel Aviv, Israel

INTRODUCTION AND OBJECTIVES: Purpose: Nephroureterectomy is the gold standard treatment for upper tract TCC (UT-TCC). Recently, nephron sparing endoscopic techniques are utilized in well selected patients with low grade and volume UT-TCC tumors. However, there is little data as to the outcome of these procedures in comparison to nephroureterectomy. We conducted a retrospective analysis comparing the results of patients treated endoscopically to a matched group which underwent open and lap

METHODS: From a prospective data base we identified 25 patients who underwent ureteroscopic resection of low grade UT-TCC (group 1). Imperative indications (single kidney and renal failure) were present in 9 patients. The technique included endoscopic tumor biopsy followed by tumor resection and/or fulguration when technically feasible. A matched cohort of 23 patients who underwent nephroureterectomy for low grade UT-TCC was selected for comparison (group 2). Data including overall and disease related mortality, bladder and ureteral TCC recurrence and renal function was analyzed and compared between the groups.

RESULTS: Median follow up was 26 months and 57 months for groups 1 and 2 respectively (p<0.05). In group 1, 11 (44%) patients had bladder recurrence at a median follow-up of 9 months following endoscopic resection, compared to 9 (39%) in the group 2 (P<0.05). At a median follow-up of 9 months, 9 patients in group 1 presented with low grade UT-TCC recurrence and were
Re-treated endoscopically. No disease related mortality was recorded in group 1 and no decline in renal function was noted.

CONCLUSIONS: Nephron-sparing endoscopic approach for low grade UT-TCC while preserving renal function is associated with a higher bladder recurrence rate in comparison to NU. In addition UT-TCC recurrence is common.

Source of Funding: None

MP12-17 ENDOSCOPIC MANAGEMENT OF GENITOURINARY FOREIGN BODIES: WASHINGTON UNIVERSITY CASE SERIES

Joseph Song*, St Louis, MO, Youssef Tanagho, St Louis, MO, Mohammed Haseebuddin, Brian Benway, St Louis, MO, Alana Desai, Sam Bhayani, Robert Figenshau, St Louis, MO

INTRODUCTION AND OBJECTIVES: Retrieval of foreign bodies from the genitourinary system, most commonly inserted for sexual satisfaction or as a result of a psychiatric illness, can pose a significant surgical challenge. Due to their breadth of size, shape, and location within the genitourinary system, endoscopic management can be difficult. Despite these challenges, minimally invasive techniques offer several advantages, including decreased complication rates and more rapid recovery. Here we explore the surgical approach and method of care in four select cases of foreign body insertion.

METHODS: Four male patients were selected to highlight their surgical approach and management (table 1). In two cases, foreign bodies were inserted for autoeroticism. In the other two cases, insertion was a result of psychiatric illness. In all cases, endoscopic removal was successful, although an open approach was unsuccessfully attempted in one patient prior to transfer to our institution.

RESULTS: By endoscopically cutting the threads between the Mardi-Gras beads in one case, the beads were freed and removed individually. Atraumatic extraction of 82 magnetic beads was performed via a 28 French resectoscope sheath in another case. Two patients with psychiatric illness had presented multiple times with a range of foreign objects. In one case, sharp points were embedded within the urethral mucosa. By displacing the foreign bodies in a retrograde fashion, the sharp ends were freed and the objects could be removed without further mucosal injury.

CONCLUSIONS: An endoscopic approach can remove a large variety of foreign objects. Sharp objects caught in the urethral mucosa must be freed prior to antegrade extraction. Retrograde displacement of urethral foreign bodies into the bladder facilitates insertion of a protective cystoscope or resectoscope sheath through which foreign bodies can be extracted efficiently and atraumatically. Prompt endoscopic management of foreign bodies can be associated with minimal morbidity.

Source of Funding: None

MP12-18 URETEROSCOPY VIA AN ORTHOTOPIC NEobladder: SURGICAL TECHNIQUES AND COMMON PITFALLS

Marcelino Rivera*, Amy Krambeck, Rochester, MN

INTRODUCTION AND OBJECTIVES: We assessed our experience performing ureteroscopy (URS) in patients with an orthotopic neobladder.

METHODS: A retrospective review was performed of patients with an orthotopic neobladder requiring URS for diagnostic or therapeutic purposes from 2002–2013.

RESULTS: We identified 16 male and 2 female patients with an orthotopic neobladder with a mean age of 64.7 (49–77) who underwent 19 procedures. Indication for URS were diagnostic in 15 (78%), stone disease in 2 (11%), and stricture in 2 (11%). Ureteroscopy was attempted an average of 5.4 (1–15) years after cystectomy. Anterograde URS was performed in 8 and retrograde was attempted in 11 with 7 (64%) successful. Inability to identify the afferent limb or ureteral orifice, tortuosity, angulation and length of the afferent limb were causes for unsuccessful retrograde URS. Of the successful retrograde URS 5 (71%) occurred within the past 5 years. There were no complications in the successful retrograde URS group. Ureteral stents or nephrostomy tubes were left in place post procedure in 14 (74%) patients.

CONCLUSIONS: While technically challenging, retrograde ureteroscopy can be performed successfully in patients with an orthotopic neobladder once the learning curve for the procedure is overcome.

Source of Funding: None

MP12-19 FLEXIBLE URETERORENOSCOPY FOR STONES: SAFE AND EFFECTIVE EVEN DURING THE INITIAL LEARNING CURVE

Francesco Berardinelli, Luca Cindolo, Petros Sountoulides*, Fabrizio Pellegrini, Fabio Neri, Fabiola Tanburro, Luigi Schips, Vasto, Italy

CONCLUSIONS: An endoscopic approach can remove a large variety of foreign objects. Sharp objects caught in the urethral mucosa must be freed prior to antegrade extraction. Retrograde displacement of urethral foreign bodies into the bladder facilitates insertion of a protective cystoscope or resectoscope sheath through which foreign bodies can be extracted efficiently and atraumatically. Prompt endoscopic management of foreign bodies can be associated with minimal morbidity.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: Flexible ureterorenoscopy (f-URS) is gaining space as first-line treatment for renal stones up to 2 cm with stone-free rates higher than ESWL and morbidity lower than PCNL. The aim of the study is to analyze the outcome of our initial 50 f-URS procedures.

METHODS: We prospectively collected demographic, periproductive and postoperative data on 50 consecutive patients that underwent f-URS for renal stones. Complications were classified according to the Clavien classification.

RESULTS: From March 2012 to March 2013 we performed 50 f-URS in 44 patients (25 males, 19 females). Mean patient age was 54 years (range: 15–80), mean BMI was 27.3 kg/m² (range: 16–33) and mean stone size was 16 mm (range: 5–30 mm).

The stones were radiopaque in 36 cases (81%) and were localized in the renal pelvis (n = 21), the upper calyces (n = 3), the middle calyces (n = 3), the lower calyces (n = 7), or in multiple calyceal locations (n = 10). In 6 patients (13%) a DJ stent was placed before surgery for dilation with pain or fever. The interventions were performed by 4 different surgeons with significant experience in rigid ureteroscopy but little experience in f-URS.

A ureteral access sheath was utilized in all cases (100%) (usually a 9.5/11.5 F sheath). The Flex-X2 ureteroscope was used in 46 procedures (92%), and the digital Flex-XC in 4 (8%) procedures. A 200 micron fiber laser was used in all cases. Mean operative time was 86 minutes (range: 40–120), and a DJ was placed at the end of the intervention in 45 cases (90%). No serious intraoperative complications were encountered (bleeding, perforation etc) and all cases were uneventfully completed. Mean hospital stay was 2 days. Postoperatively, 3 patients (6%) developed fever >38°C and 1 patient (2%) complained of severe sciatic nerve pain (according to Clavien: grade I complications, treated with medical therapy). At 1 month a KUB and renal US was performed in all patients. 32 patients (73%) were complete stone-free, 7 patients (16%) had residual fragments smaller than 3 mm (for which 3 received ESWL) and 5 patients (11%) had fragments larger than 5 mm. For these 5 patients (all had initial stones >2 cm) a second f-URS was performed. 4 patients were rendered complete stone-free and only for 1 patient a third procedure was necessary to achieve stone-free status.

CONCLUSIONS: f-URS is a safe procedure even during the initial learning curve. f-URS is effective for treatment of renal stones up to 2 cm and should be considered as alternative option for even larger stones. In these cases however the need for additional procedures should be considered in order to render the patient stone-free.

Source of Funding: None

MP12-21 URERETOSCOPIC BIOPSY OF UPPER TRACT UROTHELIAL CARCINOMA: COMPARISON OF BASKET AND FORCEPS

Nir Kleinmann*, Kelly Healy, Scott Hubosky, Philadelphia, PA, David Margel, Toronto, Canada, Marlucchini Bibbo, Demetrius Bagley, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: To compare two different biopsy devices for upper tract urothelial carcinoma (UTUC) and evaluate the pathologic result obtained by these devices.

METHODS: From January 2008 to December 2010, 414 ureteroscopies were performed and 504 biopsies were taken for evaluation of UTUC. Two biopsy devices were compared: 2.4 F stainless steel flat wire basket and 3 F cup biopsy forceps. The effect of biopsy device on obtaining an adequate pathological specimen was evaluated using univariate and multivariate binary logistic regression analysis. We also investigated whether tumor grade determination was affected by biopsy device among patients with diagnostic biopsy.

RESULTS: Diagnosis was successful in 63% and 94% in the forceps and basket groups, respectively (p < 0.0001). Among biopsies with a definite diagnosis of UTUC, specific grade was determined in 80% and 93% in the forceps and basket groups, respectively (p = 0.033). In sub-group analysis of tumors larger than 10 mm in diameter, diagnosis was obtained in 80% and 94% in the forceps

Multivariate Analysis of Obtaining a Pathology Result

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<th>95% CI</th>
<th>p-value</th>
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Source of Funding: None

MP12-20 COMPLICATIONS OF FLEXIBLE URETERORENOSCOPY CLASSIFIED BY THE MODIFIED CLAVEN GRADING SYSTEM (A SINGLE CENTER’S EXPERIENCE OVER 10 YEARS)

Saeed M. Al-Qahtani*, Julien Letendre, Sabrina Benbouzid, Gauthier Raynal, Achilles Ploumidis, Sixtina De Medina, Mohamed Tligui, Olivier Traxer, Paris, France

INTRODUCTION AND OBJECTIVES: With the huge development of flexible ureteroscopes and mini-instrumentation, our aim is to review the complications of flexible ureterorenoscopy in the largest stone single tertiary French hospital using the modified Clavien system.

METHODS: From 2002 to 2012, 1880 cases of F-URS were performed at our institute. Medical records were reviewed retrospectively. Using multiple factors, we reviewed and analyzed 1245 patients for complication rates classified by the modified Clavien grading system, along with success rates.

RESULTS: In 1015 patients, stone disease patients accounted for 81.6%. Initial and overall stone-free rates were 77% and 88.8%. Complications were documented in 282 procedures (15%). According to the modified Clavien classification, grade I, II, III, and IV complications were observed in 249, 17, 11, 5 patients, respectively. Double J stent discomfort was the most common complication followed by transient fever 38°C or more (10.9% and 2.2% respectively). Blood transfusion was documented in transfusion in 10 patients (0.9%). Other individual complications occurred in less than 1.5% of cases. In patients with stag horn stones, grade I, II, III, and IV complications were significantly more common, and all grade IV complications occurred in patients with stone more than 3 cm in certain indications.

CONCLUSIONS: The modified Clavien classification provides a standardized grading system for complications of F-URS. A shorter operation time is imperative to achieve fewer complications. Previous stone-related fever, large stones and pre-stenting are significant contributing factors for developing postoperative fever.

Source of Funding: None
and basket groups, respectively ($p = 0.037$). Cytologic evaluation was found to increase diagnostic rates. Compared to the forceps, the basket also demonstrated superior deflection characteristics (Figure 1). As a result, lower pole lesions are more accessible when using the basket.

**CONCLUSIONS:** Stainless steel flat wire basket was shown to be superior to the 3 F cup biopsy forceps in terms of obtaining tissue diagnosis and providing specific grade.

**Source of Funding:** None

### MP12-22 RIGID, FLEXIBLE? WHY NOT SIMULTANEOUSLY BOTH?

Jorge Campos Castellanos*, Huixquilucan, Mexico

**INTRODUCTION AND OBJECTIVES:** We are devoted to improve our results, make procedures easier, faster, atraumatic for patients and if possible with less worn out for the surgeon. An ergonomic, intuitive and coherent concept for endoscopy has been developed for these purposes.

**METHODS:** An instrument with the stability of the rigid for maneuvering with the associated capabilities of the flexible has been built-up. The handle is ergonomic with a rotor that turns the active flexible distal section towards right to left at its resting position, which are the urinary orifices and kidney infundibulum positions while under anesthesia. A shaft with different elastic properties allows a proximal firm section to provide rotation feel, stabilize and control the distal flexible sections. An intermediate passive flexible section can be readily pushed by the previous section and be adapted to the urinary contour anatomy. A face tip assembly facilitates insertion even more.

**RESULTS:** With the first prototype 45 patients were operated on. 37 were pre-stented after ureteral stone withdrawal. All of them showed in the CAT-scan 2–4 renal stones. In 8 cases it was used during the acute episode of renal colic for proximal and mid ureteral stones. In all of them soft coaxial ureteral dilatation was carried out. The procedures were completed in all cases. This being defined as calcifications in renal papillae from approximately 200 microns to 12 mm in size were lasered, fragmented or retrieved with a basket either alone or in combination and ureteral stones completely extracted.

**CONCLUSIONS:** This concept allows the surgeon to be faster and seated during procedures, no fluoroscopy is necessary during exploration. It permits to be gentler to the patient with better results. Reproducible smooth and efficient procedures can be achieved. By author’s own means and resources the research and development of the instrument was completed and two patents obtained after several years. System, apparatus, and method for viewing a visually obscured portion of a cavity. US 8075478 B2. Face tip assembly for an endoscope US 8221311 B2.

**Source of Funding:** None
INTRODUCTION AND OBJECTIVES: Previously we have published data showing how clinician awareness surrounding radiation exposure when using urological procedures can prove challenging. Endoscopic ablation has recently become part of the urological armamentarium. Based on our centres experience using the Diode 1470 nm laser in the lower urinary tract. We report the first clinical use of the Diode 1470 nm laser in the upper urinary tract in a palliative setting.

METHODS: Following Institutional new technology, ethics and laser safety board reviews. A prospective cohort of patients with upper urinary tract TCC, who had opted for endoscopic management of their tumours, underwent palliative ablations. This was based on co-morbidities, the high risk of dialysis or patient choice.

Ablations were performed using the Biolitec Diode laser (1470 nm) using 200 or 400 micron fibres. Where indicated biopsies were performed using Piranha or BiGopsy biopsy forceps. Data was collected prospectively and included initial tumour grade and stage, procedure times, laser energy and usage. Follow-up was based on tumour burden and multi-focality.

RESULTS: The 1470 nm Diode laser was chosen due to ablative properties and effectiveness in the lower urinary tract. Between November 2011 and May 2013, 8 patients have undergone 14 ablations. Median age was 80 (range 64–88). All patients had multifocal disease with baseline histology G1-2ptA (N=12) and G3pta/1 (N=6). Mean laser time and energy usage was 338 seconds and 1633J respectively at 3–8 W settings (Mode 5 W). To date there have been no deaths or complications, 3 patients have undergone nephro-ureterectomy due to tumour burden or patient choice, specimens showed g1pta, g3pta and atypia. Follow-up regimes varied between 4–6 monthly. No complications have been seen.

CONCLUSIONS: The management of upper urinary tract TCC using the 1470 nm Diode laser appears safe. Ablative effects appear equivalent to the Holmium and Nd: YAG Lasers. Further evaluation and comparative studies are required.

Source of Funding: None
MP12-26 A QUALITY AUDIT OF UPPER RENAL TRACT UROTHELIAL BIOPSY: OUR INITIAL EXPERIENCE OF BIGOPSY FORCEPS

Basharat Hussain*, Wai Man Chow, Manchester, United Kingdom, Khalid Ahmed, Oldham, United Kingdom, John Calleary, Manchester, United Kingdom, Mukesh Gupta, Oldham, United Kingdom, Jacob Cherian, Manchester, United Kingdom, Zahid Hussain, Arun Jain, Ramesh Vennam, Raveendra Surange, Oldham, United Kingdom

INTRODUCTION AND OBJECTIVES: Tissue biopsy is the gold standard for diagnosis and treatment of upper renal tract urothelial malignancy. It is always a urologist’s challenge to achieve a representative sample of an upper renal tract lesion to facilitate a timely diagnosis and expeditious subsequent oncological treatment. Recent reports suggested true positive and true negative diagnoses were achieved with biopsy size at 3 mm, whereas false negative findings are found in specimens of 2 mm. There are various devices available in the market but few provides a consistently representative sample. We present a quality audit on our 2 year experience with different devices in sampling of upper renal tract lesions.

METHODS: 45 patients underwent ureteroscopic and ureterorenoscopic biopsy of upper renal tract lesions including papillary tumours between July 2011 and December 2012 were reviewed. All biopsies were immunohistochemically analyzed. The quality of samples were assessed by reporting histopathologist with a special interest and expertise in urological pathology.

RESULTS: 33 patients (23M:10 F) aged 50–90 (mean 65) who had biopsies using conventional biopsy devices, including reusable forceps (2), Dormia basket (1), Piranah (29) and an undocumented device (1) for pelvicalyceal lesions (2) and ureteral lesions (31). The size of specimens ranged from less than 1 mm (5),1 mm (14), 2 mm (8), and 3 mm (2). 8 patients needed a re-biopsy due to inadequate sample. Majority were considered of low quality for histopathological assessment. Further extensive immunohistochemical characterization (4), and repetitive reviews (4) were required for confirmation of diagnosis.

12 patients (8M:4 F) aged 50–90 (mean 64), underwent biopsies for ureteral lesions (10) and pelvicalaceal lesions (2) using BIGopsy forceps. All specimens achieved during first examination measured >3 mm. Unequivocal histopathological diagnoses were achieved. 10 patients were diagnosed with urothelial carcinoma, and 2 with chronic inflammation. 11 patients were discharged within 24 hours, with one patient needed ureteral stenting for suspected deep biopsy.

CONCLUSIONS: There are various biopsy devices available but few provides a satisfactory representative sample on a consistent basis for diagnosis. We experienced unpredictable outcome with 25% re-biopsy rate prior to the introduction of BIGopsy forceps. Accurate histopathological diagnoses were achieved with a significant impact on the timely treatment for urothelial malignancies of the upper renal tract.

Source of Funding: none

MP13 ENDOUROLOGY & NEW TECHNOLOGIES I

MP13-01 A MODIFIED RENAL NEPHYROMETRY SCORE PREDICTS ONCOLOGIC OUTCOMES FOR RADIO FREQUENCY ABLATION

Jeffrey Gahan*, Michael Richter, Casey Seideman, Danny Chan, Mathew Weaver, Dallas, TX, Ephrem Olweny, New Brunswick, NJ, Jeffrey Cadeddu, Dallas, TX

INTRODUCTION AND OBJECTIVES: The RENAL nephrometry score was developed as a standardized way to quantify renal mass complexity for tumors undergoing exirrative surgery. We hypothesized that because this system incorporates both size and location variables, it may have value in predicting outcomes for patients undergoing radiofrequency ablation (RFA). We examine how the RENAL and a modified RENAL nephrometry score can predict oncologic outcomes in patients following radiofrequency ablation (RFA).

METHODS: Consecutive patients who underwent RFA were identified from 2002–2011 and R.E.N.A.L nephrometry scoring was performed on those who met inclusion criteria. Analysis of standard RENAL revealed that it lacked sensitivity for tumors undergoing RFA because of the small sizes of treated tumors. A modification to the nephrometry score was then developed (m-RENAL) where tumors were given an R score of 1 if < 3 cm, 2 if 3–4 cm, and 3 if > 4 cm. Other RENAL variables were not changed. Complexity tertiles were defined as low 4–6, medium 7–9, and high > 9. The Kaplan-Meir method was used to determine survival estimates for size, RENAL and m-RENAL scores and groups were compared using log rank test.

RESULTS: Nephrometry scoring was performed on 194 renal masses. Median follow-up was 32.2 months and median tumor
had follow-up study period, 117 patients were ASA 1 or 2. Of these, 54 patients of the 354 patients having undergone RFA within the

RESULTS: Glomerular filtration rate (GFR) before and after ablation was

10 Hounsfield units) after the initial negative post-treatment CT.

recurrence was defined as any new enhancing lesion (more than

weeks, 6 months, 1 year and yearly with contrast imaging. Local

follow-up of 60 (IQR 48–90) months. Three (5.1%) of the treated

primary treatment. Median age at the time of ablation was 57

days. Initial ablation success and overall 5 year local recurrence free survival (RFS), was 96.4% and 93.7% respectively. When stratified by m-RENAI score, local recurrence free survival (RFS) was significantly different between low (5-year RFS 100%) and medium (5-year RFS 91.7%) complexity tumors compared to the highest complexity tumors (5-year RFS 68.9%) (p = 0.016). There was no difference between complexity tertiles for RFS when stratified by RENAL nephrometry score for RFS (p = 0.060). Based on a size stratification alone, RFS was best stratified by a tumor size cutoff of 3 cm (p ≤ 0.001 (Figure 1)). CSS and MFS where not compared as there were too few events to warrant a valid analysis.

CONCLUSIONS: A modified RENAL scoring system, m-RENAI, increases the accuracy of the nephrometry score when predicting RFS for tumors undergoing RFA compared to the standard RENAL score. The m-RENAI may apply to other ablative methods; however, confirmatory studies are needed.

Source of Funding: None

MP13-02 LONG-TERM OUTCOMES IN HEALTHY ADULTS FOLLOWING RADIOFREQUENCY ABLATION OF T1A RENAL TUMORS

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INTRODUCTION AND OBJECTIVES: Radio frequency ablation of small renal masses has been historically relegated for treatment in older and/or unhealthy patients. We sought to report the long-term oncologic and renal function outcomes in healthy adults treated with radiofrequency ablation for small renal masses.

METHODS: We retrospectively analyzed the medical records of healthy patients (American Society of Anesthesiologists symptom score 1 or 2) with clinical T1a renal tumors who underwent radiofrequency ablation (RFA) at our institution from March 2001-July 2012. Radiographic follow-up was performed at 6 weeks, 6 months, 1 year and yearly with contrast imaging. Local recurrence was defined as any new enhancing lesion (more than 10 Hounsfield units) after the initial negative post-treatment CT. Glomerular filtration rate (GFR) before and after ablation was calculated using the Cockcroft-Gault equation.

RESULTS: Of the 354 patients having undergone RFA within the study period, 117 patients were ASA 1 or 2. Of these, 54 patients had follow-up ≥ 3 years and of these 52 had RFA performed as primary treatment. Median age at the time of ablation was 57 (IQR 51–63) years. The mean tumor size was 2.2 cm with a median follow-up of 60 (IQR 48–90) months. Three (5.1%) of the treated masses had tumor recurrence after initial ablation for a 5- and 10-year recurrence-free survival (RFS) of 94.2%. There were no recurrences after 3 years in this population. Three (5.1%) patients died during the follow-up (non of RCC) for a 5- and 10-year overall survival of 93.7% and 91.1% respectively. No patients developed metastatic RCC. The paired change in eGFR before (106.3 ml/min/m²) and after RFA (99.2 ml/min/m²) was not significantly different (p = 0.06).

CONCLUSIONS: With long-term follow-up, radiofrequency ablation provides durable oncologic and functional outcomes for select T1a renal tumors in otherwise healthy patients.

Source of Funding: None

MP13-03 POST URETERAL STENT REMOVAL SYMPTOMS


INTRODUCTION AND OBJECTIVES: In our clinical practice it is not uncommon to encounter patients who experience various degrees of discomfort after ureteral stent removal. The etiology is unclear but is often self limiting. We counsel patients on their risk of having post ureteral stent removal pain based on anecdotal data. Herein, we sought to evaluate the incidence of post ureteral stent removal pain and attempt to find a correlation with the type of procedure underwent.

METHODS: All the patients who had a ureteral stent placed and subsequently removed by three surgeons for various reasons were evaluated by filling a survey conducted by a member of the healthcare team 1 to 3 weeks post ureteral stent removal. Univariate and multivariate analysis were used to assess correlation between demographics, operative procedures, convalescent time, and post ureteral stent removal symptoms.

RESULTS: Of the 89 patients in the final cohort, 35% had post stent removal symptoms (pain, hematuria, frequency, urgency and fever). A third of the patients (33.7%) experienced pain/discomfort after stent removal. Univariate analysis showed significant correlation between post-stent removal pain with procedures involving basket extraction, use of laser in the kidney, in-situ stent discomfort, method of stent removal, other post stent symptoms, medication use after stent removal and convalescent time. On multivariate analysis, correlation in procedures involving basket extraction and the use of medications post stent removal maintained significance.

CONCLUSIONS: The patient series suggests that one third of the patients who undergo ureteral stent removal experience pain and discomfort. Those who undergo basket extraction and laser fragmentation within the kidney may be at highest risk for post stent removal pain. As expected, those with pain were more likely to take medications and take longer to return to regular activities. Patients should be counseled about the risk of post ureteral stent removal pain particularly for those who undergo basket extraction and laser fragmentation within the kidney.

Source of Funding: None

MP13-04 EFFECTIVENESS OF A SEGMENTAL THERMOEXPANDABLE METAL ALLOY SPIRAL STENT (MEMOKATH 051TM) AND SELF-EXPANDABLE COVERED METALLIC STENT (UVENTA™) IN THE MANAGEMENT OF URETERAL OBSTRUCTION

Kang Sup Kim*, Yong Sun Choi, Sung-Hoo Hong, Hyuk Jin Cho, Tae Kon Hwang, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: In the UVENATM stent, polytetrafluoroethylene (PTFE) prevents the risk of tumor ingrowth and reduces encrustation. And in the Memokath 051TM, the ureteric wall preserves peristalsis and minimizes the risk of secondary ischemic damage to the ureter. We review our hospital experiences using Memokath 051TM and UVENTA™ in treating malignant and benign ureteral obstruction.

METHODS: A total 25 patients (Memokath 051TM:10 patients, UVENTA™: 16 patients) performed placement of metal ureteral stents from November 2011 to May 2013. Each stent was inserted by each surgeon, and all patients had received both stent
insertions by retrogradely under cystoscopy and fluoroscopy. We evaluated the success rate, preoperative and postoperative creatinine complications.

RESULTS: The main causes of inserted both stents were discouraging of regular change of double-J stent, bladder irritation and gross hematuria by double-J stent distal tip. 5 patients had bilateral ureteral obstructions, total of 15 ureter units stents were inserted Memokath 051™ in 10 patients (Benign stricture: 5 patients, malignant neoplasm: 5 patients). The numbers of inserted UVENTA™ stent was 1–3 (1 stent: 5 patients, 2 stents: 7 patient, 3 stents: 4 patients). The causes of inserted UVENTA™ were benign stricture (2 patients), malignant neoplasm (13 patients). The mean follow-up of Memokath 051™ and UVENTA™ were 11.2 months (7–18 months), 4.5 months (1–8 months). The success rate of Memokath 051™ and UVENTA™ were 60% (9/15), 87.5% (14/16), P = 0.061. Preoperative, postoperative serum creatinine level of Memokath 051™ was decreased (1.66 ± 1.11 Vs 1.47 ± 1.04 ml/min P = 0.038). Preoperative, postoperative serum creatinine level of UVENTA™ was decreased but not showed statistical difference (1.22 ± 0.52 ml/min Vs 1.03 ± 0.42 ml/min P = 0.051). The main complications of Memokath 051™ was 5 stent migrations in 3 patients, 3 ureter stents were substituted for UVENTA™ and 2 ureter stents were re-inserted by Memokath 051™. Obstruction by tumor progression, acute pyelonephritis was found in 1, 1 patient, respectively. The complications of UVENTA™ included that incrustation, pain was found in 1, 3 patients, respectively.

CONCLUSIONS: Both Memokath 051™ and UVENTA™ may resolve ureteral obstruction safely and effectively without significant complications.

Source of Funding: none

MP13-05 COMPARISON OF OUTCOMES IN PATIENTS UNDERGOING PERCUTANEOUS RENAL CRYOABLATION WITH SEDATION VERSUS GENERAL ANESTHESIA

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INTRODUCTION AND OBJECTIVES: Percutaneous renal cryoablation (PRC) has emerged as a promising treatment modality for small renal cortical neoplasms. PRC was originally performed with patients under general anesthesia (GA). However, the use of local anesthesia with conscious sedation (LACS) is now an option. We compared the efficacy and safety of LACS and GA general in patients undergoing PRC.

METHODS: We performed a retrospective multi-center review of patients undergoing PRC between 2003 and 2013 at two academic institutions. Patient demographics, tumor characteristics, peri-operative, postoperative and follow-up data were recorded and reviewed.

RESULTS: A total of 235 patients with available data were included in our analysis. Of these, 82 patients underwent PRC under GA and 153 patients under LACS. The two groups were similar with regard to age, gender, BMI, ASA Score, tumor size, polarity, location and depth, preoperative serum creatinine and hematocrit. The mean procedure time for LACS was significantly less compared to GA (102 vs. 133 minutes, P<0.0001). The mean hospital stay was shorter under LACS (1.08 vs. 1.95 days, P<0.0001). The mean follow-up time for LACS and GA was 21 and 37 months, respectively (P<0.0001). There was no difference in treatment-related complications and postoperative serum creatinine and hematocrit. Both groups had a similar percentage of patients with biopsy proven renal cell carcinoma (64.2% and 68.5% in the LACS and GA, respectively, P=0.621). There was no difference in immediate or delayed failures between LACS and GA (1.9% and 3.9%; 0 and 11%, respectively, P=0.051).

CONCLUSIONS: Percutaneous renal cryoablation for small renal masses under LACS is effective and safe. Our data shows that LACS has the advantage of decreased procedure time and a shorter hospital stay. Prospective randomized studies are needed to confirm these preliminary findings.

Source of Funding: none

MP13-06 EVALUATION OF CLINICAL OUTCOMES FOR PATIENTS WITH NONDIAGNOSTIC BIOPSY DURING CRYOABLATION OF RENAL CORTICAL NEOPLASMS

Samuel Juncal*, Michael Ordon, Zhamshid Okhunov, Achim Lusch, Orange, CA, Cassio Andreoni, São Paulo, Brazil, Jaime Landman, Orange, CA

INTRODUCTION AND OBJECTIVES: Nondiagnostic biopsy findings pose a dilemma in the follow-up of patients after renal cryoablation (RC). We compared the outcomes of patients with biopsy-proven renal cell carcinoma sub-types (RCC), biopsy-proven benign tumors, and nondiagnostic biopsies who underwent RC.

METHODS: We retrospectively reviewed the medical records of 114 patients who underwent RC for renal tumors between 2003–2013. The tumors were divided into three groups according to their biopsy histopathological findings: RCC, benign and nondiagnostic. Patient characteristics, tumor features, perioperative and oncological outcomes were recorded.

RESULTS: Renal cryoablation was done in 114 patients for 117 tumors. Seventy-two tumors (61.5%) had biopsy-proven RCC, 18 tumors (15.4%) had biopsy-confirmed oncocytoma/angiomyolipoma, and 27 tumors (23.1%) had nondiagnostic biopsy findings. Patient characteristics, tumor features and perioperative outcomes were similar across the 3 groups. Median follow-up (months) was 26.5 in patients with RCC, 26.0 in those with benign tumors, and 22.0 in patients with nondiagnostic biopsies (P = 0.182). No significant difference in the rate of residual disease between RCC, benign and nondiagnostic tumors (1.4%, 0% and 7.4%, respectively; P = 0.174) was demonstrated. There was no significant difference in the recurrence rate demonstrated across the three groups (11.1% for RCC vs. 0% for benign vs. 0% for nondiagnostic, P = 0.068). In patients with biopsy-proven RCC, biopsy-confirmed benign tumor and nondiagnostic biopsy findings, the 2- and 5-year recurrence-free survival was 91.5% and 78%, 100% and 100%, and 100% and 100%, respectively (p = 0.101). All patients with biopsy-proven RCC and locally recurrent disease were managed with repeated RC. Subsequently, three patients developed local re-recurrence disease and underwent salvage treatment, with one patient ultimately developing metastatic disease. The 5-year disease-free survival across the groups was 96.5% in patients with biopsy-proven RCC, 100% in patients with biopsy-confirmed benign tumors, and 100% in patients with nondiagnostic biopsy findings (P = 0.70).

CONCLUSIONS: On intermediate term follow-up, the rate of both residual and recurrent disease was not significantly different between patients with biopsy-proven RCC, biopsy proven benign tumors and nondiagnostic biopsies. Long-term follow-up is needed to further evaluate these preliminary results.

Source of Funding: none
MP13-07 HYDROPHILIC GUIDEWIRES: EVALUATION AND COMPARISON OF THEIR PROPERTIES AND SAFETY

Fabio Torricelli, Shubha De*, Carl Sarkissian, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Choosing the correct guidewire during endourology procedures may help to improve success rates and minimize morbidity. Herein, we aim to compare physical and mechanical properties of ten commercially available hydrophilic guidewires.

METHODS: In vitro testing was performed to evaluate ten different straight hydrophilic guidewires (five regular, five stiff wires): Glidewire (Boston Scientific, Natick, MA), NiCore (Bard Urological, Covington, GA), EZ Glider (Gyrus ACMI, Southborough, MA), Hiwire (Cook Medical, Indianapolis, IL) and Zipwire (Boston Scientific, Natick, MA). Forces required for tip perforation, tip bending, shaft bending, and friction during movement were measured for all wires. Tip contour was measured with high power light microscopy.

RESULTS: The Glidewire required the greatest force to perforate our model (p < 0.01). EZ Glider, Zipwire, Glidewire had the lowest tip bending forces (p < 0.001). The Glidewire had the stiffest shaft (p < 0.001). EZ Glider and Glidewire required the greatest forces in the friction test (p < 0.001). Regarding the stiff guidewires, the Glidewire required the greatest force in the perforate test (p < 0.05). Glidewire and EZ Glider required the lowest tip bending force (p < 0.004). Zipwire and NiCore had the stiffest shafts (p < 0.01). Glidewire required the greatest force in the friction test (p < 0.001). Tip contour showed Zipwire, Hiwire, and EZ Glider with the roundest tips.

CONCLUSIONS: Each wire has unique properties with advantages and disadvantages. The Glidewire (both stiff and regular) have the lowest potential for perforation though they are less slippery. The Glidewire and the EZ Glider wires require the least tip force to bend around a point of obstruction.

Source of Funding: None

MP13-08 DOES DIAZEPAM ALTER PAIN PERCEPTION DURING PROSTATE BIOPSY?

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INTRODUCTION AND OBJECTIVES: Ultrasound probe insertion and needle biopsy of the prostate may result in patient anxiety and discomfort. The effect of oral anxiolytics in diminishing patient anxiety and pain perception has been demonstrated in endoscopy, bone marrow aspiration, and lumbar puncture, but has not been studied in the setting of prostate biopsy. The purpose of this study was to investigate the effect of diazepam on pain perception during and after prostate biopsy using a prospective, randomized, double-blinded, placebo-controlled study.

METHODS: One hundred patients undergoing prostate biopsy at a single academic institution were enrolled. Patients allergic to benzodiazepines, unaccompanied by a driver, older than 75 years, or with previous history of prostate biopsy were excluded. Between 13 and 28 core biopsies were performed in a standardized fashion with a periprostatic nerve block (20 mL of 1% plain lidocaine). Prior to the procedure, a questionnaire was administered to determine baseline discomfort and pain history.

Patients were surveyed about pain associated with each step of the procedure immediately after biopsy and at one-week follow-up. Pain perception was analyzed using a Visual Analog Scale. Responses were compared between groups using Mann-Whitney U, Fisher’s exact, and multivariate linear regression analyses.

RESULTS: A total of 60 patients (29 valium, 31 placebo) had completed pre- and post-biopsy surveys for analysis. Number of cores sampled during biopsy was controlled during analysis, and was found to have no correlation with total pain measured (p = 0.179). There were no differences between valium and placebo groups in age, pre-biopsy survey results, or immediate post-biopsy survey results. However, upon one-week recall of the same pain parameters, the diazepam group displayed significantly greater pain scores during probe insertion (p = 0.012).

CONCLUSIONS: According to the results of this study, diazepam does not improve patient perception of pain after prostate biopsy. Omitting diazepam simplifies the biopsy procedure and allows the patient to drive himself home. Based on our results, routine use of diazepam in prostate biopsy is not recommended.

Source of Funding: None

MP13-09 INTRAOPERATIVE FROZEN SECTION ANALYSIS: PRACTICE PATTERNS OF HIGH-VOLUME SURGEONS PERFORMING ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY

Nina Harkani*, Khushabu Kasabvalu, Pengbo Jiang, Jennifer Yates, Ravi Munver, Hackensack, NJ

INTRODUCTION AND OBJECTIVES: Robot-assisted laparoscopic partial nephrectomy (RAPN) is being increasingly performed for complex renal masses. The role for intraoperative frozen section analysis (FSA) at the time of RAPN remains undefined.

METHODS: A group of 29 high-volume robotic surgeons performing RAPN were surveyed regarding the use of FSA during RAPN. Responses were reviewed anonymously and practice patterns were evaluated.

RESULTS: A total of 25 surgeons (86%) completed the survey. Eight surgeons (32%) utilize FireflyTM (or similar) software to assist with tumor margin assessment during RAPN. Twenty surgeons (80%) perform FSA at least occasionally. Of these surgeons, 3 (12%) perform FSA of the tumor only, 13 (52%) perform FSA of the renal parenchymal defect only, and 4 (16%) perform FSA of both the resected tumor and the renal parenchymal margin. Five surgeons (20%) report never performing FSA. Of surgeons who perform FSA, only 21.7% perform FSA on every renal mass. Ninety-five percent of surgeons who selectively perform FSA cite intraoperative subjective perception of margin for this decision. Twenty-two percent of surgeons report that the result of FSA has never altered intraoperative management. Sixty-seven percent of surgeons report that, in at least one instance, a positive intraoperative FSA margin led to the resection of additional renal tissue; 26% have removed a kidney in the setting of a positive FSA. Thirteen percent of surgeons have had a positive FSA, and used the information to counsel a patient regarding subsequent follow-up. Sixty-three percent of surgeons have experienced a discrepancy between intraoperative FSA and the final permanent pathologic specimen. Eighty percent of surgeons have requested intraoperative consultation from Pathology to biopsy the tumor at the time of RAPN.
CONCLUSIONS: A majority of high-volume robotic kidney surgeons utilize intraoperative FSA, with surgeon perception of margin status being the main determinant of whether or not to perform FSA. Prospective monitoring may serve to better delineate the indications for FSA and the potential complications associated with FSA sampling. In addition, a potential discrepancy between FSA and permanent pathologic specimen evaluation must be further evaluated before advocating the use of routine FSA.

Source of Funding: None

**MP13-10** SHIM VS. SHAM SCORE: PREOPERATIVE ERECTILE FUNCTION IS IN THE EYE OF THE BEHOLDER

Peter Sunaryo*, Nina Harkhani, Pengbo Jiang, Jennifer Yates, Ravi Munver, Hackensack, NJ

**INTRODUCTION AND OBJECTIVES:** The SHIM (sexual health inventory for men) score is widely used to assess preoperative erectile dysfunction (ED) for men undergoing robot-assisted laparoscopic radical prostatectomy (RALP). The severity of ED according to a SHIM score is from 1 (worst) to 25 (best). Due to the subjectivity of SHIM score reporting, we sought to assess the consistency and variability of SHIM score reporting. We independently provided the same 5 question form to patients and their spouses and asked them to complete the questionnaire based on their assessment of the patient’s sexual function. If a man’s score was inconsistent with that of his spouse, or postoperative erectile function, then score was termed “SHAM score.”

**METHODS:** Following IRB approval, 25 men and their spouses agreed to complete the SHIM form questionnaire independently and preoperatively. Patients that had a bilateral nerve-sparing RALP procedure were included for analysis. Penile rehabilitation consisted of postop sildenafil 25 mg nightly as well as on-demand dosing. Responses to the SHIM questionnaire and postoperative erectile function were assessed at 24 months or later and were correlated to return of erectile function.

**RESULTS:** A total of 25 patients met inclusion criteria if they were in a stable relationship (ie. men who had an opportunity for sexual activity). Mean age was 58.5 years (range 45–72), and mean preoperative SHIM was partitioned into five severity grades: no ED (22–25) (n = 5), mild ED (17–21) (n = 5), mild to moderate ED (12–16) (n = 5), moderate ED (8–11) (n = 5), and severe ED (1–7) (n = 5). Patient and spouse SHIM scores between 22–25 were statistically similar in men 45–59 years of age and statistically different in men >65 years of age (p < 0.01). In men with SHIM scores between 1–16, scores were statistically similar across all ages. When there was a discrepancy between the SHIM score of the men and their spouses, the men’s SHIM score was typically higher (mean 2.8 higher) than that of his spouse. The greatest variability of SHIM score was in patients with diabetes, cardiac disease, or hypertension. The median follow up was 28 months at which point SHIM scores were compared to erectile function.

**CONCLUSIONS:** Younger men reported scores that were similar to that of their spouses and which correlated with postoperative erectile function (true SHIM score). Older men and those with medical histories had the greatest variability of their score with that of their spouse (SHAM score). With the understanding that this is a small initial patient cohort, we plan to continue to accrue data to better characterize and predict accuracy in SHIM score reporting.

Source of Funding: None

**MP13-11** CURRENT PATTERNS OF PRESENTATION AND TREATMENT OF RENAL MASSES: A CROES PROSPECTIVE STUDY

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**INTRODUCTION AND OBJECTIVES:** To assess clinical and pathological patterns of presentation and treatment in a contemporary population with renal masses and detect possible differences among continents.

**METHODS:** The Clinical Research Office of the Endourology Society (CROES) collected prospective data on consecutive patients with renal masses treated over a 1-year period in 98 centers worldwide. Preoperative assessment and treatment were performed according to local clinical practice guidelines. Data on immediate perioperative variables and complications were recorded. Epidemiological, clinical and operative characteristics were assessed.

**RESULTS:** From January 2010 to February 2012, 4288 patients (4355 cases), were treated for a renal mass. A number of differences were reported in treated patients from different continents, including BMI, co-morbidities, diagnosis, tumor size, treatment and tumor pathology. There was a high rate of comorbidity in the patient cohort (65.6%), including a 48.5% rate of hypertension; one-third of patients had a combination of two or more comorbidities. One-third of patients had a risk factor for a renal mass, of which smoking (21.7%) and other previous cancer than renal cell carcinoma (RCC) were the most common. The diagnostic was incidental in 67% of cases and 50.4% of the tumors were SRMs. CKD stage ≥III was present at baseline in 20.3% of cases. Overall 94% of the cases were surgically treated (Radical Nephrectomy 49.1%, Partial Nephrectomy/Enucleation 40%, and ablation 3.3%). From the extirpated cases 86% were malignant tumors. From the RCCs 42% were pT1a.

**CONCLUSIONS:** The current incidence of SRMS accounts clinically for 50% and pathologically for 42% of all renal masses. Patients with renal masses have a high rate of comorbidity and 20% have CKD≥III at diagnostic. In spite of these findings the number of cases treated by NSS has significantly increased.

Source of Funding: The Renal Mass Global Study was supported by an unrestricted educational grant from Storz.

**MP13-12** START OF SALVAGE TREATMENT FOR PERSISTENT POSITIVE BIOPSIES AFTER HIFU

Rafael Sanchez-Salas*, Dominique Prapotnic, Paris, France, Fernando Secin, Buenos Aires, Argentina, Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

**INTRODUCTION AND OBJECTIVES:** To report long term oncologic outcome of HIFU-Ablatherm in patients with low risk localized prostate cancer treated with HIFU and receiving secondary therapy due to positive persistent biopsies.

**METHODS:** From December 1995 to April 2010, 534 patients with localized PCA were treated in our institution. Patients with available positive biopsies and long term follow-up were considered for the study. Data on Prostate-specific antigen (PSA),
clinical stage, cancer control, recurrence, post-HIFU biopsies and secondary treatment patterns have been prospectively collected and retrospectively analyzed. Sextant biopsies were indicated at rising PSA under physicians criteria. Chi-square test was used for statistical analysis distribution with a $p < 0.05$. Salvage free survival (SFS) was estimated with Kaplan-Meier curves.

RESULTS: We identified 56 patients with more than 5 years of reliable follow-up data and post HIFU positive biopsies. Median post-biopsy follow-up was 2 years (0.6, 10.2). Median age at time of treatment was 73 years (range 57–82), median PSA 8.04 ng/ml (range 2.48–28), median prostate volume 30 g (15–65) and median Gleason score 6 (4–7). Stratification according to D'Amico's risk group was low, intermediate, and high in 29 (52%), 21 (37%) and 6 (11%) of patients, respectively. The median PSA nadir was 1.4 ng/ml (0.1–13.94) with a median time to nadir of 9.8 weeks (4–49). Phoenix biochemical recurrence and salvage treatment had a related distribution in patients with positive biopsies (Contingency table). Secondary therapy free survival rates were 75%, 65%, and 100% (N.S.) for low-, intermediate-, and high-risk patients, respectively. Secondary treatment was 23 (41%), 16 (29%), 1 (2%) for hormonotherapy, radiotherapy and brachytherapy, respectively. 43 (17%) patients received re-treatment with HIFU. 16 (21.4%) of the patients were re-treated with HIFU, and 23 (41%), 15 (27%) and 1 (2%) received salvage hormonotherapy, radiotherapy and brachytherapy, respectively.

CONCLUSIONS: Post-HIFU biopsies have a significant impact in therapeutic decision for patients with localized prostate cancer. The procedure should be incorporated in a standardized way during post-HIFU follow-up.

Source of Funding: None

MP13-13 THE SECOND “TIME-OUT”: A SURGICAL SAFETY CHECKLIST FOR LENGTHY ROBOTIC SURGERIES
Joseph Song*, Goutham Vemana, Jonathan Mobley, Sam Bhayani, St Louis, MO

INTRODUCTION AND OBJECTIVES: Robotic surgeries of long duration are associated with both increased risks to patients as well as distinct challenges for care providers. We propose a surgical checklist, to be completed during a second “time-out”, aimed at reducing peri-operative complications and addressing obstacles presented by lengthy robotic surgeries.

METHODS: A review of the literature was performed to identify the most common complications of robotic surgeries with extended operative times. A surgical checklist was developed with the goal of addressing these issues and maximizing patient safety.

RESULTS: Extended operative times during robotic surgery increase patient risk for position-related complications and other adverse events. These cases also raise concerns for surgical, anesthesia, and nursing staff which are less common in shorter, non-robotic operations. Four sections were created for the checklist, including general patient considerations, surgeon considerations, anesthesia considerations, and nursing considerations (fig 1). Key elements of the checklist were designed to coordinate operative staff in verifying patient safety while addressing the unique concerns within each specialty.

CONCLUSIONS: As robotic surgery is increasingly utilized, operations with long surgical times may become more common due to increased case complexity and surgeons overcoming the learning curve. A standardized surgical checklist, conducted three to four hours after the start of surgery, may enhance peri-operative patient safety and quality of care.

Source of Funding: None

MP13-14 TANDEM URETERAL STENTS FOR THE DECOMPRESSION OF MALIGNANT AND BENIGN OBSTRUCTIVE UROPATHY
Sammy Elsamra*, Hector Motato, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: To evaluate the utility of two ipsilateral ureteral stents placed for benign and malignant ureteral obstruction.

METHODS: We performed a retrospective analysis of all cases of tandem ureteral stent (TUS) insertion at our institution from July 2007 thru Jan 2013. Student’s t-test and Fisher’s exact test were used for continuous and categorical variables, respectively. Survival curves were constructed using Kaplan-Meier method and Log-Rank test was performed to assess for significance of apparent survival differences.

RESULTS: TUS insertion or exchange was performed in 187 cases. 66 patients (75 renal units) underwent successful tandem stent insertion. Malignant ureteral obstruction (MUO) was the cause for obstruction in 39 renal units (34 patients) vs benign ureteral obstruction (BUO) in 36 renal units (32 patients). Four patients with BUO and 15 patients with MUO underwent stent exchanges at a mean 145 and 128 days, respectively. Serum creatinine levels were stable post stent placement in both cohorts.
TUS for BUO and MUO: Patient and Case Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr) Median (range)</td>
<td>49 (25-74)</td>
</tr>
<tr>
<td>Solitary kidney</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>Female</td>
<td>11 (52%)</td>
</tr>
<tr>
<td>Laparoscopic nephrectomy</td>
<td>9 (43%)</td>
</tr>
<tr>
<td>Preoperative Cr (g/dL) mean</td>
<td>1.19 mg/dL</td>
</tr>
<tr>
<td>Peak Cr (g/dL) mean</td>
<td>1.70 mg/dL</td>
</tr>
<tr>
<td>Postoperative Cr (g/dL) mean</td>
<td>0.96 mg/dL</td>
</tr>
<tr>
<td>Length of stay (days) (range)</td>
<td>5.8 (4-11)</td>
</tr>
<tr>
<td>Length of follow up (mo) median</td>
<td>24 (3-54)</td>
</tr>
<tr>
<td>Intraoperative complications (%)</td>
<td>1 (4.7%)</td>
</tr>
<tr>
<td>Postoperative complications (%)</td>
<td>2 (9.5%)</td>
</tr>
</tbody>
</table>

Degree of hydronephrosis was noted to improve (paired t-test p < 0.03) after stent placement for both benign and malignant cohorts. TUS were noted to fail (flank pain with worsening hydronephrosis or increasing creatinine) in 5 renal units with MUO (12.8%) and none with BUO. Stent failure (either conventional or TUS) suggested worsening survival in those with MUO. Median survival for those with MUO and a history of stent failure (10 died of 14, 71%) was 66 days compared with 432 days for those without a history of stent failure (8 died of 20, 40%) (Log-Rank Test p = 0.007).

CONCLUSIONS: Our experience with TUS, the largest to date, demonstrates that they are highly successful in both benign and malignant causes of obstruction. Stent failure may be predictive for shorter survival.

Source of Funding: none

**MP13-15 AUTOTRANSPLANTATION – AN EXCELLENT TECHNIQUE FOR COMPLEX URETERAL AND RENAL VASCULAR PATHOLOGY**

Richard Johnston*, Natalya Lopushnyan, Thomas Hefty, Paul Kozlowski, Seattle, WA

**INTRODUCTION AND OBJECTIVES:** Renal autotransplantation has been described in the past as a management option for complex ureteral and renal vascular pathology. We report a single center long-term outcomes and late complications after nephrectomy with autotransplantation for a variety of pre-operative indications.

**METHODS:** We retrospectively reviewed clinical data on all patients who underwent nephrectomy with auto transplantation between July 2007 and August 2012. Indications, intra- and perioperative complications as well as late complications were analyzed.

**RESULTS:** A total of 21 patients were identified. Autotransplantation of a solitary kidney was performed in 3 out of 21 patients. Indications for autotransplantation included complex ureteric or renal vascular abnormalities. In selected patients autotransplantation provides safe and effective approach to prevent renal loss and preserve existing renal function.

**CONCLUSIONS:**

**Source of Funding:** None

**MP13-16 RELIABILITY OF THE CT-SCAN PERCUTANEOUS BIOPSY FOR SMALL RENAL MASSES**

Alexandre Ingels*, Eric Barret, Francois Audenet, Luca Lunelli, Guilherme Prada Costa, Francois Rozet, Marc Galiano, Rafael Sanchez-Salas, Stephane Lenoir, Pierre Validire, Xavier Cathelineau, Paris, France

**INTRODUCTION AND OBJECTIVES:** The reliability of the percutaneous biopsy for small renal masses (1-3 cm) remains highly debated. We assessed the accuracy of the CT-guided percutaneous biopsy with respect to the histologic diagnosis and the size and location of the tumor.

**METHODS:** We included 100 patients with 100 renal masses (mean size ± standard deviation: 27.0 ± 4.4 mm) who were referred for percutaneous biopsy. The histologic diagnosis was determined by intra-operative ultrasound (IOUS) and/or frozen sections. The percutaneous biopsy was performed under CT guidance using a 14 gauge or 16 gauge needle. The biopsy specimen was fixed in formalin and sent for histologic examination. The results of the percutaneous biopsy were interpreted by several pathologists based on the hematoxylin and eosin staining. The accuracy of the percutaneous biopsy was assessed by comparing the histologic diagnosis with the final histologic diagnosis determined by the pathologist. The size and location of the tumor were recorded.

**RESULTS:** The accuracy of the percutaneous biopsy was 92% (95% confidence interval: 86-98%). The mean size ± standard deviation of the biopsy specimen was 5.2 ± 2.8 mm. The biopsy specimen was located in the tumor in 92% of cases (95% confidence interval: 86-98%). The biopsy specimen was located near the tumor in 8% of cases (95% confidence interval: 5-12%). The biopsy specimen was not located in the tumor in 0% of cases (95% confidence interval: 0-0%). The biopsy specimen was located in the renal parenchyma in 92% of cases (95% confidence interval: 86-98%). The biopsy specimen was located near the renal parenchyma in 8% of cases (95% confidence interval: 5-12%). The biopsy specimen was not located in the renal parenchyma in 0% of cases (95% confidence interval: 0-0%).

**CONCLUSIONS:** The CT-guided percutaneous biopsy is a reliable and accurate method for the diagnosis of small renal masses. The biopsy specimen should be located in the tumor to ensure accurate diagnosis. The biopsy specimen should be located near the tumor to ensure accurate diagnosis.

**Source of Funding:** None
INTRODUCTION AND OBJECTIVES: The aim of this study was to assess the veracity of the outcomes from renal biopsy performed under CT-scan control for patients harboring cT1a stage tumors.

METHODS: In a retrospective study, we analyzed the outcomes of renal biopsies performed under CT-scan control for patients harboring tumors under 4 cm. Pathology has been compared between biopsy sample and nephrectomy specimen. Every patient included had a small renal mass (cT1a) and had to undergo a CT-scan guided renal biopsy before nephron sparing or enlarged nephrectomy (that had to be done within 6 months after the biopsy).

RESULTS: From January 2007 to December 2012, we performed 79 CT-scan guided renal biopsies. Among these patients, biopsy lead to the diagnosis of the renal lesion for 70 cases. For 9 cases, biopsy was not contributive. Following the biopsy, 19 patients underwent a nephron sparing surgery and 10 a radical nephrectomy. Comparison of the pathological outcomes between biopsy and surgical specimen showed an agreement for the diagnosis of carcinoma in 28 cases (97%): one case of chromophobe carcinoma on biopsy sample analyze happened to be an oncocytoma on the surgical specimen. Sensitivity was 100% and Specificity 67%.

CONCLUSIONS: Renal biopsy under CT-scan control yield to a trustful diagnosis of small renal mass in most of the cases. It seems relevant to systematically offer this strategy to the patients in order to adapt their following treatment.

Source of Funding: None

MP13-17 THE USE OF A THERMOEXPANDABLE METAL ALLOY STENT IN THE MINIMALLY INVASIVE TREATMENT OF RETRO PERITONEAL FIBROSIS - A SINGLE CENTRE EXPERIENCE

Andreas Bourdounis, Stefanos Kachrilas*, Sona Kapoor, Faruqz Zaman, Shafi Wardak, Athanasios Papatosiris, Noor Buchholz, Junaid Masood, London, United Kingdom

INTRODUCTION AND OBJECTIVES: To review our experience and the effectiveness of the ureteric Memokath 051™ metal stent in retroperitoneal fibrosis patients with ureteric stricture and renal impairment.

METHODS: We retrospectively reviewed the records of 14 patients treated between 2008 and 2012. Benign and malignant causes of RPF were included. Success was defined as improvement of renal function and lack of complications following stent placement. Follow up was at 6 weeks, 3 months, 6 months and annually thereafter.

RESULTS: Mean length of follow up was 22.5 months (range 3 to 56 months). The study included eight (8) female and six (6) male patients (n=14). Mean age was 60.2 years + / - 8.37 SD. The majority of patients had idiopathic RPF (n=12, 85.7%). A total of 23 renal units were stented in 14 patients, nine of which had bilateral disease (64.3%). Ten patients (71.4%) had previously received medical treatment, while three (21.4%) presented with recurrent disease post ureterolysis. The mean stricture length was 7.59 cm + / - 6.16 SD on the right and 7.71 + / - 5.08 SD (p = 0.925). Patients tolerated the stents well with minimal discomfort. There was improvement in renal function in all patients, with mean preoperative creatinine 243.35 + / = 135.84 SD and mean postoperative creatinine 153 + / - 83.69 SD (p < 0.001). Three patients (21.4%) presented with stent obstruction due to migration (two) and blockage (one), requiring subsequent removal. All these patients had bilateral disease and all six (6) renal units were managed with conventional double J stent insertion. Average presentation of complications was at 11.75 months (range 8–14 months). Complete resolution of the obstruction was observed in one of the four patients with migrated stents and has been stent free with normal renal function for 14 months.

CONCLUSIONS: Ureteral obstruction was managed successfully in 78.57% of patients (n = 11/14). All patients presented with improvement of renal function. To our knowledge, this is the first study using metal stents in retroperitoneal fibrosis patients. Retrograde placement of the ureteric Memokath 051™ metal stent can be considered as a promising alternative for initial or salvage post ureterolysis minimally invasive management of ureteral obstruction in retroperitoneal fibrosis.

Source of Funding: None

MP13-18 ESTABLISHMENT AND QUANTITATIVE ANALYSIS OF AN ORTHOTOPIC MURINE BLADDER CANCER MODEL

Lingbo Yang, Yuchuan Hou*, Changchun, China, People's Republic of

INTRODUCTION AND OBJECTIVES: To establish a simple and efficient method for establishing an orthotopic murine bladder cancer animal model and investigate the value of TA (Tumor area) for quantitative analysis of bladder tumor development.

METHODS: The bladders of C57BL/6 mice were intravesically pretreated with Poly-L-lysine to establish the GFP-MB49 mice in situ bladder carcinoma model. The experimental group was treated with mitomycin perfusion, the control group received PBS perfusion. HE staining of mouse bladder tissue was used for pathological examination. Tumor area percentage TA (Tumor area) was used to evaluate tumor development.

RESULTS: Nearly 100% tumor rates were achieved by using Poly-L-lysine pretreatment of the bladder to establish the mice in situ bladder carcinoma model. The orthotopic animal model could simulate the progression of human bladder cancer approximately. Mitomycin therapy reduced bladder weights and TA significantly, as compared to PBS.

CONCLUSIONS: Poly-L-lysine pretreated mice bladder can establish a simple and efficient animal model of orthotopic bladder cancer, which could simulate the progression of human bladder cancer approximately. TA can used to accurate quantitative analysis of bladder tumor.

Source of Funding: none

MP13-19 ACTIVE SURVEILLANCE OF RENAL MASSES: AN ANALYSIS OF GROWTH KINETICS AND CLINICAL OUTCOMES STRATIFIED BY RADIOLOGICAL CHARACTERISTICS AT DIAGNOSIS

Ryan Dorin*, Max Jackson, Halil Kiziloz, Kyle Finnegan, Stuart Kesler, Anoop Meraney, Steven Shichman, Hartford, CT
CONCLUSIONS: RMs under AS had a low rate of tumor respectivly. Year freedom from intervention rates were 92.1% and 64.9 %, Source of Funding: AS should be considered for all patients with RMs.

masses grew slowly, but were more likely to trigger intervention. MTD growth rate for all RMs was 0.9 – 0.9 and 0.6 mm/year for SRMs stratified by MTD at diagnosis, RM growth rates were 1.8, 0.8, 0.5, ‡ and 2.5 mm/year. When

The mean tumor maximal diameter (MTD) at diagnosis was of partial nephrectomy. We present our single center experience comorbidities. Short-term oncologic efficacy is approaching that bidity. As a result they have been used in patients with multiple use of cross-sectional imaging. Thermal ablative therapies rep-

Monitoring (AS) protocol, and to illustrate the clinical outcomes of patients on AS.

METHODS: Our prospectively maintained AS database of RM patients was reviewed for demographics and radiological and pathologic characteristics. Patients were followed at 6–12 month intervals for >1 year with serial CT, MRI, or renal ultrasound abdominal imaging. Kaplan-Meier analysis determined the annual likelihood of intervention. RMs were divided into 3 radiographic subcategories (solid, angiomyolipoma (AML), and Bosniak ≥ IIF cystic). A mixed regression model determined RM annual linear growth rates.

RESULTS: 130 RMs in 116 patients met the inclusion criteria. Median patient age, median Charlson Comorbidity Index and mean follow up was 68 years, 6 and 3.6±2.2 years, respectively. The mean tumor maximal diameter (MTD) at diagnosis was 2.1±1.3 cm. 58 RMs exhibited negative or zero net growth. Mean MTD growth rate for all RMs was 0.9±2.5 mm/year. When stratified by MTD at diagnosis, RM growth rates were 1.8, 0.8, 0.5, 0.9 and 0.6 mm/year for SRMs <1 cm, 1–2 cm, 2–3 cm, 3–4 cm and ≥4 cm, respectively (p <0.01).

Surgical intervention was performed on 12 RMs. The 5 and 10 year freedom from intervention rates were 92.1% and 64.9 %, respectively.

CONCLUSIONS: RMs under AS had a low rate of tumor growth, a low incidence of surgical intervention. Solid enhancing masses grew slowly, but were more likely to trigger intervention. AS should be considered for all patients with RMs.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: To determine the expected growth rate of renal masses (RM) under an active surveillance (AS) protocol, and to illustrate the clinical outcomes of patients on AS.

METHODS: Our prospectively maintained AS database of RM patients was reviewed for demographics and radiological and pathologic characteristics. Patients were followed at 6–12 month intervals for >1 year with serial CT, MRI, or renal ultrasound abdominal imaging. Kaplan-Meier analysis determined the annual likelihood of intervention. RMs were divided into 3 radiographic subcategories (solid, angiomyolipoma (AML), and Bosniak ≥ IIF cystic). A mixed regression model determined RM annual linear growth rates.

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CONCLUSIONS: RMs under AS had a low rate of tumor growth, a low incidence of surgical intervention. Solid enhancing masses grew slowly, but were more likely to trigger intervention. AS should be considered for all patients with RMs.

Source of Funding: none

MP13-23 ANALYZING COSTS OF KIDNEY CANCER SURGERY: IN-DEPTH ANALYSIS OF PROVIDERS WITHIN A SINGLE INSTITUTION

Blake Hamilton*, Salt Lake City, UT

INTRODUCTION AND OBJECTIVES: With the current state of healthcare reform in the United States, it is becoming increasingly important to analyze the costs associated with the clinical activities performed. Many studies address this by using charge data—that is, by calculating the totals of billed charges. These numbers don’t correspond to the cost of delivering care. In our institution, we have developed a software system that enables assignment of actual costs to every aspect of every patient’s care. Using these data, it is possible to analyze the practice patterns of physicians doing the same work and evaluate the cost of the care delivery. For this paper, we use the example of surgery for kidney cancer to analyze the practice patterns of urologists within a single institution.

METHODS: Using a proprietary software package developed at the University of Utah, we have compiled the cost data for 6 urologists at a single institution performing kidney cancer surgery during the period July 1, 2011 through June 30, 2012. We selected the DRG 658: Kidney surgery for neoplasm without complications. We then break down the actual cost of delivering this service and compare the practice patterns of the individual urologists by using the lowest cost practice as the reference point.
**INTRODUCTION AND OBJECTIVES:** Between 2000 and 2011, 2,199 men (mean age: 68.6 years) were diagnosed at low PSA. Despite lack of nationwide PSA screening, the majority (38%) were completed by 4 of the urologists, who all routinely perform kidney surgery. Using the lowest cost provider as reference, the other providers cost 1.16, 1.29, and 1.60 times the reference. The mean length of stay (LOS) was 0.66, 0.87, and 1.29 times the LOS of the reference doctor. Drilling down in the data reveals further discrepancies that shed light on practice patterns.

**CONCLUSIONS:** We found a significant difference in the cost of delivering the same service (kidney cancer surgery) to our patients. Using actual cost data can identify practices that are higher cost. These data must be matched with individual physicians, allowing for the disparities in their practice, to decrease the variability of delivered services. This can be used as a tool to control our cost of care in the changing healthcare environment.

**Source of Funding:** None

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**RESULTS:** The 6 urologists performed a total of 95 procedures during the study period. Of these, 40 procedures fit the DRG criteria selected. The majority (38%) were completed by 4 of the urologists, who all routinely perform kidney surgery. Using the lowest cost provider as reference, the other providers cost 1.16, 1.29, and 1.60 times the reference. The mean length of stay (LOS) was 0.66, 0.87, and 1.29 times the LOS of the reference doctor. Drilling down in the data reveals further discrepancies that shed light on practice patterns.

**CONCLUSIONS:** We found a significant difference in the cost of delivering the same service (kidney cancer surgery) to our patients. Using actual cost data can identify practices that are higher cost. These data must be matched with individual physicians, allowing for the disparities in their practice, to decrease the variability of delivered services. This can be used as a tool to control our cost of care in the changing healthcare environment.

**Source of Funding:** None

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**RESULTS:** Number of prostate biopsy itself had increased with time: 669, 1416, 2037 and 3996 during the year-periods, and number of people exposed to PSA screening had increased from 23.8% to 33.7%, as well. The proportion of clinically localized disease and low grade tumors were significantly increased over the period. Likewise, serum PSA at diagnosis had also significantly reduced from 19.5 ng/ml during 2000–2002 periods to 7.1 ng/ml during 2009–2011 periods. Trend of PSA decrease was significant in non-screened group (p<0.001), but not significant in screened group (p=0.344). Overall impact of screening on increase of low stage and low grade disease (OR=4.047, p<0.001) and low risk disease (OR=1.929, p<0.001) was significant. But, time trend of screening on increased low stage disease (OR=0.801, p=0.145) and increased low risk disease (OR=1.023, p=0.853) was not significant.

**CONCLUSIONS:** Downward migration of the clinical stage and tumor grade attributable to the increased use of PSA testing was apparent in Korean men. However, lack of time trend impact of PSA screening on this downward migration may be attributed to a recent significant decrease of PSA in non-screened group. This could be explained by better awareness of prostate cancer in general population and frequent use of PSA test by physician.

**Source of Funding:** None
surgeon at our institution between December 2003 and January 2012. Preoperative and postoperative systolic and diastolic blood pressures (SBP & DBP), creatinine (Cr), hematocrit (Hct), and antihypertensive medications were reviewed. We averaged the SBP, DBP, Cr, and Hct values the year prior to surgery and over the year following surgery. Paired T-test was then used to evaluate if these markers changed from pre- to post-operation. Statistical analysis of antihypertensive medications required pre- and post-operatively was also performed.

**RESULTS:** Total of 18 nephrectomies performed on 13 patients. Of the cases, 16 (88.89%) were male, 10 (55.56%) were left sided, 2 (11.11%) eventually required dialysis after nephrectomy and 8 (44.44%) had undergone prior nephrectomy either at our institution or at the time of renal transplantation. SBP dropped an average of 1.91 (11.88), DBP dropped 2.52 (8.68), Cr increased 0.13 (0.30), and Hct dropped 3.63 (2.66). Only the change in Hct was statistically significant ($P < 0.001$). The mean and median numbers of drugs patients were on before and after surgery are 1.94 and 1.5 pre-surgery, and 1.5 and 1 post-surgery respectively. After nephrectomy, 14 (77.78%) cases saw their number of drugs either remain the same or decrease. This is a statistically significantly higher proportion than 50%. Eight of these 14 cases (44.44%) saw their number of drugs decrease. This is not a statistically significant different proportion than 50%; however, it had significant clinical benefits for at least two patients. One was a young hypertensive patient who went from three to zero medications. Another was a patient with renal artery stenosis that went from four to one medication, which was reduced in dose.

**CONCLUSIONS:** Select renal transplant patients experience improvement in blood pressure control after removal of polycystic kidneys as measured by reduction in blood pressure and/or antihypertensive medication requirements.

**Source of Funding:** none

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**MP14 UROLITHIASIS I**

**MP14-01 RADIATION PRACTICE PATTERNS AND EXPOSURE IN THE HIGH-VOLUME ENDOUROLOGIST**

Anne Dudley*, Michelle Semins, Pittsburgh, PA

**INTRODUCTION AND OBJECTIVES:** Endourology is an evolving field with minimally invasive procedures often guided by fluoroscopy. To date, research has focused on radiation risk to the patient, however limited literature exists to characterize surgeon exposure. We aim to define radiation exposure and practice patterns among endourologists by evaluating high-volume surgeons with varying experience.

**METHODS:** Surveys were obtained from the Research on Calculus Kinetics (R.O.C.K.) Society members from 14 different institutions across North America. All surgeons practice at high volume academic institutions as surgical stone specialists. Protective equipment, fluoroscopy variables and practice patterns were recorded. Dosimeter readings for the past year were obtained from those available and analyzed. Effective delivered dose was examined as a function of the practice variables studied.

**RESULTS:** 15 surveys were returned, with a response rate of 94%. Fluoroscopic procedures comprised 87% of surgeon cases. Surgeon mean experience was 12.4 years (range 1–32). On average, surgeons operated with a fellow 30.4% of cases, with a resident 92.9% of the time, and scrubbed for 70.1% of cases. Lead aprons were worn in 99.3% of cases, thyroid shields in 98.7%, radiation glasses in 52.7%, and lead gloves in 9.7%. About 2/3 of surgeons controlled the foot pedal themselves and less than half used a dedicated radiology technologist. Only 33.3% of surgeons regularly wore dosimeters. Of these surgeons, average deep dose equivalent was 816.6 mrem/year, or 68.1 mrem/month. Lens dose equivalent was 1303.4 mrem/yr or 108.6 mrem/month. Shallow dose equivalent was 1286 mrem/year or 102.8 mrem/month. With only 4 surgeons having dosimeter readings, comparisons were limited, but there did appear to be a trend when comparing those surgeons with equal to or greater than 10 years of practice experience to less experienced surgeons (25.3 mrem compared with 110.7 mrem). All surgeons with dosimeter readings used pedal control of fluoroscopy and obtained their own access for percutaneous nephrolithotomy.

**CONCLUSIONS:** Endourologists receive moderate radiation exposure, which can be further reduced with practice experience and improved education. As low as reasonably achievable (ALARA) principles should be in place and judiciously followed. Dosimeter use remains quite low, limiting analysis of other potentially significant variables. Improved monitoring and education should assist with reduction of radiation exposure to both the patient and endourologist.

**Source of Funding:** None
MP14-02 TURKISH ROBOT ROBOFLEXAVICENNA FOR FLEXIBLE URETERORENOSCOPIC SURGERY: INITIAL MULTI-CENTRIC ANALYSIS


INTRODUCTION AND OBJECTIVES: Flexible ureterorenoscopy has rapidly gained popularity in treatment of renal stones during the last decade. With increasing indications and utilization efforts concentrate on increased maneuverability and durability of scopes while decreasing surgeons’ fatigue and radiation exposure. We herein report our multi-center preliminary results of the new Turkish remote robotic control system for flexible ureterorenoscopy called RoboflexAvicenna.

METHODS: All patients suitable for flexible ureterorenoscopic stone treatment from four academic centers were enrolled in this multi institutional study. Routine preoperative tests and imaging were performed to all patients. After insertion of ureteral access sheath, flexible scope was introduced into the collecting system manually. Then the scope was attached to the robot RoboflexAvicenna. Ergonomic chair and control panel can be adjusted in a comfortable position according to the user.

Deflection can be performed precisely by manipulating the right handle similar to standard fURS. The rotation and forward and backward movement can be controlled by left handle. The selectable speed control for the forward/backward movement of the fURS serves precision in movements.

Ureterorenoscopic exploration of all calyceal systems were performed and stones were fragmented using Ho-YAG laser. Fragments smaller than 2 mm in maximum diameter were left for spontaneous passage. At the end of procedures, ureteral j stents were placed whenever indicated.

RESULTS: Overall 32 patients underwent robotic assisted flexible ureterorenoscopic stone treatment. Mean patient age was 45.2 ± 12.5 years old. Female/male ratio was 10/22. Mean stone size was 15.1 ± 5.3 mm. Mean operative time including robotic preparation and scope placement was 53.9 ± 24.6 minutes. Stones were located in upper calyx, middle calyx, lower calyx, renal pelvis and pelvis and multiple calyces in 8, 5, 9, 6 and 4 cases, respectively. Stone-free status including fragments up to 2 mm as controlled with plain x-ray on day 1 was achieved in all cases. Fever not exceeding one day was seen in 2 patients.

CONCLUSIONS: Robot assisted flexible ureterorenoscopy using Avicenna offers performing the procedure out of radiation exposure area while sitting. The operative results are also acceptable compared to literature.

Source of Funding: None

MP14-03 EXPULSIVE THERAPY VERSUS EARLY ENDOSCOPIC STONE REMOVAL IN ACUTE RENAL COLIC: A COMPARISON OF INDIRECT COSTS


INTRODUCTION AND OBJECTIVES: When compared with early endoscopic stone removal, an initial trial of medical expulsive therapy (MET) is associated with lower total expenditures around episodes of acute renal colic. However, the effects of MET on indirect costs (e.g., lost productivity) have not been examined. Since these costs are arguably more important to the patient, we compared differences in filings for short-term disability between patients prescribed MET and those treated with stone surgery.

METHODS: Using a previously validated claims-based algorithm, we identified a cohort of patients with acute renal colic. After determining their upfront treatment type (i.e., an initial course of MET versus early endoscopic stone removal), we then compared differences in their rates of short-term disability filing. To help adjust for possible selection bias, we used propensity

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INTRODUCTION AND OBJECTIVES: The pathogenesis of uric acid (UA) stone disease is relatively unknown and to date the endoscopic precursor lesions have not been well described. The goal of this study is to describe endoscopic and pathologic appearance of renal papillary precursor lesions, clinical characteristics, and radiographic features of UA stone formers (SF).

METHODS: At percutaneous nephrolithotomy, papillae were endoscopically analyzed and biopsied to assess percentage surface area (SA) occupied by plaque or plug. Stone composition was blindly estimated by noncontrast, and dual-energy (DE) CT with comparison to micro-CT analysis. UA SF were compared to non-enteric calcium oxalate (CaOx) SF and control patients without stone disease mapped at time of treatment of upper tract urethelial carcinoma.

RESULTS: Of the 11 UA SF, 2 (18%) pure UA and 9 (82%) admixed with CaOx (17–99%), 6 (55%) demonstrated plaque and 5 (45%) plugs endoscopically and/or by biopsy. Compared to CaOxSF and controls, UA SF had less SA plaque than CaOxSF and no difference in plug SA (Table). Estimated noncontrast CT UA content was within 20% of true UA composition in 6 (55%), with no additional benefit of DECT. Metabolically, UA SF had more DM, obesity and lower urine pH and volume than CaOxSF.

CONCLUSIONS: Similar to controls, UA SF have less plaque than CaOxSF and minimal plugs. Control patients have significant plaque, but lack plug as reported in other cohorts. Thus, UA stone formation may depend heavily upon metabolic factors such as pH and volume, which is heavily influenced by clinical characteristics such as BMI, diabetes, and bowel disease, and less on papillary structural abnormalities. Finally, estimated percentage UA content is difficult to quantify with noncontrast and DECT at this time.

Source of Funding: none

MP14-06 STONE DISEASE IN LIVING - RELATED RE-NAL DONORS: LONG - TERM OUTCOMES FOR TRANS-PLANT DONORS AND RECIPIENTS

Sarah Coleman*, Emad Rizkala, Christine Tran, Isac Wahib, David Goldfarb, Stuart Flechner, Manoj Monga, Cleveland, OH
INTRODUCTION AND OBJECTIVES: Historically patients wishing to donate their kidney to living related recipients were deemed ineligible if pre-operative imaging demonstrated nephrolithiasis. We assess the outcomes of donors with nephrolithiasis and the outcomes of their recipients.

METHODS: Donors undergoing nephrectomy between 2001 and 2011 who had nephrolithiasis on preoperative CT imaging or a history of stone passage were identified. A retrospective chart review documented donor and recipient demographics, donor 24-hour urine collections, stone size and location, stone events following transplant and graft function. A 7-question telephone survey regarding development and/or presence of symptomatic nephrolithiasis was conducted.

RESULTS: 54 donor-recipient pairs met the inclusion criteria. Twenty-eight (51.9%) patients had valid pre-operative 24-hour urine collection, seven (25%) of which had hypercalciumia. Seven (13%) patients had previous symptomatic nephrolithiasis, but no stones on imaging. 41 patients donated a kidney with at least one stone, with a mean stone size of 2.4 mm (range 1–6 mm). Median follow-up for donors and recipients was 22.5 months [IQR 1–79.3] and 47.4 months [IQR 25.1–76.1], with 50% and 77.7% having a follow-up of more than two years, respectively. One donor with nephrolithiasis on pre-operative imaging who donated the contralateral kidney passed a stone spontaneously after visiting the emergency room. Otherwise, no other donors or recipients experienced any stone episodes during the follow-up period.

CONCLUSIONS: The risk of clinical stone recurrence in donors and recipients is low: as such, presence of small caliceal stones should not constitute an exclusion for living-related kidney donation.

Source of Funding: None

MP14-08 PATIENT EXPERIENCES AND PREFERENCES WITH DIFFERENT URETERAL STENT REMOVAL TECHNIQUES

Roger Low, Sacramento, CA, Mike Nguyen, Los Angeles, CA, Manoj Monga*, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Stent removal is a major source of anxiety for patients. We determined patient experiences with stent removal methods and identify which approach is preferred.

METHODS: A convenience sample of visitors to a kidney stone related website (www.kidneystoners.org) was used. Respondents were asked which method was used for their stent removal (pulling out string by themselves, having their doctor pull out the string, having cystoscopy in the clinic, or having cystoscopy in the OR). Pain associated with the procedure, pain occurring after the procedure, and preferences and opinions about stent removal were queried. Fisher’s exact and ANOVA tests were used to identify significant differences in responses by type of technique used.

RESULTS: 82 respondents were surveyed. 12.4% and 17% had stents removed using self-string or doctor-string. 44.4% and 22.2% underwent office-cysto or OR-cysto. Pain was highest for those who had their stent removed by office-cysto (6.0 out of a scale of 1 to 10) followed by self-string (5.2), doctor-string (5.1), and OR-cysto (2.8; p = 0.0028). 37% experienced a severe attack of pain after stent removal, including 14.1% who required a trip to the ER. Severe pain after stent removal was most common in with self-string (60%) and least likely with OR-cysto (11.1%; p = 0.033). Those who underwent OR-cysto were most likely to choose the same technique again (82.4% replying probably or definitely) followed by self-string (50%), doctor-string (47.1%), and office-cysto (42.3%; p = 0.003). 32.9% reported that their experience was what they expected. 27.9% felt it was a much worse and 25.3% felt it was not as bad or not nearly as bad.

Source of Funding: None

MP14-07 COST EFFECTIVENESS COMPARISON OF RENAL CALCULI TREATED WITH URETEROSCOPY WITH LASER LITHOTRIPSY VERSUS SHOCK WAVE LITHOTRIPSY

Eugene Cone, Durham, NC, Brian Eisner, Michal Ursiny, Boston, MA, Gyan Pareek*, Providence, RI

INTRODUCTION AND OBJECTIVES: Shock wave lithotripsy (SWL) and ureteroscopy with in situ lithotripsy (URS) are the most commonly performed procedures in the United States for treatment of ureteral calculi. Current guidelines for the management of ureteral stones recommend that for patients requiring stone removal both SWL and URS are acceptable first-line treatments. Importantly, this discussion includes only clinical risks and benefits, but does not mention cost of treatment. We evaluated the cost effectiveness of SWL versus URS for patients with renal stones less than 1.5 cm in diameter, with the added objective of determining at what stone free rate SWL would become cost effective.

METHODS: Patient age, stone diameter, stone location, and stone free status were recorded for patients treated with SWL or URS for renal stones under 1.5 cm in maximal diameter over a one year period. Institutional charges were obtained from in-house billing. A decision analysis model was constructed to compare the cost-effectiveness of SWL and URS and using our results and success rates for modeling. Three separate models were created to reflect practice patterns for shock wave lithotripsy.

RESULTS: One hundred fifty-eight patients were included in the study – 78 underwent SWL and 80 underwent URS as primary treatment. Single procedure stone free rates for SWL and URS were 55% and 95% respectively (p < 0.0001). Decision analysis modeling demonstrated cost effectiveness of SWL when SWL single procedure stone free rates (SFR) were 65–67% or when URS single procedure SFR were 72–84%.

CONCLUSIONS: This retrospective study revealed superior SFR results for renal stones under 1.5 cm for URS compared to SWL. Our decision analysis model demonstrates that for SWL stone free rates less than 65–67% or for URS stone free rates greater than 72–84%, SWL is not a cost-effective treatment option. Based on these findings, careful stratification and selection of stone patients may enable surgeons to increase the cost effectiveness of SWL.

Source of Funding: None
as bad. Those who underwent office-cysto were most likely to report it being much worse (41.7%; \(p = 0.046\)). Being informed of why a stent was placed was the biggest priority for respondents (4.8 on an importance scale of 1–5). Being informed about the process was also a high priority (4.7). Being able to have general anesthesia was a moderate priority (3.5), while being able to see a video/diagram of the process was a low priority (2.9).

CONCLUSIONS: Most patients experienced a moderate amount of pain during stent removal. Over a third also experienced a recurrent episode of severe pain afterwards. Stent removal by office cystoscopy was associated with the most pain and was the least preferred method of stent removal. OR cystoscopy was associated with the least pain and was the most preferred method if patients were given a choice. Being informed about why a stent is needed and the steps involved in stent removal were high priorities for patients.

Source of Funding: None

**MP14-09 CONCURRENT VALIDITY OF THE WISCONSIN STONE QUALITY OF LIFE SURVEY**

Kristina Penniston, Rachel Bell, Stephen Nakada*, Madison, WI

**INTRODUCTION AND OBJECTIVES:** Using general health surveys, decrements in the quality of life (QOL) of patients who form kidney stones are documented. Until the development of the Wisconsin Stone-QOL (Wis-QOL), a 28-item disease-specific questionnaire, no QOL instrument for urolithiasis existed. After confirming the instrument’s reliability, as well as its content and construct validity, we assessed the concurrent validity of the Wis-QOL against the “gold standard” SF-36, a validated and widely used, 36-item, general health-related QOL instrument.

**METHODS:** Patients reporting to our urology clinic between January and May 2013 were invited to participate \((n = 70);\) age 52.2 ± 16.5 y; 56% male; duration of disease 11.8 ± 13.8 y; 33% were first-time stone formers. After providing informed consent and a brief medical history, patients were given both the Wis-QOL and the SF-36 in random order; patients chose which they completed first. Scores for each instrument were calculated (QualityMetric Health Outcomes Scoring Software 4.5). Pearson correlation coefficients were calculated for total survey scores and for specific domains that were similar in both surveys; i.e., bodily pain, vitality, general health, and social functioning. Multivariate analysis evaluated the impact on QOL of age, gender, BMI, surgical history, and duration of disease.

**RESULTS:** Overall, there was excellent agreement between the 2 instruments for total score (Pearson correlation coefficient, \(r = 0.56, p < 0.0001\)). There was high correlation between surveys for bodily pain \((r = 0.64; p < 0.0001)\) and good correlation for questions related to vitality, general health, and social functioning \((r = 0.51, 0.43, \text{ and } 0.41, \text{ respectively};\) \(p < 0.001)\). Scatterplots revealed some patients with lesser agreement between surveys. Responses from these patients were investigated with multivariate analyses which revealed no influence of age, gender, BMI, or surgical history. However, the scores of patients with prior stones tended to be divergent between instruments \((p = 0.06)\), possibly explaining the reason for lower instrument concurrence in this group. Notably, items for which patients scored lowest on the Wis-QOL were those for which there were no similar questions on the SF-36, supporting the utility of a disease-specific instrument. These were bothersome nocturia, poor quality sleep, and feeling tired.

**CONCLUSIONS:** The Wis-QOL captures general physical and mental health comparably to a generic survey, the SF-36, confirming its concurrent validity. The benefit of the Wis-QOL is its ability to extract additional information about QOL unique to patients with urolithiasis.

Source of Funding: None

**MP14-10 THE GEOMETRIC COMPLEXITY INDEX: A NEW MEASURE OF STONE BURDEN**

Michael Conlin*, Brian Duty, Gregory Adams, Matthias Schabel, Eugene Fuchs, Portland, OR

**INTRODUCTION AND OBJECTIVES:** There is no accepted standard method to quantify stone burden. Comparing results of different treatment modalities is difficult due to this lack of standardization. With the use of a new open-source image processing computer program (Osirix), we can now easily perform 3-D reconstruction, and calculate stone volume. We sought to develop a better measure of stone complexity to improve our quantification of stone burden and prediction of stone free outcomes. The purpose of this study is to describe this index, and determine its ability to predict stone-free status after percutaneous nephrolithotomy (PCNL).

**METHODS:** We reviewed 50 consecutive patients from our PCNL database who had both pre and postoperative CT imaging available. We performed 3-D reconstruction of all stones using Osirix. We wrote a software program (as a plug-in to Osirix) that measures the volume, surface area, and calculate the geometric complexity index (GCI) for each patient’s stone burden. The GCI is determined by dividing the measured stone surface area, by the calculated surface area of an imaginary isolumspheric sphere (same volume of the total stone burden). A stone that is a perfect sphere would have a GCI of 1.0, and increasing branches and number of stones increase the GCI. We also collected patient demographics, comorbidities, and surgical and outcomes data. We performed univariable and multivariable analysis to assess which factors best predict stone-free status following PCNL.

**RESULTS:** There were 32 women, 18 men, and the mean age of the patients was 56 years. The stone free rate (all patients) was 80%. The location of the stone, side of the stone, BMI, gender, stone composition, stone volume and stone surface area were not predictive of stone-free status. The geometric complexity index was found to be the most significant predictor of stone-free status \((p = 0.01)\) in our multivariate analysis (table 1).

**CONCLUSIONS:** We describe a new measure of stone burden that helps predict outcomes after percutaneous nephrolithotomy. It is easy to calculate using the free image processing program Osirix, with our software plugin. This index may allow for more accurate comparison of studies of different stone treatments. These results suggest that further study of its usefulness should be performed.

Source of Funding: None

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MP14-11  EFFICACY OF TAMSULOSIN IN THE MANAGEMENT OF LOWER URETERAL STONES: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED STUDY OF 100 PATIENTS

Abdulla Al-Ansari*, Abdulla Al-Naimi, Abdulkader Alobaidy, Khalid Assadiq, Mohamed Azmi, Doha, Qatar, Ahmed Shokeir, Almansoura, Egypt

INTRODUCTION AND OBJECTIVES: To study the impact of tamsulosin on the rate of spontaneous passage of distal ureteral stones.

METHODS: A total of 100 patients with stones sized 10 mm or smaller, located in the distal part of the ureter were included. Patients were randomly assigned to 2 equal groups. Group 1 received 0.4 mg tamsulosin once daily and group 2 received placebo. The investigators and the patients were masked to the type of treatment. Patients were followed-up until passage of the stone, or for a maximum of 4 weeks. The number of pain episodes, need for analgesia, stone expulsion rate and time, and possible side effects of medications were observed in both groups.

RESULTS: Apart from 4 patients in the placebo group who were lost to follow-up, all patients complied with the prescribed medications and continued the study. Stone expulsion occurred in 41 of 50 patients (82%) in group 1 and in 28 of 46 patients (61%) in group 2 (P = .02). The chance of stone expulsion was 3 times higher in the tamsulosin group (relative risk [RR] = 2.93; 95% CI, 1.152-7.45). In group 1, patients with stones sized ≤5 mm showed a significantly higher expulsion rate compared to those with larger stones (>5 mm). Age, gender, and stone laterality had no significant impact on the expulsion rate. The expulsion time was significantly shorter in the tamsulosin group (6.4 ± 2.77 days vs 9.87 ± 5.4 days for groups 1 and 2, respectively).

Moreover, the frequency of pain episodes, need for diclofenac, and its total dosage were significantly lower in the tamsulosin group. Side effects observed in both groups were comparable and mild, and no patient withdrew because of them.

CONCLUSIONS: Tamsulosin is a safe and effective drug that enhances spontaneous passage of distal ureteral stones sized 10 mm or smaller.

Source of Funding: none

MP14-12  EFFECT OF TAMSULOSIN ON STONE EXPULSION IN PROXIMAL URETERAL CALCULI: AN OPEN-LABEL RANDOMIZED CONTROLLED TRIAL

Jinsung Park*, Seung Hyo Woo, Daejen, Korea, Republic of, Seung Wook Lee, Guri, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Medical expulsive therapy (MET) using alpha-blockers is effective for distal ureteral calculi (UC). However, given the fact that the distributions and densities of alpha-1 receptors along the ureter differ depending on the location, effectiveness of alpha-blockers for stone expulsion in proximal UC remains unclear. In this study, we aimed to evaluate the efficacy of tamsulosin for proximal UC expulsion.

METHODS: An open-label randomized controlled multicenter trial was conducted from July 2010 to August 2012. A total of 108 patients who agreed to conservative management for single, radiopaque, proximal UC ≤6 mm were randomized into group A (n = 54, conservative management only) or B (n = 54, 0.2 mg tamsulosin once a day). Patients were evaluated by KUB and urine analysis every week until stone expulsion or to post-trial 4 weeks, and final CT was checked to confirm the stone passage. The primary endpoint was stone passage rates (SPR) in the intention-to-treat population in 4 treatment weeks. The secondary endpoints were estimated in per-protocol population and were time to stone passage, post-trial Euro-quality-of-life (EuroQOL) score, oral analgesic requirements, and willingness to undergo conservative treatment again.

RESULTS: The two groups were well balanced in terms of baseline patient and stone characteristics. Seventy nine patients (73.2%; 35 of group A and 44 of group B) completed the study protocol. The group A patients (20.4%, 11/54) tended to be more likely to convert to active treatment, SWL, or ureteroscopy surgery, than group B (7.4%, 4/54; p = 0.051). The overall SPR was 60.2% (65/108). Group B had a higher SPR (74.1%; 40/54) than group A (46.3%; 25/54; p = 0.003) and a significantly shorter time to stone passage (mean days, A: 19.6 vs B: 14.3, p = 0.005). The groups did not differ in post-trial EuroQOL score or oral analgesic requirements, whereas 74.3% (26/35) of group A and 90.9% (40/44) of group B were willing to undergo conservative treatment again (p = 0.048). Univariate logistic regression analysis showed that stone size (OR = 1.447, p = 0.045) and tamsulosin treatment (OR = 3.314, p = 0.004) significantly predicted stone expulsion. On multivariate analysis, only tamsulosin was statistically significant (OR = 3.198, p = 0.021).

CONCLUSIONS: Tamsulosin medication was associated with significantly higher stone expulsion rate and shorter expulsion time in proximal UC. Our results indicate that MET with tamsulosin is a reasonable option for proximal UC as well as distal UC.

Source of Funding: None
MP14-13 NO DIFFERENCE IN 24-HOUR URINE PARAMETERS BETWEEN PATIENTS WITH OBSTRUCTING AND NON-OBSTRUCTING UROLITHIASIS PRESENTING TO A TERTIARY REFERRAL CENTER

Tarek Alzahrani*, Daniela Ghiculete, Andrea G Lantz, Kenneth T Pace, Jason Y Lee, R. John Honey, Toronto, Canada

INTRODUCTION AND OBJECTIVES: Metabolic work-up of stone formers often includes at least one 24-hour urine collection. Conventional teaching has been to perform the 24-hour urine collection after an acute stone event and after obstruction has been relieved. However, by the time a patient is seen in follow-up some stone prevention counseling is likely to have occurred, altering the 24-hour urine collection results (“clinic effect”). At our institution, patients bring a 24-hour urine collection to the initial assessment for extracorporeal shockwave lithotripsy (SWL). The study objective is to determine if there are differences in 24-hour urine parameters for patients with obstructing vs. nonobstructing stones.

METHODS: In 2011, 2670 SWL treatments were performed at our institution. Newly referred, unstented patients with pre-SWL 24-hour urine data were reviewed (n = 849). Institutional axial imaging was available for retrospective review in few patients; therefore, patients were grouped into renal vs. ureteral stones assuming most renal stones are non-obstructing and unstented ureteral stones have some degree of obstruction.

RESULTS: 615 renal and 191 ureteral stones were included. 65.4% were male with more males in the ureteral stone group (73.8% vs. 62.8%, p = 0.005). Average age was 51.3 years (±13.1) with an average BMI of 27.5 kg/m² (±5.4). Mean stone size was similar between groups (p = 0.898). The rate of hypercalciuric patients was significantly higher in the renal group (17.3% vs. 11.1%, p = 0.039) but no other parameters differed between groups.

CONCLUSIONS: There are few differences in 24-hour urine parameters between obstructive and non-obstructive urolithiasis when location of stone is used as a proxy for obstruction. Only urinary calcium was statistically different between groups but this may be of little clinical significance. This study may support earlier 24-hour urine evaluation, in order to minimize the “clinic effect”, regardless of urinary obstruction.

Source of Funding: None

MP14-14 PATIENT EDUCATION AND THE IMPACT ON URETEROSCOPY EXPERIENCE

Nathan Grunewald, Alison Marciniak, Carley Davis*, Milwaukee, WI

INTRODUCTION AND OBJECTIVES: Ureteroscopy is a common procedure in Urology requiring instrumenting a patient’s ureter with a ureteroscope and placement of a ureteral stent. Managing stent related issues post-operatively can result in numerous patient phone calls and/or emergency department/clinic visits. Our goals were to provide patient education materials in the form of a new handout and intensive counseling prior to and after ureteroscopy to improve the patient’s post-operative experience.

METHODS: Retrospective chart review of all patients from a single surgeon who underwent ureteroscopy over a six month period. During the review period, implementation of intensive pre-operative counseling and dissemination of a newly designed ureteroscopy handout. Primary outcome was measured as whether a patient made a post-operative phone call and/or clinic/emergency department contact related to morbidity from their procedure.

RESULTS: Over the course of the 6 month review period a total of 93 patients underwent ureteroscopy. 56 patients were in the non-pre-operative intensive counseling and patient handout group, while 37 patients received the patient handout with accompanying pre-operative intensive counseling. In the non-handout group 54% of patients had a qualified postop morbidity contact as compared to 38% in handout group. Additionally, 20% of patients in the pre-handout group had at least one qualified post-operative morbidity contact related to stent pain as compared to 11% in the handout group.

CONCLUSIONS: Patient post-ureteroscopy experience can be improved with intensive counseling and patient education materials leading to decreased phone calls and clinic visits.

Source of Funding: None

MP14-15 A MULTICENTER, RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY OF SILODOSIN TO FACILITATE MEDICAL EXPULSION OF URETERAL CALCULI

Roger Sur*, San Diego, CA, Scott Olsen, Salt Lake City, UT, Ojas Shah, New York, NY

INTRODUCTION AND OBJECTIVES: The alpha 1A-adrenergic (AR) has been shown to play a role in phenylephrine-induced human ureteral contraction. We evaluated the efficacy of silodosin, a selective alpha 1A AR antagonist, in the medical expulsion of proximal, mid, and distal ureteral calculi.

METHODS: Two hundred forty-six patients with a unilateral ureteral calculus (4–10 mm) were randomized to receive either silodosin 8 mg or placebo once daily for up to 4 weeks in a double-blind design. If there was no stone passage after 4 weeks, or if the patient required intervention at any point, the patient was discontinued from the study. Two hundred thirty-two patients received study medication and completed the study follow-up. Univariate logistic regression was utilized to compare the primary endpoint of stone passage at 4 weeks with intention-to-treat analysis. Secondary endpoints included time to stone passage, need for emergency department visits, surgical intervention, pain assessment scores, and analgesic use.

RESULTS: For patients with distal ureteral stones, treatment with silodosin resulted in a significant improvement in the spontaneous expulsion rate at 4 weeks (69.2% vs 45.8%, p = 0.0138) and time to stone passage was lower (approaching statistical significance). A trend toward improved passage rate was also observed in patients treated with silodosin for all ureteral calculi combined but not for proximal or mid ureteral calculi subsets. In addition, patients with distal ureteral stones receiving silodosin reported significantly greater improvements in average pain scores at study exit. Among all patients, larger stones (6–10 mm) had higher passage rates with silodosin than with placebo (33% vs 9.1%, p = 0.0573).

CONCLUSIONS: Silodosin significantly improved the spontaneous expulsion rate of distal ureteral stones and resulted in greater improvements in average pain scores and time to passage for these patients. Additionally, silodosin improved the passage rate of large ureteral stones. Our findings indicate that silodosin provided advantages over placebo in medical expulsion therapy of ureteral calculi.

Source of Funding: Watson Laboratories provided grant support for the study.
**MP14-16 MODIFIED SEOUL NATIONAL UNIVERSITY RENAL STONE COMPLEXITY SCORE FOR RETROGRADE INTRARENAL SURGERY: EVALUATION WITH SINGLE SURGEON’S COHORT**

Byung Ki Lee*, Jin-Woo Jung, Yong Hyun Park, Sangchul Lee, Seok-Soo Byun, Sang Eun Lee, Seongnam, Korea, Republic of
Chang Wook Jeong, Seoul, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** The Seoul National University Renal Stone Complexity (S-ReSC) score is well validated predicting tool for the stone-free after percutaneous nephrolithotomy. We modified S-ReSC score system to apply to retrograde intrarenal surgery (RIRS). We evaluated the modified S-ReSC score with single surgeon’s cohort of RIRS.

**METHODS:** A total of 88 patients who underwent RIRS by a single surgeon (CWJ) from June 2011 through April 2013 were included. All patients were evaluated with pre- and post-operative computed tomography (CT). A Stone-free was defined as no evidence of residual stones on postoperative images for 1 month. The modified S-ReSC score was assigned on the number of sites involved in the renal pelvis (#1), superior and inferior major calyceal groups (#2–3), and anterior and posterior minor calyceal groups of 12 the superior (#4–5), middle (#6–7), and inferior calyx (#8–9). Then if stone involved in inferior sites (#8, #9), 1 score per site was added to original score. Thus modified S-ReSC score varies from 1 to 12 points in total. The stone-free rates were examined according to the modified S-ReSC scores. To evaluate the predictive accuracy, the area under the receiver operating characteristic curve (AUC) was used. This was compared with Resorlu-Unsal Stone Score (Urology 2012; 80:512–8).

**RESULTS:** Thirty-seven (42.0%) patients had multiple stones, 53 (60.2%) had lower pole stones. Mean diameter of the largest stone was 12.0 ± 6.1 mm. Overall and clinical stone-free rates (<4 mm residual stone) were 85.2%, and 90.9%, respectively. Stone-free rates were significantly decreased in the order of the low (1–2: 94.2%), medium (2–4: 84.0%), and high (>4: 45.5%) modified ReSC score groups (p < 0.001). Resorlu-Unsal Stone Score was also associated with stone-free rates (0: 93.6%, 1: 78.1%, ≥ 2: 66.7%, p = 0.043). However, AUCs of modified S-ReSC score (0.806) and score group (0.766) were higher than AUC of Resorlu-Unsal Stone Score (0.692).

**CONCLUSIONS:** RIRS is safe and effective therapy for selected renal stones. Modified S-ReSC score well predicts the stone-free rate after RIRS. Furthermore, its predictive accuracy is higher than accuracy of Resorlu-Unsal Stone Score.

**Source of Funding:** None

**MP14-17 URETEROSCOPY FOR THE MANAGEMENT OF UPPER URETERAL CALCULI: WHETHER MUCOSAL IMPACTED STONES OR NOT, DOES IT MATTER?**

Dong-Hoon Lim, Min-Seok Kim*, Joon Roh, Chul-Sung Kim, Gwangju, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** Management of impacted stones in the upper ureter remains challenging. Even though ureteroscopic removal is one of efficacious treatment options in the management of upper ureteral stones, it is often problematic due to the inflammatory and edematous mucosa enveloping the impacted calculus. Aim of this study is to identify surgical influence of mucosal impaction in ureteroscopic removal of upper ureteral stones by analyzing the operative outcomes of ureteroscopy.

**METHODS:** From January 2008 to December 2012, a total of 103 patients underwent retrograde ureteroscopic removal of upper ureteral stones with a pneumatic lithotripter by a single surgeon. The patients were retrospectively divided into two groups (group 1: impacted VS group 2: not impacted) according to presence of mucosal impacted stone. Demographic and clinical characteristics of patients and operative results including Stone-free rate, retreatment rate, auxiliary treatment rate, and efficiency quotient (EQ) were analyzed and compared between two groups.

**RESULTS:** 39 out of 103 patients had mucosal impacted stones. Demographic and clinical characteristics of patients are in table 1. Mean operative time and hospital days in group 1 was significantly longer than that in group 2. The stone-free rate at the 1 month follow-up was 84.6% in group 1 and 96.8% in group 2; retreatment rate 7.7% and 3.1%; auxiliary treatment rate 0% and 3.1%, respectively. However, these were all insignificant (p > 0.05). Also, all operation related complication rate between two groups was insignificant (Table 2).

**CONCLUSIONS:** Ureteroscopic management for upper ureteral stones is a safe and effective method. Even though the presence of mucosal impaction seems to be associated with longer operation time and hospital days, there is no need to hesitate to perform ureteroscopy for the management of impacted upper ureteral stones.

**Source of Funding:** none
**MP14-18 MEDICAL EXPULSION THERAPY IS UNDERUTILIZED IN WOMEN PRESENTING TO AN EMERGENCY DEPARTMENT WITH ACUTE URINARY STONE DISEASE**

Herman Bagga*, Ayesha Appa, Ralph Wang, Thomas Chi, Joe Miller, Jersey Neilson, Rebecca Smith-Bindman, Marshall Stoller, San Francisco, CA

**INTRODUCTION AND OBJECTIVES:** Medical expulsion therapy (MET) with alpha-adrenergic blockade (AB) is an established treatment option for ureteral stones. However, utilization rates remain low. Specific reasons for this remain largely unknown. We hypothesized that low utilization of MET would be most pronounced in women as AB medications are routinely used for men with urologic conditions such as benign prostatic hyperplasia (BPH).

**METHODS:** Retrospective chart review of adults with an ED diagnosis of acute ureteral stone disease between 2006–2012 was undertaken to identify variables related to presentation, history, management, and disposition. Patients with a known diagnosis of ureteral stone disease within the past month or regular home use of AB were excluded.

**RESULTS:** Between 2006–2012, 672 patients were discharged from our ED with a diagnosis of ureteral stone disease. 57% of patients were discharged with AB for MET. On multivariate analysis, male sex was independently associated with discharge with MET compared to female sex (OR 1.85, 95% CI 1.14–2.94). Age, primary language, race, occupation, history of stone disease, and presentation factors such as hematuria and pain were not significantly associated with MET use.

Analyses of trends of MET utilization found that rates of use to have peaked and stabilized since 2008.

**CONCLUSIONS:** In a tertiary care ED, MET use remains low and women are nearly half as likely to be discharged with MET compared to men. This may be due to providers’ perception that AB agents are for male urologic conditions only. Rates of MET use have stabilized since 2008, suggesting increased awareness and education regarding proper utilization of MET, particularly in women, is important to promote appropriate, increased use amongst ED care providers.

**Source of Funding:** none

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**MP14-19 IN VITRO EVALUATION OF THE URONET® STONE FRAGMENT RETRIEVER FOR PERCUTANEOUS NEPHROLITHOTOMY**

Kelly A. Healy*, Ryan C. Cleary, Demetrius H. Bagley, Philadelphia, PA

**INTRODUCTION AND OBJECTIVES:** Percutaneous nephrolithotomy (PCNL) is the typical treatment for large renal stone burdens. Various lithotripters and accessory devices may be utilized to fragment and extract calculi. Traditionally, 2- and 3-prong graspers as well as baskets have been the mainstay for removal of small to medium-sized residual stone fragments during PCNL. The UroNet® retriever (US Endoscopy) employs a new method of stone extraction. This study aims to compare the efficiency, reliability, and overall user satisfaction of the UroNet® retriever to three contemporary competitors.

**METHODS:** Nine participants from three experience levels (novice, intermediate, expert) completed a 30 minute in vitro rigid PCNL simulation using four stone retrieval devices (Cook Perc NCircle®, Bard Dimension® articulating basket, Bard Flatwire® basket, and US Endoscopy UroNet® retriever). Twelve beads of varying sizes (3 of each size: 2 mm, 4 mm, 6 mm, 8 mm) were extracted from a previously described calyceal model in three separate trials. Efficiency, errors, and satisfaction were evaluated.

**RESULTS:** Across all experience levels, the UroNet® retriever had the shortest time to remove all beads (mean 69.8 seconds), fewest in and out movements (6.5), and highest number of beads removed per attempt (1.8). Perc NCircle® performed second best, with 76.8 seconds, 9.1 movements, and 1.3 beads, respectively. Compared to the Perc NCircle®, the UroNe® demonstrated superiority in terms of the number of in and out movements (p = 0.013) and number of beads retrieved per attempt (p = 0.007) using two-tailed student t-test analysis. UroNet® and Perc NCircle® received similar satisfaction scores (7.8 and 7.9, p > 0.05), which were significantly different from the Bard Dimension® (6.2, p = 0.013) and Flatwire® baskets (2.0, p < 0.00002). The number of beads dropped was not significantly different between the four devices.

**CONCLUSIONS:** The UroNet® stone retriever demonstrated the highest efficiency, particularly in grasping 2 mm and 4 mm beads. Overall user satisfaction was equivalent between the UroNet® and Perc NCircle®. During PCNL, the ideal use for the UroNet® appears to be following stone debulking for the removal of multiple small to medium-sized stone fragments, which may otherwise prove difficult or cumbersome to extract.

**Source of Funding:** None.
MP14-20 THE IMPACT OF FISH OIL SUPPLEMENTATION ON ENDOGENOUS OXALATE SYNTHESIS AND URINARY OXALATE EXCRETION
Jessica Lange*, Winston-Salem, NC, Patrick Mufarrij, Washington, D.C., DC, Linda Easter, Winston-Salem, NC, John Knight, Ross Holmes, Dean Assimos, Birmingham, AL

INTRODUCTION AND OBJECTIVES: It has been reported that the administration of omega 3 fatty acid-rich fish oil supplements reduces urinary oxalate excretion. The mechanism of this response has not been defined. One other possibility is reduced endogenous oxalate synthesis. This study was undertaken to assess this hypothesis. The rationale for this is that fish oil reduces inflammation which is also thought to reduce oxidative stress. A reduction in the latter has been proposed to promote a decline in endogenous oxalate synthesis.

METHODS: Fifteen healthy, non-stone forming adults (average age 25.3±2.7 years, BMI ≤30, 8 male, 7 female) participated in the study. Subjects first abstained from utilizing any supplements including vitamins, medications, or foods enriched in omega 3 fatty acids for thirty days. After this, they collected two random twenty-four hour urine specimens while consuming a self-selected diet. After subjects consumed an extremely low oxalate (50 mg/day) and normal calcium (1000 mg/day) for five days, they collected twenty-four hour urine samples on the last three days of this dietary regimen. Next, the subjects took two fish oil capsules containing 650 mg eicosapentaenoic acid and 450 mg docosahexaenoic acid twice daily for 30 days. They consumed a self-selected diet on days 1–25 and the aforementioned controlled diet on days 26–30. Twenty-four hour urine samples were collected on days 28–30. Excretion patterns of urinary parameters including oxalate were analyzed using repeated measures ANOVA and Student’s t test.

RESULTS: While there was significant reduction in urinary oxalate, magnesium, and potassium excretion and increase in uric acid excretion during the controlled dietary phases, there were no significant differences in their excretion during controlled diet phases with and without fish oil supplementation.

CONCLUSIONS: These results suggest that fish oil supplementation does not reduce endogenous oxalate synthesis or urinary oxalate excretion in normal adults during periods of extremely low oxalate intake.

Source of Funding: National Institutes of Health grant R01 DK62284

MP14-22 TRENDS AND DEMOGRAPHICS IN STONE COMPOSITION - TRANSITION FROM NON-URIC ACID TO URIC ACID STONES
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INTRODUCTION AND OBJECTIVES: We have previously reported a significant association between visceral adiposity, as measured by visceral fat area (VFA) on CT scan, and uric acid (UA) stone formation. Previous reports have also associated metabolic syndrome with UA stone disease. We sought to identify patients who underwent PCNL that transitioned between partial- or pure UA stones and non-UA containing stones over their clinical course of stone disease.

METHODS: Fifty patients with UA stone disease (pure or partial) who underwent PCNL were identified in an IRB-approved database. A retrospective review was performed to identify preceding surgical stone analyses with respect to composition. Patients who previously had non-UA containing stones, and subsequently developed UA stones, were assessed for clinical changes with respect to VFA, BMI, and other medical comorbidities. VFA was calculated using a “Fat Analysis” tool on a single axial slice from a CT scan at the level of the umbilicus, using specialized software (TerraRecon Inc Aquarius iNuition, software version 4.4.6.100.2862).

RESULTS: Two patients were identified with a transition from non-UA to UA-containing stones, with a mean interval of 8.25 years between stone episodes (range: 7.5–9 years). Patient A’s initial stone composition (50% calcium oxalate (CaOx) monohydrate, 25% carbonate apatite, 15% CaOx dihydrate, protein) differed from his second episode (80% UA dihydrate, 20% CaOx monohydrate), which occurred 9 years later. During this interval, he had a significant increase in VFA (305 to 470 cm²) and development of type 2 Diabetes Mellitus. Patient B’s initial stone (75% CaOx monohydrate, 15% CaOx dihydrate, 10% carbonate apatite) transitioned to a predominantly UA-containing stone 7.5 years later (80% UA dehydrate; 20% CaOx monohydrate). During this
interval, she was diagnosed with hypercholesterolemia, underwent a subtotal colectomy for ulcerative colitis, and demonstrated a decrease in VFA (120 to 73 cm²).

CONCLUSIONS: Transition between non-UA and UA-containing stones occurs infrequently and has not been previously reported in the literature. However, preliminary data suggest that it should be suspected in patients with new medical comorbidities, an increase in visceral adiposity, or development of metabolic syndrome. Recognition of this unusual phenomenon is critical when considering medical therapy and prevention strategies for management of stone disease.

Source of Funding: none

MP14-23 TOTAL CHOLESTEROL AS A SERUM BIOMARKER OF HYPERCALCIURIA IN PATIENTS WITH KIDNEY STONES

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INTRODUCTION AND OBJECTIVES: Metabolic syndrome has been associated with an increased risk of kidney stones. In fact, there is some evidence that obesity and hyperlipidemia may play an important role in urolithiasis. However, there is little data regarding the association between lipid profile and 24-hour urine analysis. Herein, we aim to study the impact of hypercholesterolemia on 24-hour urine analysis and stone composition.

METHODS: We retrospectively identified patients with nephrolithiasis who also had a 24-hour urine analysis and lipid profile evaluation from July 2001 through March 2013. Patients on statin treatment before the 24-hour urine analysis were excluded. Patient’s data collected included age, gender, body mass index (BMI), 24-hour urine analysis (volume, sodium, potassium, calcium, oxalate, uric acid, citrate, magnesium, phosphate, chloro, creatinine, and pH), serum total cholesterol (TC), and stone composition. Patients were divided in two groups based on their TC level (TC < 200 mg/dL and TC > 200 mg/dL). Both groups were compared based on their demographic data, each component of 24-hour urine analysis, and stone composition, using the t-student test for continuous variables and the fisher exact test for categorical variables. Then, a multivariate analysis including all significant variables from univariate analysis was performed to confirm which variables were still significantly correlated to the TC level.

RESULTS: 2442 patients (52% males) were included, with a mean age of 51.1 ± 14.3 years and mean BMI of 29.7 ± 7.1. After the univariate analysis, patients with higher TC level had higher urinary potassium (74.0 ± 29.1 vs. 61.4 ± 25.6 mg/dL; p = 0.025) and calcium (245.6 ± 108.2 vs. 199.0 ± 125.5 mg/dL; p = 0.036), as well as lower oxalates (46.6 ± 21.3 vs. 49.8 ± 27.7 mg/dL; p = 0.002). Patients with higher TC level also had a higher rate of uric acid stones (16.7% vs. 6.9%; p < 0.001). After the multivariate analysis only potassium (p = 0.009) and calcium (p = 0.013) urinary levels remained significantly associated with higher TC level.

CONCLUSIONS: Serum total cholesterol is significantly associated with higher urinary potassium and calcium levels. This suggests a potential link between hypercholesterolemia and hypercalciuria.

Source of Funding: None

MP14-24 DEFINING VARIATION IN URINARY OXALATE IN HYPEROXALURIC STONE-FORMERS

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INTRODUCTION AND OBJECTIVES: The development of effective preventative therapy for renal calculi in patients with secondary hyperoxaluria (2×HO) relies upon establishing the pattern of normal variation in urinary oxalate (uOx) and attempting to reduce it. Therefore, we evaluated uOx at baseline and at subsequent time points in stone-formers with 2×HO.

METHODS: We reviewed the charts of 201 recurrent stone formers with 2×HO (uOx ≥ 40 mg/day). 24-hour urine collections at baseline and after initiation of clinician-directed therapies were analyzed. Mixed models were constructed to analyze uOx over time for individual patients and as a group. Subgroup analyses were performed for enteric and idiopathic 2×HO. Coefficients of variation were computed using the root mean square error from linear models.

RESULTS: The etiology of 2×HO was enteric in 17.9% and idiopathic in 82.1% of patients. Among the 943 urine collections analyzed, 19% oxalate values were derived from the enteric group and 74% from the idiopathic group. The median number of uOx values measured per person was 4. The median 24-hr uOx (mg/day) was significantly higher for the enteric group than for the idiopathic group both at the time of diagnosis [64.4 (inter-quartile range (IQR) = 48–90)] versus 46.0 (IQR = 38–56), p < 0.001] and during follow-up [58.2 (IQR = 46–86) versus 44.2 (IQR = 35–53), p < 0.001]. Over a median follow-up of 22.5 months, 44.4% of the enteric and 61.8% of the idiopathic patients had at least one normal uOx value (p = 0.06). The coefficients of variation for the enteric and idiopathic groups were 40.8% and 27.3%, respectively, with variation randomly displayed in either direction for both groups.

CONCLUSIONS: Among patients with 2×HO, uOx demonstrates significant random variation over time even with the incorporation of standard treatments, with enteric HO demonstrating higher values and greater variance than idiopathic HO.

Source of Funding: None

MP14-25 GOUT, STONE COMPOSITION AND Urinary STONE RISK: A CASE MATCHED COMPARATIVE STUDY

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INTRODUCTION AND OBJECTIVES: To establish the most common stone composition and urinary biochemical features of patients with gout and urolithiasis we performed a matched comparison analysis.

METHODS: A case-matched cohort was matched by age, gender and BMI. Primary end-points were 24-hour urines, and stone composition. Allopurinol’s effect composition was evaluated. Student’s t test, Chi-square/Fisher’s exact tests were used for analyses.

RESULTS: Stone panel evaluation: 181 patients met our inclusion criteria, with no differences in demographic characteristics, or 24-hour UA between non-gout and gout cohorts. Hyperoxaluria was more common with gout (74 vs. 61%; p = 0.09). Stone composi-
RATIONALE: Gout had lower amounts of COM (39.4% vs. 54.7%), COD (6.0% vs. 11.2%) and CaP (9.6% vs. 14.1%; p < 0.001) and higher UA (42.7% vs. 18.2%; p < 0.001). Pure UA were more common in gout (52.2% vs. 22.3%; p < 0.001).

Allopurinol use was associated with a shift in stone composition (figure 1), less pure UA (30.4% vs. 56.4%; p = 0.001) and more COMH stones (69.6% vs. 40.7%; p < 0.001).

CONCLUSIONS: UA stones are the most common pure stone in patients with gout, despite having similar urinary acid levels to non-gout patients. Allopurinol changes stone composition to a pattern similar to those without gout.

Source of Funding: none

MP14-26 RETROGRADE INTRARENAL SURGERY (RIRS) VS MINIMALLY INVASIVE PERCUTANEOUS NEPHROLITHOTRIPSY (MPNL) FOR RENAL STONES BETWEEN 1 TO 2 CM: A PROSPECTIVE COMPARATIVE STUDY

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INTRODUCTION AND OBJECTIVES: The Minimally Invasive Percutaneous Nephrolithotripsy (MPNL) and Retrograde Intrarenal Surgery (RIRS) have shown high efficacy and safety for the management of small renal stones. This study compares the efficacy and morbidity between miniMPNL (15 to 16.5 Fr) vs RIRS in renal stones sized from 1 to 2 cm.

METHODS: This was a prospective single center study with two groups (35 patients each). The first group comprised patients who underwent MPNL (15-16.5 Fr), while in the second group underwent RIRS with flexible ureterorenoscope (Flex X2). The primary end points were haemoglobin drop after surgery as equivalents of safety and stone clearance rate in terms of efficacy. The secondary end points comprised procedure time, need for stenting or nephrostomy drainage tube, pain level, and hospital stay.

RESULTS: The mean stone size was same in both the groups (1.46 cm vs 1.41 cm). The procedural time was shorter in the MPNL group (23.6 min vs 35.5 min). 5 patients in the RIRS group had a tight ureter not allowing passage of the scope. One of these was stented and treated by RIRS 7 days later. The remaining 4 were converted into MPNL and stone cleared in the same anaesthesia. The mean haemoglobin drop after the procedure was significantly lower in the RIRS group (0.83 vs 0.47 gm %). Similarly, pain score and hospital stay were marginally lower after RIRS in comparison with MPNL. Calculus clearance was 97.1% in the MPNL group and 94.3% in the RIRS group. Post procedural DJ stent was placed in 4 cases in the MPNL and 33 cases in the RIRS group. None of the patients had a nephrostomy tube postoperatively. There were no significant complications (Clavien grade 2 or above) in either of the groups. In the RIRS group, 5 patients had significant stent related dysuria or hematuria.

CONCLUSIONS: MPNL and RIRS are both effective options in treatment of medium sized renal stones with minimal morbidity. MPNL has the advantage of better clearance in a single session whereas RIRS may require prestenting in 14% cases. Perioperative morbidity is lower in the RIRS group however the need for stenting and stent related symptoms are a disadvantage. Proper counselling with the patient prior to the procedure helps in choosing the correct procedure in an individual patient.

Source of Funding: None
axillary roll is important to avoid brachial plexus damage. The assistant’s ports must avoid the camera arm; the surgeon should refrain from moving the camera at all while the assistant is inserting robotic instruments in order to prevent a traumatic collision.

RESULTS: We have found that the Pigazzi Patient Positioning System (Xodus Medical) facilitates several of the key portions of Trendelenburg positioning; it is anti-slip and provides a mechanism to easily tuck the arms, which we wrap in 2 egg-crate foam pads. A thumbs-up position is critical, and all wires and i.v. tubing should be placed on the outside of the padding; the hands may be covered with foam pads as well. A tilt-test will ensure that the patient is stable and will not slide. For flank position, we prefer a modified lateral decubitus facilitated by a large gel roll under the ipsilateral shoulder and hip, with the ipsilateral arm padded and tucked at the patient’s side. The legs are straight and rest on pillows, the table is not flexed nor is the kidney rest deployed. A slightly lateral position of the camera port will provide extra room for the assistant to maneuver; a bariatric-length (45 cm) suction cannula is paramount as well. Ports should be placed strategically to avoid the transit of the camera, so the assistant may sit comfortably.

CONCLUSIONS: Adopting proactive strategies to protect the patient and the assistant can reduce the risk of neuromuscular injury.

Source of Funding: none

MP15-02 FUNCTIONAL AND ONCOLOGICAL OUTCOMES OF ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP) LEARNING CURVE ANALYSIS OF 418 CONSECUTIVE PATIENTS WITH UP TO 7 YEAR FOLLOW-UP

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INTRODUCTION AND OBJECTIVES: The transition to robotic assisted radical prostatectomy requires the surgeon to go through a learning curve with this new approach. There is limited data on the effect of the robotic learning curve on long term oncological and functional outcomes. Our objective is to describe and identify independent predictors of short and long term outcomes in the context of the robotic learning curve.

METHODS: We retrospectively evaluated a cohort of 418 patients from a prospectively collected consecutive series of patients who underwent RARP at an academic institution from 2006 to 2012. Oncologic learning curve was characterized by decile with respect to margin status. Descriptive statistics were performed using student-t and Chi-square where appropriate. Analytical statistics were performed using multivariate logistic regression modeling to define independent predictors of margin status, and short and long term complications. Multivariate cox regression model was used to evaluate PSA recurrence and continent.

RESULTS: Our cohort was made up of men aged 60 ± 7 years, with low or intermediate risk prostate cancer (PSA 7 ± 3, 61% Gleason 6, 39% Gleason 7, and 71 % stage 1 disease) preoperatively and a mean BMI of 27 ± 3. The majority underwent nerve sparing (75%) prostatectomy with pelvic lymph node dissection (44%). The learning curve was identified to plateau after the first 84 cases. On univariable analysis the learning curve was associated with longer OR time (223 ± 49 vs 184 ± 30 min, p < 0.001), increased blood loss (307 ± 471 vs 243 ± 172, p = 0.04), higher rates of positive surgical margins (28% vs 12%, p < 0.001), and PSA failure (10% vs 2%, p = 0.02). There were no differences between groups for continence, Clavien complications or long term complications. Multivariable logistic regression revealed that learning curve was the strongest independent predictor of margin status (OR 4.3, 95%CI 2.26-8.20, p < 0.001) comparable to pathologic stage (OR 3.47, 95%CI 1.90-6.32, p < 0.001). In contrast, on multivariate analysis learning curve did not predict PSA recurrence, continent, short term or long term complications.

CONCLUSIONS: The learning curve for RARP was found to be predictive of increased positive margins, however this did not translate into increase PSA recurrence or rates of complications.

Source of Funding: None

MP15-03 ROBOTIC ASSISTED RADICAL PROSTATECTOMY FOR HIGH RISK PROSTATE CANCER: QUALITY OF LIFE OUTCOMES IN MEN WHO ELECT SURGERY AS PRIMARY THERAPY

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INTRODUCTION AND OBJECTIVES: Robotic prostatectomy with pelvic lymph node dissection (RARP) is increasingly performed on patients with high risk prostate cancer. There are few studies on quality of life (QOL) outcomes following RARP for high risk disease. We used a validated QOL questionnaire to evaluate of the long term morbidity associated with this treatment paradigm.

METHODS: Men included in our institutional IRB approved prostatectomy database are asked to complete the Expanded Prostate Cancer Index Composite (EPIC-26) questionnaire preoperatively and at each follow-up visit. We queried the database for all patients who underwent RARP as initial therapy for D’Amico high-risk prostate cancer between 2/2004-11/2011. Patients were excluded if they had undergone previous radiotherapy or androgen deprivation therapy. Questionnaire scores were aggregated into a composite index score of 0-100, with 100 representing the most favorable score for the following domains: urinary function (UF), bowel health (BH), hormonal function (HF), and sexual function (SF). Index scores were stratified by nerve sparing (NS) status. Linear regression models and analysis of variance were used for statistical comparisons.

RESULTS: 277 patients met inclusion criteria, median age at surgery was 62, median follow up interval was 11.7 months (max: 145 months), and a mean of 4.4 questionnaires were completed per patient. 81 men underwent a bilateral NS procedure, 81 a unilateral NS procedure, and 115 a non-NS procedure. Mean index scores on the UF, HF, and SF domains changed significantly from baseline (p < 0.01 for all), while mean index scores on the BH domain did not change significantly (p = 0.234). At 2 years, nerve sparing status was associated with a statistically significant improvement in scores in the SF domain only, with patients undergoing unilateral (p = 0.01) or bilateral NS (p < 0.01) reporting higher scores than non-NS patients. (Figure 1.)
CONCLUSIONS: QOL outcomes based on EPIC-26 scores for patients undergoing RARP for high risk prostate cancer were similar to those of lower risk cohorts in previously published studies. Randomized comparisons of QOL outcomes between treatment modalities for high risk patients are needed to optimize treatment strategies.

Source of Funding: None

MP15-04 ONCOLOGIC OUTCOMES FOLLOWING ROBOT ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY IN OBSESE PATIENTS WITH NON-ORGAN CONFINED PROSTATE CANCER

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INTRODUCTION AND OBJECTIVES: Obesity is a growing health epidemic in Western culture and is highly prevalent among patients with prostate cancer (PCa). The relationship between obesity and PCa has been widely studied. However, there is scant data on the outcomes of robot assisted laparoscopic prostatectomy (RALP) in obese patients with high risk disease. Our goal is to assess the impact of body mass index (BMI) on mid-term oncological outcomes following RALP in patients with pathologic non-organ confined (pT3) disease.

METHODS: In our IRB approved and prospectively attained clinical database, we identified 3,063 patients who underwent RALP from March 2003 to January 2012. Follow up has been maintained every 6 months for 2 years, and yearly thereafter. From this group, patients with more than 12 months of follow up and pT3 disease were selected. Exclusion criteria included receipt of adjuvant therapy, salvage RALP, or persistent PSA elevation post-operatively. Patients were separated into 4 cohorts based on BMI: 1. BMI < 25 kg/m2, 2. BMI 25–30 kg/m2, 3. BMI 30–35 kg/m2, and 4. BMI > 35 kg/m2. We defined biochemical recurrence (BCR) as PSA > 0.2 ng/ml. Time to BCR was compared across BMI groups via Kaplan Meier analysis and the logrank test.

RESULTS: 368 patients met inclusion criteria with overall median follow-up of 26 months. There was no difference in follow-up, baseline demographic, clinical, or pathologic features between the 4 BMI groups. Perioperative outcomes were also similar between the 4 groups with the exception of operative time. Relative to group 1, there was no difference in mean OR time in group 2 (p = 0.49), whereas OR times were significantly longer in groups 3 and 4 (mean increase of 27 minutes, p = 0.006 and 30 minutes, p = 0.037, respectively). Overall, BCR was noted in 74 (20.1%) patients with a median time to BCR of 20.8 months [IQR 12.9, 34.7]. Kaplan Meier survival analysis did not demonstrate any significant difference in BCR among the 4 BMI groups (Figure 1).

CONCLUSIONS: RALP is feasible in obese patients with PCa with similar perioperative outcomes to non-obese patients with the exception of longer operative times in obese and morbidly obese patients. Our data do not support an impact of BMI on mid-term oncologic outcomes in patients with pT3 disease; however, long-term follow-up remains essential.

Source of Funding: none

MP15-05 DOES SIMULTANEOUS EXTRAPERITONEAL LAPAROSCOPIC HERNIA REPAIR INFLUENCE MORBIDITY AND PAIN LEVELS AFTER EXTRAPERITONEAL LAPAROSCOPIC RADICAL PROSTATECTOMY?

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INTRODUCTION AND OBJECTIVES: Simultaneous treatment of prostate cancer and inguinal hernias, with laparoscopic techniques, can be safe and feasible. Quantitative differences in postoperative pain levels have not yet been assessed. This study aims to compare the postoperative pain levels and postoperative morbidity between patients that underwent concomitant extraperitoneal laparoscopic radical prostatectomy (EPLRP) with extraperitoneal laparoscopic hernia repair (EPLHR) using a matched paired analysis.

METHODS: From December 2003 to December 2012, 54 patients underwent EPLRP with simultaneous EPLHR (Group 1). Their postoperative pain levels were quantitatively compared with those of 54 patients undergoing only EPLRP (Group 2, in a matched paired analysis, according to age, BMI, ASA score and pelvic lymphadenectomy. For this comparison, the visual analogue scale (VAS) scoring system was used.

RESULTS: Patients of the two groups had comparable demographic and tumor characteristics. No significant differences in operation time and estimated blood loss were observed between both groups (p Value > 0.05). Furthermore, no significant difference in mean duration of hospitalization between the two groups was noted. Postoperative total morphine derivative analgesic requirements (9.17 vs 8.06 mg) and total VAS scores (5.65 vs 4.98) were also comparable between the two groups. Finally, no statistically significant differences in complications were recorded between the two groups. The follow up period lasted for 21 months.

CONCLUSIONS: This is the first study comparing simultaneous EPLRP and EPLHR with simple EPLRP using a scale grading system. The results indicate that simultaneous laparoscopic treatment of prostate cancer and inguinal hernias is feasible and as tolerable as only treating the prostate cancer.

Source of Funding: none

MP15-06 POPULATION-BASED DETERMINANTS OF RADICAL PROSTATECTOMY OPERATIVE TIME

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INTRODUCTION AND OBJECTIVES: Operative time assessment is inherent to defining surgeon learning curves and evaluating quality of care. The objective of our study is to determine factors that influence radical prostatectomy (RP) operative times.

METHODS: Population-based observational cohort study using US Surveillance, Epidemiology, and End Results (SEER)-Medicare linked data of men diagnosed with prostate cancer during 2003–2007 who underwent robotic assisted radical prostatectomy (RARP, n = 3,458) and retropubic radical prostatectomy (RRP, n = 6,993) through 2009. We obtained median operative time using anesthesia administrative data for RP and used median regression to assess the contribution of patient, surgeon, and hospital factors to operative times.

RESULTS: Median RARP operative time decreased from 315 minutes to 247 minutes from 2003 through 2008–09 (p < 0.001) while median RRP operative time remained similar (195 vs. 197 minutes, p = 0.90). In adjusted analysis, RARP vs. RRP (parameter estimate [PE] 70.9; 95% confidence interval [CI] 58, 84; p < 0.001) and obesity (PE 15; 95% CI 7, 23; p < 0.001) were associated with longer operative times while higher surgeon volumes were associated with shorter operative times (p < 0.001). Prostatectomies performed by surgeons employed by group (PE = 22.76; 95% CI = 18, 27; p = 0.004) and non-government (PE = 35.59; 95% CI = 68.15, −3.03; p = 0.032) vs. vs. government facilities and non-profit vs. government hospital ownership (PE = 21.85; 95% CI = 32.28, −11.42; p < 0.001) were associated with shorter operative times.

CONCLUSIONS: During our study period, RARP operative times decreased by 68 minutes while RRP operative times remained stagnant. Higher surgeon volume was associated with shorter operative times, and selective referral or improved efficiency to the level of high volume surgeons would net almost $15 million dollars in annual savings.

Source of Funding: none

MP15-07 DRAINS ARE NOT NECESSARY IN THE MAJORITY OF ROBOTIC UROLOGIC PROCEDURES

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INTRODUCTION AND OBJECTIVES: Urologic dogma dictates that externalized drains be placed after surgery involving urinary tract violation or reconstruction. This is based on custom rather than data. While typically harmless, drains may cause discomfort, and data from other disciplines suggests they may contribute to infections. Also, evidence suggests that suction drains may promote urine leakage, delayed hemorrhage, or rare bowel complications and hernias. With experience, we found that robotic surgery allows water-tight urinary tract reconstruction. For over four years, we have performed most robotic procedures involving urinary tract violation with routine omission of externalized abdominal drainage. We review of our outcomes to determine if this practice is safe.

METHODS: A prospectively-collected database of all patients who underwent any type of robotic surgery by a single surgeon (RA) from 2008 to 2012 was reviewed. All procedures were transperitoneal. All cases involving violation of the urinary tract or typically managed with drains (e.g. partial nephrectomy) were included in the study. Clinically significant urine leaks, defined as those needing readmission or any intervention, were identified.

RESULTS: Of 1,899 robotic procedures, 1,772 met the study criteria. Among these were 1,483 prostatectomies, 180 partial nephrectomies, 55 pyeloplasties, 27 nephroureterectomies, 18 robotic ureteral resections/reconstructions, 5 partial cystectomies, 2 simple prostatectomies, 1 bladder diverticulectomy, and 1 urachal mass excision. Mean patient age was 59 yrs (17–90), mean BMI was 30.3 kg/m² (16–63), mean blood loss was 114.9 mL (5–1500), and mean length of stay was 1.0 days (0–15).

Source of Funding: none
No drain was placed in 1747 of 1772 patients (98.6%), including 99% of prostatectomies, 94% of partial nephrectomies, 98% of pyeloplasties, 96% of nephroureterectomies, 89% of ureteral procedures, and 100% of partial cystectomies and the remaining various cases. All 25 patients who had drains placed during surgery had these removed prior to discharge, such that all were precautionary and none therapeutic. Within 90 days, there were 3 patients without drains left during surgery who later required percutaneous drain placement for urine leaks (0.17%), all without infection. Readmissions for any cause within 90 days occurred in 68/1772 patients (3.8%).

CONCLUSIONS: Routine placement of drains after the majority of robotic urologic surgery can be safely omitted with low rate of clinically significant urine leak and a very low overall readmission rate.

Source of Funding: none

MP15-08 IS THE SURGICAL, ONCOLOGIC AND FUNCTIONAL OUTCOMES OF RALP AFFECTED BY THE PERIOD OF TIME AFTER TURP?

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INTRODUCTION AND OBJECTIVES: The effect that previous TURP has on RP has been controversial. Retropublic radical prostatectomy (RP) after previous transurethral resection of the prostate (TURP) was known to increase intraoperative and postoperative morbidity as well as oncologic and functional outcomes. However, recently published data reported that patients who had undergone laparoscopic RP after previous TURP had similar outcomes.

The objective of this study was to evaluate the surgical, oncological and functional outcomes of patients who undergone robot assisted laparoscopic prostatectomy (RALP) with the history of TURP and figure out if the period of time after TURP affect the outcomes.

METHODS: The records of 1036 patients who underwent RALP from May 2005 to December 2011 in our institution by a single surgeon (Rha) were retrospectively reviewed. Total 45 patients had undergone TURP prior to RALP. Patients with metastatic diseases or suspected lymph node involvement (LNI) at diagnosis or on neo-adjuvant hormonal therapy were excluded. Propensity scoring match was done by parameters including preoperative variate including age, BMI, Gleason score, PSA, clinical stage of disease, prostate volume and biopsy results. Patients who underwent TURP before RALP were divided into two groups by the period of time after TURP. 16 patients undergone RALP within 3 months after RALP (Group 1) and 20 patients had RALP at least 3 months after TURP (Group 2).

RESULTS: Total 72 patients were evaluated after propensity score matching. The preoperative parameters including age, BMI, PSA, Gleason score, clinical stage, prostate volume, biopsy results were similar between two groups. There were no significant differences in mean length of hospital stay (4.9 versus 5.2 days, p=0.11), operative time (175 versus 193 mins, p=0.26), estimated blood loss (193 versus 270 ml, p=0.11). Functional and oncological outcomes were not different between two groups. On subgroup analysis, the functional outcomes (continent rate) were significantly worse in Group 1 on 3 months after RALP (60% vs 90%, p=0.05) which was similar on 12 month-visit after operation (93% vs 90%). The rate of positive surgical margin was higher in Group 1 (43% vs 20%). Estimated blood loss, the time of operation, the mean length of hospital stay were not significantly different between two groups.

CONCLUSIONS: Although the rate of positive surgical margin and short-term incontinence were higher in patients who had RALP within 3 months after TURP, RALP can be safely performed without compromising surgical, functional and oncological results.

Source of Funding: none

MP15-09 A COMPARATIVE STUDY OF LAPAROSCOPIC RADICAL PROSTATECTOMY BY EXTRAPERITONEAL VS SINGLE-PORT TRANSVESICAL APPROACH FOR LOW-RISK

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INTRODUCTION AND OBJECTIVES: To compare the perioperative, pathologic and functional outcome of single-port transvesical laparoscopic radical prostatectomy (STRP) with nerve-sparing laparoscopic radical prostatectomy (ELRP).

METHODS: Fifty patients with low-risk organ-confined PCa from January 2011 to December 2012 were enrolled in this study. Patients were randomly devided into the STRP and nsELRP group. Parameters including age, comorbidity, BMI, serum PSA, prostate volume, biopsy Gleason score and stage, the International Index of Erectile Function 5 (IIEF-5), the nocturnal penile tumescence (NPT), penile brachial index (PBI) and the blood flow velocity of penile artery were collected. Relevant operation data involved operation duarion, estimated blood loss (EBL), transfusion rate, complication, positive surgical margin (PSM), duration of catheterization and hospital stay were recorded. Postoperative data including pathologic Gleason score and stage, the urinal pad used, PSA, IIEF-5, NPT, PBI and the blood flow velocity of penile artery were analyzed.

RESULTS: No significant differences in the baseline characteristics were found between the two groups. All the procedures were successfully performed. For the operative data, no difference was observed in EBL, transfusion rate, inoperative complication and PSM. No inoperative complication occurred and no patient had positive surgical margins in both groups. Significantly, less operation duration, catheterisation time and hospital stay were observed in patients who had undergone STRP than in those who had received nsELRP (P<0.05, respectively). The continence rates were 84% VS 52%, 100% VS 84%, 100% VS 96% and 100% VS 96% at the removal of the catheter, at 1, 3 and 6 months from catheter removal, respectively. The potency rates were 48% VS 28%, 64% VS 52% and 76% VS 68% at 3, 6 and 12 months postoperatively, respectively, with an IIEF-5 score ≥18. The difference in PBI and the blood flow velocity of penile artery of all patients before and after the surgery was not statistically significant. The postoperative complication (grade II) rates were 32% VS 40%, respectively. No case demonstrated biochemical recurrence in both groups during follow-up for 12 months.

CONCLUSIONS: Both STRP and nsELRP are suitable for patients with low-risk organ-confined PCa, the procedure is safe with a rapid postoperative recovery. The short-term tumor-control effect of STRP is similar to nsELRP. i) Patients from the STRP group demonstrate significantly better recovery outcomes of early sexual function and continence.

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PROVIDENCE, RI
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INTRODUCTION AND OBJECTIVES: Bladder neck contracture (BNC) is a well recognized complication following radical prostatectomy for treatment of localized prostate cancer with a reported incidence of up to 3% using DaVinci robot assisted laparoscopic prostatectomy techniques. In this series we analyze and report our institutional experience and management results.

METHODS: A retrospective case analysis was conducted among patients who underwent DaVinci robot assisted laparoscopic prostatectomy by a single surgeon from 2005 to 2012. Water tight bladder neck to urethral anastomosis was performed using Van Velthoven technique using a double armed 3-0 monocryl suture in a running fashion starting at 6 o’clock. All patients were discharged home with a 16 french foley catheter which was removed at first post operative visit in seven days. Symptomatic patients noted to have a narrowed bladder neck lumen on flexible cystoscopy were identified to have bladder neck contracture. Subsequently, these patients underwent bladder neck incisions using cold knife. Patients then followed a strict self regimen of clean intermittent catheterization (16 french) once daily for one month, then every other day for one month and finally once a week for one month. In this series we identify the patient demographics, incidence of BNC, associated risk factors and their subsequent management.

RESULTS: Total of 800 patients were identified who underwent RALP for localized prostate cancer. Bladder neck contracture was identified in 11 patients, 1.38% incidence. Mean patient age was 59.3 years old with an average PSA of 8.07. Mean operative time was 200 minutes. Mean estimated blood loss was 391 cc, median 500 cc. None of the patients required bladder neck reconstruction. Patients most commonly presented with urinary symptoms of bladder outlet obstruction within 2 months to 1 year post operative interval. All patients underwent cystoscopy and bladder neck incision in the operating room with instructions for CIC regimen. Of the 11 index patients, none had a BNC recurrence.

CONCLUSIONS: Bladder neck contracture was identified in 1.38% of patients in our series. Meticulous surgical techniques such as mucosal apposition, water tight anastomosis and low operative blood loss allow proper healing of the surgical anastomosis. Early identification of bladder neck stricture and institution of self CIC regimen following bladder neck incision results in post operative period free of recurrence.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: Some patients may be more susceptible to complications than others following robot assisted laparoscopic Radical prostatectomy (RALP), but it is not established whether preoperative risk assessment based on D’Amico criteria is predictive of complications. We determined if higher pre-operative risk criteria predisposes patients to increased perioperative complications associated with RARP in our single-institution experience.

METHODS: A total of 178 patients were evaluated with complete pre-operative risk stratification available. Data were assimilated through an IRB approved blinded prospective database by an independent third party committee and patients were followed prospectively for 30 days postoperatively. Perioperative complications were strictly defined as any deviation from the normal postoperative course. The Modified Clavien system was utilized to grade complications, with grade I and II representing minor and grades III, IV and V representing major complications. The patient’s were stratified into low, intermediate and high risk according to the D’Amico risk criteria and complication rates were compared. A chi-square statistical analysis was used to compare complication rates between low-risk patients and intermediate/high-risk patients in combination.

RESULTS: Of our 178 patients, 142 (79.7%) had an uneventful postoperative course and the remaining 36 patients (20.2%) experienced complications. Complications stratified by Clavien grade among the three groups are seen in Table 1. Of the 82 patients defined as low-risk, 10 (12.2%) experienced a complication, while 17 of 65 (26.2%) patients defined as intermediate-risk and 9 of 31 (29%) patients defined as high-risk experienced a complication. The low-risk cohort was found to have a significantly lower complication rate when compared to the intermediate and high-risk groups collectively (p = 0.014).

CONCLUSIONS: Preoperative surgical risk as defined by the D’Amico risk criteria may help to predict a higher complication rate following robotic assisted laparoscopic radical prostatectomy in intermediate and high risk patients.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: An association between robotic-assisted laparoscopic prostatectomy (RALP) and postoperative corneal abrasion has been posited. Herein we describe our experience with corneal abrasion following RALP at the University of Chicago Medical Center.

METHODS: We identified 3001 consecutive patients who underwent RALP from 2/03 to 01/13 from our IRB-approved, prospectively-maintained database. Complication of corneal abrasion was queried from the database. Secondly, we queried our electronic medical record and billing records for patients with principal diagnosis ICD-9 code for prostate cancer (185) and secondary diagnosis of corneal abrasion (918.1), and those with principal procedure codes for prostatectomy (60.2–60.7) with secondary diagnosis of corneal abrasion (918.1). A final review was performed using principal diagnosis code of prostate cancer (185) with inpatient consultation codes 99251–5. The first 1500 cases comprised the early cohort, the second 1501 the late.

RESULTS: Of the 3001 patients who underwent RALP between 2/03 and 1/13, 18 (0.59%) were identified who were diagnosed
with and treated for corneal abrasion within the first postoperative day. Mean age (60.3 vs. 59.6) Gleason sum (6.8 vs. 6.7), operative time (227 vs. 211 min), estimated blood loss (179.7 vs. 205.3 ml), and intraoperative intravenous fluids (2500 vs. 2641 ml) did not differ significantly between those patients with corneal abrasion and those without. Three patients with corneal abrasion had an unrelated postoperative complication (bleeding, acute kidney injury, paresthesia). 12/18 corneal abrasions occurred in the early cohort versus 6/18 in the late (p = 0.38). Length of hospital stay did not differ between those who were and were not diagnosed with postoperative corneal abrasion (1.06 vs. 1.11, respectively), and all patients reported resolution of symptoms within 7 days.

CONCLUSIONS: Postoperative corneal abrasion is a rare complication associated with robotic-assisted laparoscopic prostatectomy. Postoperative corneal abrasion does not appear to be associated with increased length of stay or long-term morbidity, with all patients in our study cohort having resolution of symptoms within 7 days.

Source of Funding: none

MP15-13 PREDICTIVE FACTORS OF BIOCHEMICAL RECURRENCE IN MEN WITH SEMINAL VESICLE INVASION


INTRODUCTION AND OBJECTIVES: Seminal vesicle invasion (SVI) at the time of radical prostatectomy (RP) is an adverse pathologic feature. However, only a few predictors of biochemical recurrence (BCR) have been identified, with conflicting results. We reviewed our experience of patients with SVI to determine identifiable risk factors for BCR.

METHODS: We reviewed the Columbia Urologic-Oncology Database to identify patients who underwent RP from 1990–2010 and had pT3b disease. Regression analysis was performed to determine factors that were predictive of BCR, which was defined as a postoperative PSA >0.2 ng/mL.

RESULTS: A total of 188 patients with pT3b prostate cancer were identified. Mean patient age was 63 years, median PSA 9.1, and median pathologic Gleason was 7. At a median follow-up of 26 months, 125 patients (67%) experienced BCR. 5-year BCR-free rate was 33%. On regression analysis, only preoperative PSA (HR = 1.02, p < 0.001) and positive lymph node status (HR = 1.93, p < 0.001) were independently associated with BCR, while margin status, number of positive margins, location of positive margin, and pathologic Gleason were not. In a subset of patients with Gleason ≤ 7 (n = 78), total number of positive margins (HR 1.33, p = 0.02) and bladder neck involvement (HR = 4.6, p = 0.02) were predictive of BCR.

CONCLUSIONS: In the present study, PSA and lymph node involvement were the only factors associated with an increased risk of BCR. Additionally, in men with low-grade disease, total number of positive margins and bladder neck involvement were also significantly predictive of BCR. These results suggest that several factors need to be considered when counseling men with SVI regarding their risk for recurrence.

Source of Funding: None

MP15-14 NOVEL UROFLOW STOP TEST AT TIME OF CATHETER REMOVAL IS A STRONG PREDICTOR OF EARLY URINARY CONTINENCE RECOVERY FOLLOWING ROBOTIC-ASSISTED RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: To study whether the ability to completely stop urinary flow during voiding at time of catheter removal, measured objectively using uroflometry, can predict early recovery of urine continence following robotic-assisted radical prostatectomy (RARP).

METHODS: In this prospective study, 108 patients with at least 2 years follow-up, operated by a single surgeon (AEH) were subjected to an uroflowmetry at the time of urethral catheter removal following RARP. Normal Saline (150 ml) was instilled intravesically prior to catheter removal and patients were instructed to attempt to stop urine flow during voiding in uroflowmeter. Two groups were studied, group one with positive Stop Test (n = 80) and group two with negative Stop Test (n = 28). Covariates included age, BMI, IPSS score, PSA, tumor stage, prostate volume, nerve sparing status and estimated blood loss.

RESULTS: Basic characteristics were not statistically different between both groups. Early continence recovery was significantly
higher in group one. Pad-free continence rates in group one and two at 1, 3, 6, 12, 18 and 24 months were 62% vs 7% (p < 0.001), 85.7% vs 28.5% (p < 0.001), 93.5% vs 67.8% (p = 0.001), 93.5% vs 82.1% (p = 0.079), 97.3% vs 82.1% (p = 0.006), and 97.4% vs 85.7% (p = 0.023), respectively. Uroflow StopTest was the only independent predictor of early urine continence recovery on univariate and multivariate regression analysis [OR 2.87 (95% CI 1.34-4.38, p < 0.001), 82.1% vs 7% (p = 0.079), 97.3% vs 82.1% (p = 0.006), and 97.4% vs 85.7% (p = 0.023)], respectively. Novel use of uroflowmetry at time of urethral catheter removal is a simple, non-invasive study with independent ability to predict early continence recovery following RARP.

Source of Funding: None

MP15-15 ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: INITIAL EXPERIENCE AND THE LEARNING CURVE

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INTRODUCTION AND OBJECTIVES: Radical prostatectomy is a common treatment for localized prostate cancer. Robotic assisted laparoscopic radical prostatectomy (RALP) has been shown with favorable oncologic and functional outcome in recent review and meta-analysis. The robotic system decreased the difficulty of the traditional laparoscopy surgery through its superior 3-dimensional magnification, dexterity and improved precision. Herein, we report the initial experience and learning curve of robotic assisted laparoscopic radical prostatectomy for men with clinically localized prostate cancer by a single surgeon.

METHODS: There were 21 patients underwent robotic assisted laparoscopic radical prostatectomy between 2012 March till 2013 March. A 6-trocar transperitoneal technique was used. Bilateral pelvic lymph nodes dissection was performed routinely to determine the pathologic stage. The urethrovaginal anastomosis was made through running continuous suture with two 3-0 monofil. The patient's demographic data (age, prostate size, PSA, Gleason score, clinical stage), perioperative parameters (operative time, estimated blood loss, days of hospitalization, complications) & postoperative parameters (oncologic & functional outcomes) were retrospectively reviewed.

RESULTS: The mean age was 65.5 year-old. The mean PSA was 29.1. The mean prostate was about 28.6 cc. The operative time averaged 391.2 mins. The mean blood loss was 578 cc. 5 patients (23.8%) received perioperative blood transfusion. One patient had major complication with intestinal obstruction causing subsequent multiple organ failure. The positive surgical margin rate was 22% for T2 lesion and 42% for T3 lesion. The average hospital stay day was 13.7 days with an average of 8.9 days Foley catheterization. The urinary continence rate was 65% at 1 month and 85% at 3 months. Erectile function analysis was incomplete due to relatively few cases had nerve-sparing technique.

CONCLUSIONS: Robotic assisted laparoscopic radical prostatectomy provided excellent operation view & a comfortable position for the surgeon without compromising surgical outcome. With experience accumulates, the surgical & functional outcome would improve. The learning curve is significantly shorter if the surgeon has wide experience in laparoscopic surgery.

Source of Funding: None

MP15-16 ROBOT-ASSISTED SALVAGE RADICAL PROSTATECTOMY AFTER RADIATION FAILURE: INITIAL RESULTS AND SHORT-TERM FUNCTIONAL OUTCOMES

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INTRODUCTION AND OBJECTIVES: Salvage radical prostatectomy is a treatment option for certain patients after radiation therapy failure. It is more technically demanding and has a higher frequency of surgical complications than standard prostatectomy. In this article, we report the results and short-term functional outcomes by a single surgeon's experience to date.

METHODS: From December 2005 to May 2013, 565 consecutive patients with clinically localized prostate cancer received robot-assisted radical prostatectomy (RARP) by a single surgeon. Among the 565 patients, there were five patients (0.88%) who had prior radiation therapy for prostate cancer (PCa) and radiation failure developed during follow-up. The five patients were treated with robot-assisted salvage radical prostatectomy (RASRP).

RESULTS: Among the five patients who received RASRP, 3 patients were treated with external beam radiation therapy (EBRT); one patient was treated with brachytherapy, and the other patient was treated with the CyberKnife radiosurgery system. Median time from primary therapy to RASRP was 24.4 months. Median preoperative prostate specific antigen was 5.39 ng/ml. Median operative time was 128 minutes, and blood loss was 84 ml. All surgical margins were negative by pathological examination. After a median follow-up of 16 months, one patient, pathological stage of T3b, had biochemical failure. There were 2 patients who had their neurovascular bundle preserved, but their erection function was insufficient for sexual intercourse during follow-up. Four patients (80%) had excellent continence within the postoperative 5 weeks.

CONCLUSIONS: For selected patients with confirmed, localized, radiation-recurrent PCa, RASRP was feasible, safe, and provided good continence rates. The potency and long-term cancer control need to be evaluated.

Source of Funding: none

MP15-17 LONG-TERM ONCOLOGICAL RESULTS OF RADICAL PROSTATECTOMY FOR HIGH-RISK PROSTATE CANCER: A SINGLE-CENTRE EXPERIENCE

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INTRODUCTION AND OBJECTIVES: In our cohort, patients treated with RARP showed better EF recovery compared with LRP. This results should be carefully analyzed as they represent the very first outcomes of an invention curve for both LRP and RARP. Furthermore, initial learning from LRP experience should have an impact in RARP outcomes. A careful pre-operative patient selection is mandatory to improve the chance of EF recovery following RARP and LRP.

METHODS: Between 1998 and 2006, a total of 239 patients underwent RP for high-risk PC. High-risk PC was defined as follows: prostate-specific antigen (PSA) level > 20 ng/mL, Gleason score 8–10, and/or clinical stage T2c-T4 disease. Biochemical recurrence (BCR) was defined as a postoperative PSA value > 0.10 ng/mL and a confirmatory rise, or a postoperative PSA > 0.10 ng/mL while receiving salvage treatment. Kaplan-Meier and multivariate cox regression analysis were used to determine BCR, cancer specific survival (CSS) and the significant predictors of BCR.

RESULTS: The median follow-up was 64 months. Organ-confined disease, seminal vesicle invasion and lymph node metastasis were reported in 46%, 27% and 3%, respectively. The positive surgical margin rate was 29%. Overall, the predicted 5-year and 10-year BCR-free survival rates were 31% and 29%, respectively; and the predicted 5-year and 10-year CSS rates were 98% and 89%, respectively. After adjusting for other covariates, higher pathologic stage, positive nodes, positive surgical margins and Gleason 8–10 are significantly associated with BCR.

CONCLUSIONS: Our data support evidence that RP can result in encouraging long-term oncologic outcomes for the management of high-risk PC.

Source of Funding: none

MP15-18 ROBOTIC SIMPLE PROSTATECTOMY FOR SEVERE BENIGN PROSTATIC HYPERPLASIA

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INTRODUCTION AND OBJECTIVES: Simple prostatectomy for the treatment of severe benign prostatic hyperplasia (BPH) can offer men with large prostates effective and durable symptom relief. We aim to demonstrate the surgical technique and describe early outcomes among men undergoing robotic simple prostatectomy (RSP) for severe BPH.

METHODS: A prospective, multi-centered, longitudinal study was performed to assess perioperative and intermediate term outcomes among men who underwent transperitoneal RSP for the treatment of severe BPH. All patients were seen and evaluated at one of 2 tertiary academic centers between the years of 2010–2012. Men with BPH refractory to medical therapy underwent history and physical examination, post-void residual (PVR) measurement, multi-channel urodynamics (where applicable), transrectal ultrasound measurement of the prostate, and cystoscopy. Among men with a prostate volume of greater than 80 grams, treatment options including endoscopic, robotic, and open enucleation of the prostate were offered. Men who elected to undergo RSP were accrued and data collected prospectively. A minimum follow-up of 10 months was observed. Perioperative parameters and the presence of adverse events were recorded, as was durability and efficacy of the procedure.

RESULTS: Following induction, all men underwent transperitoneal port placement in a standard configuration. The space of Retzius was developed with preservation of the endopelvic fascia. The anterior bladder neck was identified and a suprapubic cystotomy created. The ureteral orifices were identified. Enucleation of the prostate was initiated at the posterior aspect of the adenoma and continued laterally. Hemostasis was achieved using a tissue sealing device and/or monopolar cautery. The enucleation was continued anteriorly and towards the apex. The urethra was transected and the adenoma procured and entrapped. The posterior bladder neck was affixed to the posterior prostatic capsule using a running absorbable suture. Following placement of a large bore catheter, the cystotomy was closed in multiple layers. A total of 10 men underwent RSP. Mean operative time was 92 minutes. Mean estimated blood loss was 120 mL. Mean volume of the prostate specimen was 123 g (range 104–250 g). There were no immediate or delayed adverse events. At a mean follow-up of 23.7 months, all men were voiding spontaneously with satisfactory residual volumes.

CONCLUSIONS: RSP appears to be safe and reproducible, and offers men with severe BPH a less invasive alternative to open simple prostatectomy. Surgeons comfortable with RARP may rapidly adopt this technique.

Source of Funding: None

MP15-19 ROBOTIC-ASSISTED LAPAROSCOPIC VERUS OPEN URETERAL REIMPLANTATION: A SINGLE INSTITUTION MATCHED COHORT REVIEW

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INTRODUCTION AND OBJECTIVES: Distal ureteral reconstruction and reimplantation is a procedure which is now often performed laparoscopically with robotic-assistance. We sought to evaluate and compare perioperative and long-term outcomes among similar patients who underwent treatment with either robotic-assisted laparoscopic ureteral reimplantation (RALUR) or open ureteral reimplantation to assess for any clinical difference in outcomes between the two procedures.

METHODS: Patients who underwent robotic-assisted laparoscopic ureteral reimplantation (RALUR) or open ureteral reimplantation between 7/2006 and 10/2012 were identified. All procedures were performed at a single institution. Cohorts were matched in terms of patient characteristics and indications for procedure. A retrospective review of perioperative and clinical data was performed assessing operative time, estimated blood loss, length of admission, and success of procedure as indicated by the absence of obstruction on follow-up imaging.

RESULTS: A total of 21 patients underwent RALUR in the study period and were matched to a similar cohort who underwent open ureteral reimplantation. Mean ages of the groups were comparable at 43.2 and 46.5 years for the robotic and open groups, respectively. 20 of the RALUR were completed laparoscopically with conversion to open in one patient. Etiology of injury was similar between cohorts, including 11 due to gynecologic procedural injury and three secondary to iatrogenic ureteral injuries in each of the groups with the remainder comprised of congenital, non-gynecologic surgery, radiation, and idiopathic. Mean operative time was 453 minutes for the open group in comparison to 237 minutes for the robotic group. Mean estimated blood loss was 225 cc for the open cohort versus a mean of 85 cc for those undergoing RALUR. Mean length of hospital admission in the open reimplant group was 4.5 days compared to 3.1 days in...
those who underwent RALUR. Currently, all patients remain non- obstructed among the RALUR by Lasix renogram. Among the open group, one patient developed an obstruction and underwent repeat ureteral reimplant. An additional patient has been found to have evidence of low grade partial obstruction on renogram but has not required further intervention.

CONCLUSIONS: RALUR is a safe and effective option for distal ureteral reconstruction in appropriate patients and may have benefits in terms of decreased blood loss, decreased duration of hospitalization, and potentially decreased operative time in comparison to open ureteral reimplantation.

Source of Funding: None

MP15-20 ANALYSIS OF FACTORS PREDICTING RECOVERY OF ERECTILE FUNCTION AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: To report the recovery rate of erectile function (EF) and identify various factors predicting the recovery of EF in men undergoing laparoscopic radical prostatectomy (LRP) in our center.

METHODS: From January 2011 to December 2012, a total of 106 men with localized prostate cancer underwent LRP in our center by one surgeon, and we gathered the preoperative EF condition and perioperative factors of these patients. We followed all the patients through telephone in March 2013, and only 89 patients were available. We collected the recovery of EF of available patients after LRP, and analyzed the perioperative factors predicting the recovery of EF after LRP.

RESULTS: A total of 33 patients with preoperative sexual intercourse and over 1 year follow-up were included in statistical research group, and there was no difference of the perioperative clinical data with total series. Recovery of potency was defined as postoperative penile erection. The recovery rate of EF was 51.5% without the use of any drugs or devices to assist erection. In our study, age and preoperative EF were the significant factors of recovery of potency, and preservation of neurovascular bundle and accessory pudendal artery in LRP were also the predictor factors.

CONCLUSIONS: A lot of factors predict the recovery of EF after LRP. In our study, accurate patient selection and adequate surgical technique were major determinants of postoperative recovery of EF. We should take these factors into account for adequate patient stratification and counseling, in order to improve the recovery of EF after LRP.

Source of Funding: none

MP15-21 ANALYSIS OF ROBOT ASSISTED RADICAL PROSTATECTOMY COMPLICATIONS ACCORDING TO DURATION OF FOLLOW-UP

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INTRODUCTION AND OBJECTIVES: The modified and validated Clavien classification system for surgical complications now represents the upcoming standard for both reporting complications and quality standard. Many authors have adopted this classification for reporting complications of robot assisted radical prostatectomy (RARP) to evaluate complications in a consistent manner, allowing comparisons across institutions and among different approaches. However with substantial variations in the reported duration of follow-up (range <30 days to 1 year and recent up to 5 years), comparisons remain a tedious task.

Objective: To analyze complications of a large series of robot assisted radical prostatectomy according to duration of follow up.

METHODS: A total of 1503 patients underwent extraperitoneal RARP for the treatment of clinically localized prostate cancer from July 2003 to August 2010 at a tertiary referral center. The median follow-up was 28.9 months (90-1800 days). Complications were classified according to the modified Clavien system and categorized according to duration of follow-up (<30 days, 31-90 days, 91-180 days, 181-360 days and >360 days). Incidence and trends of complications were analyzed accordingly.

RESULTS: 78.9%, 9.2% and 11.8% of complications were reported within 30 days, 30-90 days and >90 days. 100% of minor complications and only 63.3% of major complications were reported within 90 days. The highest incidence of grade 3 complications, requiring intervention was at 91-180 days timeline, while those managed conservatively were at <30 days. Lymphocele was most commonly reported within 30 days (68.2%). However, lymphocele presenting after 30 days were more likely to require intervention for drainage. No cases of Bladder neck contracture in this series were reported within 30 days, with no significant difference in rates across other time points (0%, 25%, 25%, 30% and 20% at <30, 31-90, 91-180, 181-360 and >360 days). Trends of complications are displayed in Figure 1.

CONCLUSIONS: The majority of complications were reported within 30 days; a significant number of complications were reported beyond 91 days with a significant percentage of procedure specific complications reported >30 days. Reporting complications of RARP with a 30-day follow-up may underestimate procedure specific, late complications.

Source of Funding: None

Trends of procedure specific complications according to follow up.

MP15-22 EFFECT OF PUBOPELVIC ANGLE ON SURGICAL OUTCOMES IN RETROPUBIC AND ROBOT-ASSISTED RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: Recent prior studies report that a bony pelvic dimension, pelvimetry, is not related to surgical outcome, estimated blood loss (EBL), operative time (OT), and surgical margin (SM).

INTRODUCTION AND OBJECTIVES: To report the recovery of EF after LRP.

CONCLUSIONS: We should take these factors into account for adequate patient stratification and counseling, in order to improve the recovery of EF after LRP.
INTRODUCTION AND OBJECTIVES: The robotic approach to distal reconstruction has been increasingly utilized in urology. Traditionally the patient is placed in lithotomy position with the patient cart placed between the legs however access to the bladder for stent placement is limited. We examined the use of side docking the Da Vinci robotic patient cart to perform distal ureteral reconstruction.

METHODS: A retrospective review of distal ureteral reconstruction performed robotically was performed at a single institution. These cases included ureteral reimplantation and uretero-ureterostomy in the adult population. All cases utilized the Di Vinci robotic Si surgical platform and were performed positioning the patient side cart on the side of patient facing towards the head of the patient, i.e. side docking. Patients were placed in lithotomy position with the effected side raised up at a slight angle.

RESULTS: A total of 11 cases were identified from 2011–2013 performed by a single surgeon. Ten patients underwent ureteral reimplantation and one patient had a uretero-ureterostomy for a distal stricture. Indication for procedure included ureteral injury secondary to hysterectomy in 7, reflux in 2, congenital stricture in 1 and meaguereter in 1. Two patients required a boari flap due to extensive ureteral injury. Reimplants were performed in a non-refluxing manner either in LeDuc (9/10) or Lich Gregoire (1/10). Ureteral stents and Jackson Pratt drains were placed in all patients. Average OR time was 297 minutes (189–364) and average blood loss was 43.6 cc (10–200). Patients were discharged with a urethral catheter in place and this was removed approximately 2 weeks after surgery. The ureteral stents were removed on average 49 days after surgery (26–82). All follow up imaging via renal ultrasound has revealed no ureteral stricture or complication. Follow up imaging was performed at 3 months and yearly thereafter.

CONCLUSIONS: Robotic assisted laparoscopic ureteral reconstruction of the distal ureter is safe and effective. Utilizing the side docking of the robot allows access to the perineum during the case and acceptable placement of the robot to successfully complete ureteral repair.

Source of Funding: None

MP15-23 CONTEMPORARY SERIES OF ROBOTIC ASSISTED DISTAL URETERAL RECONSTRUCTION UTILIZING SIDE DOCKING POSITION

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The aim of this study was to evaluate the effects of the pelvis angle on surgical outcomes at retroperadic radical prostatectomy (RRP) and robot-assisted laparoscopic prostatectomy (RALP).

METHODS: A total of 44 patients with RRP and 52 patients with RALP were enrolled. Various bony pelvic dimensions that reflect the shape of pelvis were measured. Three angles were measured for the relationship between the prostate and pelvis. The pelvic angle between an imaginary horizontal line and the line from the symphysis pubis to the sacropromontory junction was determined. Second, the pubic angle between an imaginary vertical line and the line from the prostate apex to symphysis pubis was determined. Third, the pubopelvic (PP) angle was measured between the previous two virtual lines on the mid sagittal image from magnetic resonance imaging.

RESULTS: Surgical outcomes of RRP and RALP were not significantly different according to the pelvic dimensions. Operative time and surgical margin status were not different according to the PP angle. At RRP, as the PP angle was increased by 1 degree, the estimated blood loss was increased by 22.63 ml, which was statistically significant (P = 0.007). At RALP, a higher PP angle had a smaller EBL tendency (P = 0.057).

CONCLUSIONS: As PP angle increases, the estimated blood loss tends to decrease with RALP, while the estimated blood loss increases with RRP. The findings suggest that, in cases of large PP angle (≥ 65°), RALP may be a more feasible surgical option than RRP.

Source of Funding: none

MP15-24 MULTI-INSTITUTIONAL OUTCOMES OF ROBOTIC-ASSISTED LAPAROSCOPIC DISTAL URETERAL REIMPLANTATION


INTRODUCTION AND OBJECTIVES: Robotic-assisted laparoscopic (RAL) surgery is optimally designed for upper urinary tract reconstruction. It maintains the principles of open surgery including magnification, the ability for delicate tissue handling, and precise suture placement for creation of tension free anastomoses all done via a minimally invasive platform, which is used by many urologist. The objective of this series is to assess perioperative and postoperative outcomes of RAL surgery as it is applied to distal ureteral reimplantation (RALDUR).

METHODS: A retrospective chart review was performed on 46 consecutive patients who underwent RALDUR for benign or malignant disease between 2004 and 2012 at two institutions. Demographic characteristics, perioperative data and postoperative outcomes were captured. Radiographic improvement was assessed either with nuclear renal scan with lasix, ultrasound (US) or cross sectional imaging. Radiographic success was defined as T1/2 < 20 minutes after administration of diuretic on nuclear renal scan or improvement in hydronephrosis on US and/or cross sectional imaging. The robotic approach to distal reconstruction has been increasingly utilized in urology. Traditionally the patient is placed in lithotomy position with the patient cart placed between the legs however access to the bladder for stent placement is limited. We examined the use of side docking the Da Vinci robotic patient cart to perform distal ureteral reconstruction.

RESULTS: A total of 11 cases were identified from 2011–2013 performed by a single surgeon. Ten patients underwent ureteral reimplantation and one patient had a uretero-ureterostomy for a distal stricture. Indication for procedure included ureteral injury secondary to hysterectomy in 7, reflux in 2, congenital stricture in 1 and meaguereter in 1. Two patients required a boari flap due to extensive ureteral injury. Reimplants were performed in a non-refluxing manner either in LeDuc (9/10) or Lich Gregoire (1/10). Ureteral stents and Jackson Pratt drains were placed in all patients. Average OR time was 297 minutes (189–364) and average blood loss was 43.6 cc (10–200). Patients were discharged with a urethral catheter in place and this was removed approximately 2 weeks after surgery. The ureteral stents were removed on average 49 days after surgery (26–82). All follow up imaging via renal ultrasound has revealed no ureteral stricture or complication. Follow up imaging was performed at 3 months and yearly thereafter.

CONCLUSIONS: Robotic assisted laparoscopic ureteral reconstruction of the distal ureter is safe and effective. Utilizing the side docking of the robot allows access to the perineum during the case and acceptable placement of the robot to successfully complete ureteral repair.

Source of Funding: None
RESULTS: Results are listed in Table 1 and Table 2. Fifteen of the 17 patients with distal ureteral urothelial cancer underwent pelvic lymph node dissection (mean number of lymph nodes was 9).

CONCLUSIONS: This is the largest series of RALDUR for the treatment of benign or malignant distal ureteral pathology published to date. RALDUR is not only feasible while minimizing morbidity but also very effective. We hope that as more urologists gain experience with robotic surgery this technique will flourish.

Source of Funding: none

MP15-25 IS R.E.N.A.L. NEPHROMETRY SCORING SYSTEM ASSOCIATED WITH THE OUTCOME OF LPN?
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INTRODUCTION AND OBJECTIVES: Laparoscopic partial nephrectomy is recommended for small renal cancer patients to preserve their renal function. To investigate the clinical significance of preoperative aspects and dimensions used for radius exophytic/endophytic nearness anterior/posterior location (RENAL) scoring systems (RNS) for renal neoplasms in patients undergoing laparoscopic partial nephrectomy (LPN).

METHODS: From April 2010 to January 2013, 45 patients with renal tumor underwent LPN was evaluated. These patient were analyzed into three groups: Low (RNS is 4–6), middle (7–9) and high (10 or more) We investigate the relation between Age, Sex, Body mass index (BMI), estimated glomerular filtration rate (e-GFR) before surgery, RNS group and Warm ischemia time (WIT) and duration of surgery, e-GFR 3 months after operation, postoperative complications.

RESULTS: 15 people is low risk, 22 people is middle risk and 8 people is high risk. There is no difference of tumor side, age, sex among these groups. Median tumor size is significantly larger in high risk group than middle and low risk group (2.8 cm in low, 3.1 cm in middle and 5.1 cm in high risk group, respectively). There is no difference among these three groups of Median WIT, estimated blood loss and duration of surgery (WIT: 24 minutes, 35 minutes and 31 minutes, respectively. Estimated blood loss: 66 ml, 334 ml, 237 ml, respectively, duration of surgery: 201 minutes, 209 minutes and 212 minutes, respectively.) Change of eGFR before and 3 month after surgery is not differ from these groups (–6.914, –7.182 and –6.2, respectively).

Multivariate analysis showed only the preoperative e-GFR was associated with e-GFR 3 months after operation.

CONCLUSIONS: R.E.N.A.L. nephrometry scoring system was not associated with the outcome of LPN. Furthermore study is necessary.

Source of Funding: none

MP15-26 RENAL HILAR CLEARANCE (DENERVATION) AS A TREATMENT FOR INTRACTABLE/REFRACTORY HYPERTENSION
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INTRODUCTION AND OBJECTIVES: Refractory hypertension has been a clinical challenge in recent years. Refractory
hypertension is defined as blood pressure that remains above goal in spite of the concurrent use of 3 antihypertensive agents of different classes. Ideally, one of the 3 agents should be a diuretic and all agents should be prescribed at optimal dose amounts. There have been many cases of hypertension which are not resolved by any number of antihypertensive medications of whatever class. We could treat them by Laparoscopic renal denervation (sympathectomy).

METHODS: Four patients were referred to us with refractory / intractable hypertension. On extensive investigations all the possible secondary causes were ruled out. All the patients were on more than 4 antihypertensive medications and had a mean systolic BP of >140 mm Hg and a mean diastolic BP of >90 mm Hg even with maximal dose of antihypertensives. All the patients were counseled appropriately and underwent a laparoscopic bilateral renal denervation. The renal surface and the renal hilum, including the proximal ureter were skeletonised bilaterally. All the patients had an uneventful intra and post operative period.

RESULTS: Follow up of these patients showed an overall reduction of blood pressure on the 2 nd post operative day onwards. The latest BP measurements on 6 months follow up is <120 mm Hg mean systolic and <90 mmHg mean diastolic pressure. One patient is off medications completely and 3 patients are on a single antihypertensive medication.

CONCLUSIONS: The present study done on the refractory hypertensive patients shows that transection of the renal (sympathetic) neural network at the hilum gives a better relief of the hypertension. There have been reports of endovascular radiofrequency denervation of the renal hilum with some success. The present procedure is accessible to many patients since availability of Laparoscopy is universal now.

Source of Funding: Self / Institution

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**V07 LAPAROSCOPY: UPPER TRACT I**

**V07-01 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR COMPLETELY INTRARENAL TUMOR**

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INTRODUCTION AND OBJECTIVES: It is very difficult to estimate the tumor boundary and the depth of tumor invasion by eye for completely intrarenal tumor. Laparoscopic partial nephrectomy is very difficult and high risk for this kind of renal tumor. This video will introduce Laparoscopic partial nephrectomy with intraoperative ultrasound.

METHODS: This case was a 39 years old woman, who was physical examination found a 3 cm completely intrarenal tumor in the right renal with inhomogeneous enhancement. Tumor was located in renal dorsal central and close to the renal hilum by intraoperative ultrasound. Determine the depth and the boundary of tumor with ultrasound, then occlude the renal artery. Cut off in the middle of renal parenchyma, and complete resection of the tumor. Collection system was sutured by 3-0 monocryl with a hem-o-lok, and renal parenchyma was sutured by 2-0 monocryl.

RESULTS: Renal artery occlusion time was 20 min, and estimate blood loss was 20 ml. Pathology of the tumor was renal hamartoma, and patient was recovered well. During 3 months follow-up time, no recurrence of tumor.

CONCLUSIONS: Using intraoperative ultrasound to determine the boundary and depth of tumor can elevate the safety and feasibility of laparoscopic partial nephrectomy for completely intrarenal tumor. Continuous knotless suture is simple and feasible, and can significantly shorten the learning curve, so it has higher clinical application value.

Source of Funding: none

**V07-02 LAPAROSCOPIC RESOLUTION OF VASCULAR COMPLICATIONS IN RETROPERITONEAL LAPAROSCOPIC NEPHRECTOMY**

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INTRODUCTION AND OBJECTIVES: Laparoscopic nephrectomy and radical nephrectomy is classical surgery in urological laparoscopy. There is some kinds of vascular complications during the surgery inevitably. The rate of vascular injury was 1.6-4.7% by literature reviewed during laparoscopic nephrectomy. This video present the successful experiences with laparoscopic resolution of vascular injury in laparoscopic nephrectomy by retroperitoneal approach.

METHODS: We present four types of vascular injury during laparoscopic nephrectomy, which include renal vein wall injury in mobilizing with suction, renal vein cutten in scissoring the artery, vena cava injury by hem-o-lok in live donor nephrectomy, renal artery injury by harmonic device.

RESULTS: All the cases were successful managed by laparoscopy without conversion. The blood losses were 20 to 2000 ml. No post-operative complications occurred.

CONCLUSIONS: Vascular injury is full of high risk, but it can be solved by experienced laparoscopy specialist without conversion. The most delicate point is the timing of when conversion is required.

Source of Funding: none

**V07-03 LAPAROSCOPIC DONOR NEPHRECTOMY: MANAGING COMPLEX VENOUS ANOMALIES**


INTRODUCTION AND OBJECTIVES: Laparoscopic donor nephrectomy has evolved to become the standard approach for harvesting grafts for live kidney donation. Complex venous vascular anomalies are often encountered especially during left sided nephrectomies. We report our approach for managing complex venous vascular anomalies during laparoscopic donor nephrectomy.

METHODS: We describe our approach in managing complex venous anomalies during laparoscopic donor nephrectomies. The video illustrates managing cases with multiple renal veins, retroaortic veins, complex lumbar, gonadal and suprarenal veins draining into the main renal vein.

RESULTS: Meticulous dissection in addition to careful retraction of the renal vein can help identification of anomalies that are often missed in the preoperative imaging. A vessel loop passed around
the renal vein facilitates safe and efficient manipulation. Vessel sealing devices are used liberally avoiding the placement of surgical clips that may interfere with the placement of the vascular stapler for the control of the renal artery and vein.

CONCLUSIONS: Complex renal venous anomalies can be safely and efficiently managed during laparoscopic donor nephrectomies.

Source of Funding: None

V07-04 A STANDARDIZED SUTURE TECHNIQUE USING A BARBED SUTURE IMPROVES EFFICACY AND SAFETY IN RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY

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INTRODUCTION AND OBJECTIVES: In the last years a paradigm shift preferring partial nephrectomy over radical nephrectomy has been encountered. The main reasons are modern imaging, leading to earlier and better tumor detection, higher rates of benign or low-malignant tumors and medical implications. Several studies have clearly shown that radical nephrectomy increases lifetime risk for deadly cardiovascular complications.

Most international guidelines now recommend partial nephrectomy for tumors up to 7 cm. When partial nephrectomy is carried out using a minimally-invasive method, a warm ischemia time (WIT) can – in most cases - not be avoided. The main influencing factors for WIT are tumor excision and intracorporeal suturing which can be quite time-consuming.

METHODS: In our study we analyzed a modified suture technique using two barbed sutures (V-Loc®, Covidien Inc.) which was used in 94 consecutive patients undergoing retroperitoneoscopic partial nephrectomy by one surgeon (C.W.) in our department. In brief, after exposing the tumor and placing an endo-bulldog clip, the tumor was excised. In the first step, the deep tumor bed was sutured with the first V-loc suture applying a running suture without clips. In the second step, the same suture, but with a bigger needle was used for a running parenchymal suture which was combined with placement of Surgicel®. We compared this technique to the first 14 patients of our series, where the well-described „sliding-clip reno-rhaphy“-technique had been used.

RESULTS: 108 patients were included in the study. When comparing the 94 patients where our modified technique with two V-loc® running sutures was applied, to the 14 patients that underwent the sliding clip reno-rhaphy technique, statistically significant better results were found for operating time (88 vs 113 min), blood loss (132 vs. 275 ml) and warm ischemia time (14 min vs. 19.5 min) (all p < 0.05).

CONCLUSIONS: WIT is a critical aspect in minimally-invasive partial nephrectomy and should not exceed 20 minutes. The modified suture technique presented in this film was able to significantly reduce operating time, blood loss and WIT. In our view this technique combines elegantly with the advantages of the retroperitoneal access in minimally-invasive partial nephrectomy, which is the standard access at our institution.

Source of Funding: Asklepios Research Fund

V07-05 CLAMPLESS LAPAROSCOPIC PARTIAL NEPHRECTOMY: OUR TECHNIQUE

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INTRODUCTION AND OBJECTIVES: Partial nephrectomy is the established mode of treatment for small tumor masses when nephron sparing is indicated. Laparoscopic clampless partial nephrectomy has the added benefit of completely eliminating renal ischemia and its detrimental consequences.

METHODS: 11 patients have undergone clampless laparoscopic partial nephrectomy at our department, 7 on the left side and 4 on the right. Ideally suited candidates are patients with small masses (T1a) with exophytic polar tumors. Our technique consists of full renal mobilization and meticulous preparation of the renal vessels in case of necessary urgent clamping. The tumor is sharply and bluntly dissected. Hemostasis is ensured with bipolar cautery and two suture layers. The internal tumor bed layer is sutured with self-retaining barbed sutures, and the external compressive layer with Vicryl sutures. Both layers are tensioned with the use of clips at the terminal ends. Hemostatic foam and sponge materials are used to ensure ideal hemostasis.

RESULTS: Mean operative time was 106 minutes, and mean blood loss was 290 ml. Drains and catheters were removed on the first post-operative day, and patients were discharged from the hospital in the second post-operative day. Two of the eleven masses were benign (renal oncocytoma), and the remaining masses were malignant (clear cell renal carcinoma). No malignant masses exhibited positive surgical margins. Six-month follow up imaging has not revealed any cancer recurrence.

CONCLUSIONS: Clampless laparoscopic partial nephrectomy is a safe and effective treatment in selected patients with renal tumors. Ideal candidates are patients with small exophytic masses in polar locations.

Source of Funding: None

V07-06 RETROPERITONEOSCOPIC DISMEMBERED PYLEOPLASTY IN THE TREATMENT OF PUJO OBSTRUCTION- OUR EXPERIENCE WITH 60 CASES

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INTRODUCTION AND OBJECTIVES: Retroperitoneoscopic dismembered pyeloplasty (RDP) has very recently replaced Transperitoneal Laparoscopic dismembered pyeloplasty (TDP) in the treatment of PUJ Obstruction (PUJO). Our objective is to study the perioperative outcomes in patients who had undergone RDP for PUJO.

METHODS: From October 2008- January 2013, 60 RDP was performed on 60 patients with PUJO in our institution. All these patients were retrospectively analysed for perioperative outcomes. Datas are expressed in mean and standard deviation;Student’s T-test used to compare mean between 2 groups.

RESULTS: Age group-6–60 yrs (mean-27.05 yrs), mean months of follow up-21.98, Left/right ratio-31/29 cases, number of ports used-4, mean duration of surgery-153.54 mins, mean day of oral intake-1.19, mean post-op analgesia requirement-25.95 (morphine equivalent), mean day of drain removal-2.46, mean day of discharge-3.19.

Blood loss was minimal and no patient required transfusion. 1 Conversion was due to a peritoneal rent tackled by TDP. In 65% of cases lower polar crossing vessel was the cause of PUJO and in all these cases the vessel was posteriorised during RDP. In all
patients stenting was done antegrade and removed after 1 month. Patients were followed up with an USG and IVP on the 3rd month which showed decrease in hydronephrosis in all cases; and renogram in the 6th month showed a non-obstructive pattern in all the patients. Failure rate was 0%. CONCLUSIONS: Thus RDP has the advantage of reduced operative blood loss, reduced post-op analgesia requirement, no incidence of paralytic ileus, shorter hospital stay, early convalescence and equal success rate proving to be an effective alternative to conventional TDP in the management of PUJO.

Source of Funding: none

**V07-07 LAPAROSCOPIC PYELOLITHOTOMY IN A HORSE SHOE KIDNEY IN THE ERA OF PCNL AND RIRS**

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**INTRODUCTION AND OBJECTIVES:** Percutaneous nephrolithotomy and retrograde intra renal surgery are the cornerstones in stone management nowadays. But pyelolithotomy still holds good in selected cases. We present the video of laparoscopic pyelolithotomy in a patient with horse shoe kidney.

**METHODS:** A 58 years old male patient presented with complaints of recurrent pain in the right loin since 2 years. He was clinically unremarkable and creatinine was 1.3 mg%. Contrast CT revealed horse shoe kidney with bilateral renal calculi with a larger stone measuring 30 × 20 mm on the right side. The pelvis was dilated and extra renal in configuration. Under general anesthesia, ureter was stented with ureteric catheter. Using 4 ports laparoscopy was done. Colon was reflected medially and the ureter was identified and traced upwards till pelvis. Vertical pyelotomy was done and stone removed in toto. DJ stent was placed and pyelotomy closed with poliglactin sutures. Port sites were closed after placing the drain.

**RESULTS:** The operative time was 125 minutes. The blood loss was approximately 50 ml. Patient stayed for 3 days post operatively. Drain was removed on day 2 and stent removed after 4 weeks after confirming stone clearance with X-ray KUB. Patient underwent ESWL for the left side stone.

**CONCLUSIONS:** Laparoscopic pyelolithotomy is still feasible and effective alternative to PCNL for patients, particularly those with anomalous kidneys.

Source of Funding: None

**V07-08 LAPAROSCOPIC UTERERCALICOSTOMY: PELVICURETERIC JUNCTION OBSTRUCTION IN INTRARENAL PELVIS WITH MULTIPLE SECONDARY CALCULI**

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INTRODUCTION AND OBJECTIVES: Pelvicureteric junction obstruction (PUJO) is common anomaly in paediatric age group. Anderson hypos pyeloplasty is considered as versatile procedure for PUJO but for intrarenal pelvis, Ureterocolicostomy is considered as standard treatment. We present our video of laparoscopic ureterocolicostomy.

**METHODS:** 15 yr old boy, known case of ITP, underwent open splenectomy 2 yr back presented to us with fever and flank pain on evaluation found to have right PUJO with intrarenal pelvis and multiple secondary calculi. He underwent transperitoneal laparoscopic ureterocolicostomy. Standard 4 ports were placed. Colon mobilised and kidney lower pole and hilum was dissected. Parenchyma at lower pole was dissected and stone were retrieved. Ureter was dissected and Ureterocolicostomy was done with vicryl 3-0 and 6/26 DJ was placed.

**RESULTS:** Patient tolerated procedure well. Total operating time was 170 minutes. Patient accepted orally next day and catheter was removed on 2nd postop day and was discharged in stable condition on 4th day. At 6 week DJ was removed and at 3 month CT IVP revealed good drainage.

**CONCLUSIONS:** Though ureterocolicostomy is a technically demanding procedure, use of laparoscopic assistance allows the surgeon to perform the reconstruction precisely and with minimal morbidity to patient.

Source of Funding: None

**V07-09 LAPAROSCOPIC CYTOREDUCTIVE NEPHRECTOMY: MPUH EXPERIENCE**

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**INTRODUCTION AND OBJECTIVES:** Laparoscopic cytoreductive nephrectomy (LCRN) is feasible in select renal cancer patients with specific advantage of early recovery and initiation of targeted therapy. The aim of this study was to assess the peri- and postoperative safety and hence feasibility of LCRN.

**METHODS:** 21 LCRNs were performed at our centre. Excision criteria were patients with IVC thrombus and trans abdominal ultrasound showing restricted mobility. The perioperative and postoperative surgical, functional and oncological outcomes were analysed.

**RESULTS:** Mean age, male to female ratio, mean size, and ASA score of patients were 58 ± 12 years, 16:5, 11.31 ± 3.12 centimeters and 2 respectively. There were no intraoperative complications & there were no conversion to open surgery. Analgesic requirement, haemoglobin drop, stay in high dependency unit & hospital stay was 282 ± 68 milligrams of tramadol, 2.1 ± 1.52 grams, 665 ± 69 mins and 3.8 ± 2.1 days respectively. Post operative histopathology is suggestive of renal vein thrombus, involvement of Gerota's fascia or beyond; hilar lymph nodes involvement and distant metastasis were seen in 10,8,6 and all patients respectively. Average follow up was 19 ± 13 months. Death due to progression of the disease occurred in 9 patients. Average duration to start target therapy was 3 weeks. The 1 years survival is 66.8%.

**CONCLUSIONS:** Laparoscopic cytoreductive nephrectomy is challenging surgery but safe in experienced centres. It achieves early post operative recovery facilitating the early initiation of targeted therapy.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: We present a video of our preliminary experience of open surgery partial nephrectomy with parenchymal clamping.

METHODS: Between May 2003 and May 2012, 15 patients (9 men and 6 women) were treated with this technique. The patients had an average age of 56 years-old (35 to 78). The tumors were discovered incidentally in all the patients. 10 tumors were localized in the right kidney and 5 in the left kidney. Preoperative renal function was normal in all the cases. Indication for nephron-sparing surgery was elective in 12 patients, relative in three others and no one was imperative. The average size of the tumor was 5.66 cm (3–10). The location of the tumor was in the upper pole, lower pole and middle portion in 5, 4 and 6 patients, respectively.

RESULTS: The average operative bleeding was 300 ml. The average duration of clamping was 25 min and the mean intervention time was 135 min. The mean hospital stay was 5 days. All the tumors were resected with negative margins. 11 tumors were RCC and 4 were oncocytoma. With a follow-up of 10 to 76 months, there is no evidence of recurrence in 13 patients. One patient presented with pulmonary metastasis after 36 months of follow-up. Another patient had a left nephrectomy for local recurrence after 40 months.

CONCLUSIONS: The partial nephrectomy with parenchymal clamping is an attractive, safe, and effective technique in the conservative surgery of the kidney.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: The management of stage I nonseminomatous germ cell tumors (NSGCT) remains controversial, as several therapeutic options exist. Surveillance, primary chemotherapy, and retroperitoneal lymph node dissection (RPLND) are management strategies that are used in this clinical scenario. With regards to RPLND, open surgery has been the standard of care. However, with the widespread adoption of minimally invasive surgical techniques in Urology, these approaches have been applied to RPLND. Laparoscopic RPLND has been reported by experienced surgeons at high volume centers, and remains a challenging procedure. With the emergence of robotic surgery and its well documented benefits, there are now a few small series describing robotic-assisted laparoscopic RPLND. We present our port placement and surgical technique in the accompanying video.

METHODS: A 37-year-old male presented with a left intermediate risk (95% embryonal carcinoma, 5% yolk sac tumor, no lymphovascular invasion) NSGCT. His BMI was 31 kg/m2. Tumor markers at diagnosis were AFP: 7.3 ng/mL, HCG: 23.5 mU/mL, LDH: 173 U/L. Markers were within normal limits post-orchiectomy. A CT scan of the abdomen showed a small (5–8 mm) inter-aortocaval lymph node, and a chest X-ray was negative. The patient was informed of his options, and elected to undergo a robotic assisted laparoscopic RPLND. The patient was placed in a 60° right lateral decubitus position and the robot was docked at 90°, using a three-armed approach. A left-modified template dissection was performed.

RESULTS: Operative time was 368 minutes, and estimated blood loss was 50 mL. There were no intraoperative complications. The patient was discharged home on post-operative day 3. He was mobilizing well, pass flatus, and this pain was minimal. In total 20 lymph nodes were removed, and they were all benign. The patient’s tumor markers remained negative on follow-up 2-weeks post surgery.

CONCLUSIONS: Robotic-assisted RPLND for low stage NSGCT is technically feasible. We were able to mimic the oncologic principles of open surgery, including the “split-and-roll” technique. We found our linear port placement, and 90° docking of the robot allowed for full range of motion of the robotic arms, without any clashing.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: Idiopathic or congenital ureteral entrapment in bony structures is extremely rare. We showed the role of laparoscopy for diagnosis and management of a rare case of congenital entrapment of left ureter in an iliac bone canal causing left side hydroureteronephrosis.

METHODS: A 28-year-old man presented with vague left flank pain for 3 months. Preoperative intravenous urography (IVU) showed left side hydroureteronephrosis down to mid-ureter; with no definite cause (Figure 1A, B). Ureteroscopy failed due to tightness at mid-ureter. Transperitoneal laparoscopic dissection of left ureter was used for diagnosis the cause of obstruction and for adequate management.
RESULTS: Laparoscopy confirmed the abnormal retroiliac course of the left ureter, entry into an iliac bone canal and exit from iliac bone, then it continued as pelvic ureter (Figure 2A, B). After division, adequate mobilization and spatulation of distal ureter, the ends were repositioned over iliac vessels and anastomosed to each other over an 8-Fr stent using interrupted stitches (Figure 2 C, D). The stent was removed 6 weeks postoperatively and 3-month follow-up IVU showed complete resolution of hydronephrosis (Figure 1C). Review of the IVUs and 3-month postoperative abdominopelvic CT scan (D). The canal hosted the left ureter.

Source of Funding: none

V08-02 LAPAROSCOPIC REPAIR OF VESICOUTERINE FISTULA USING TACHOSILTM SPONGE

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INTRODUCTION AND OBJECTIVES: Vesicouterine fistulas (VUF) represent about 4% of all urogenital fistulas. The most common causes of fistulas are surgical, obstetric and related to radiation therapy. Depending on their localization, we distinguish corporeal and cervical fistula. We show a case of a patient affected by a corporeal vesicouterine fistula repaired by laparoscopic approach.

METHODS: A 35 years old female presented at our institution with a corporeal vesicouterine fistula resulted from a previous Caesarean section. The patient complained of Yousef syndrome (amenorrhea, menouria, urinary continence). Cystography and cystoscopy revealed vesicouterine fistula. After positioning bilateral ureteral catheter, a transperitoneal approach is performed. After resection of the fistulosic tract, bladder is repaired with a double layer suture. A TaschosilTM sponge is applied on uterin surface. A drain is placed in peritoneal cavity.

RESULTS: Surgical procedure time and fluid loss are 150 min and 150 ml, respectively. Catheter is removed after 10 days. No relapse of fistula occurred.

CONCLUSIONS: Corporeal vesicouterine fistulas are very infrequent and present with a classical Yousef syndrome. Laparoscopic repair of vesicouterine fistulas is a safe and reproducible technique offering excellent results.

Source of Funding: none

V08-03 LAPAROSCOPIC TREATMENT OF BLADDER DIVERTICULA: THE PROCEDURE STEP BY STEP

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INTRODUCTION AND OBJECTIVES: Bladder diverticula represent an insidious condition which is usually treated during surgery for prostatic adenoma.

When left untreated, they can sustain a clinical picture even after lower urinary tract disobstruction.

This video illustrates step by step laparoscopic approach to a small bladder diverticulum.

METHODS: With the patient in supine position four trocars are inserted: one paraumbilically, two laterally to the rectal muscles and one in the suprapubic area.

After medial displacement of the left colon, the peritoneal windows is progressively widened anche the left umbilical artery is identified and transected after cauteration.

The left umbilical is identified close to the bladder wall and displaced cranially in order to visualize the underlying ureter.

An antegrade dissection of the left vas deferens is then performed to expose the diverticular pouch.

A progressive dissection of diverticular wall is then carried out following the plane of the left ureter as the caudal landmark.
The dissection continues on the lateral and anterior aspect of the diverticulum transecting the small vessels of pericystium. The intraoperative flexible cystoscopy gives clear evidence of the correct identification of the diverticulum. The diverticular neck is progressively skeletonized and opened in order to perform its step by step transection and closure with a running suture. The closure of bladder wall is perfected with two running sutures including the detrusor and the pericystium. A small tubular drainage is placed nearby the treated area and the anterior peritoneum sutured. RESULTS: Five patients have been treated with this technique. Diameter of divertula ranged from 3.5 to 8.5 cm. Average surgical time was 132 (120–180) min. We had 2 post operative grade 1 complications according to Clavien Dindo classification. Positive outcome was verified in all patients. CONCLUSIONS: Laparoscopic bladder diverticulectomy, except for peritoneal approach, reproduces basically the steps of open surgery with the advantages of minor invasiveness and a more detailed anatomical dissection.

Source of Funding: None

### V08-04 CYSTOSCOPY-ASSISTED LAPAROSCOPIC PARTIAL CYSTECTOMY FOR TREATMENT OF BLADDER ENDOMETRIOSIS

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**INTRODUCTION AND OBJECTIVES:** The incidence of urinary tract endometriosis (UTE) ranges from 1% to 3%, the bladder being the most affected organ (85% of UTE). Our purpose is to describe a technique of laparoscopic partial cystectomy with cystoscopic guidance for bladder endometriosis.

**METHODS:** We present a case of a 42-year-old female with lower urinary tract symptoms and recurrent episodes of hypogastric discomfort, referred from gynaecology consultation with a suspect bladder lesion in transvaginal ultrasound. The cystoscopy and magnetic resonance confirmed a 4 cm nodule in the bladder dome suggestive of endometriosis. Patient was positioned in extended lithotomy. The first 10 mm-port was placed at the umbilicus with an open access technique. Three additional ports were placed in diamond configuration. We performed laparoscopic resection employing a cystoscopy-assisted technique in order to preserve the integrity of the bladder mucosa and to limit the margins of resection. Partial cystectomy was performed with cold scissors and specimen was immediately placed inside EndoCatch bag to prevent seeding. Bladder closure was performed in a water tight two layer running suture and tested for leakage. Procedure was completed with the closure of the peritoneum and reconstitution of pelvic anatomy. No drainage was left. One week after the procedure we removed the urinary catheter as no evidence of leakage was found at the cystography.

**RESULTS:** The operative time was 100 min. The blood loss was negligible. No complications were registered. Patient was discharged on day 1 medicated with analgesics and antibiotics. Bladder catheter was removed on day 7. Pathologic examination confirmed an endometriotic lesion. Patient remains asymptomatic in follow up.

**CONCLUSIONS:** Surgery is the only curative treatment of bladder endometriosis because recurrence is the rule after hormone treatment discontinuation. Transurethral resection of the endometriotic lesion is in disuse because the risk of bladder perforation and recurrence and authors stated that partial cystectomy is the adequate approach. The present video shows that the laparoscopic partial cystectomy assisted by cystoscopy is a minimally invasive procedure that assures a complete and safe removal of these lesions. We predict whether this combined approach can be applied in the treatment of other pathologic bladder conditions.

Source of Funding: None

### V08-05 LAPAROSCOPIC VESICULECTOMY – A FEASIBLE TECHNIQUE TO MANAGE A RARE PATHOLOGY

Daniel Oliveira-Reis*, Isaac Braga, Nuno Azevedo, Avelino Fraga, Severino Ribeiro, José Soares, Luís Osório, Porto, Portugal

**INTRODUCTION AND OBJECTIVES:** Cystic lesions of the seminal vesicles (SV) are very rare. When symptomatic a treatment should be offered to the patient. With the lack of evidence to support the best choice of treatment, many therapeutic options are presented in the literature.

Our purpose is to present our experience in laparoscopic vesiculectomy (LapV) for benign symptomatic lesions of the SV.

**METHODS:** We present 2 cases of LapV for benign cyst of SV. A 31-year-old man complaining of pelvic discomfort associated with dysuria and liquefaction of sperm with 6 months of evolution. The patient had tender pelvic firm mass at the base of the prostate. The imagiologic evaluation showed a 12 cm cystic lesion in the left SV with no upper urinary system abnormality. Another 62-year-old man referred to urology consultation with elevated PSA and complaining of perineal pain on defecation. The patient had a mass at the base of the prostate. Ultrasound revealed a cyst of left SV with 6 cm. Biopsy excluded prostate cancer. Imagologic re-evaluation with MRI showed a cyst with 10 cm of greatest diameter. No urinary tract malformations. The cyst relapsed in a few weeks after ultrasound guided puncture. Both patients were submitted to LapV. For this operation patients were positioned in supine. The procedure was performed successfully using the standard pelvic laparoscopic 5-ports placement along an inverted V line between the umbilicus and both anterior superior iliac spines. Peritoneum was incised between the two obliterated umbilical ligaments, just anterior to the rectum in the pouch of Douglas. The SV cyst was dissected distally and the wall was excised. The specimens were placed in an EndoCatch bag and then removed. A transperitoneal drain was left in both cases.

**RESULTS:** The operative time was 130 and 140 minutes, respectively. No peri-operative complication was registered. Drainages were removed the next day after the surgery. Pathology confirmed cyst of the seminal vesicle with inner urothelial lining, with some areas corresponding to serous cystadenoma. Patients are completely asymptomatic at follow up.

**CONCLUSIONS:** Transperitoneal laparoscopic excision of SV cysts should be considered as a treatment of choice for the management of symptomatic seminal vesicle cysts, independent of the size, because of its minimal invasiveness, short postoperative course and complete recovery.

Source of Funding: None

### V08-06 LAPAROSCOPIC PYELOURETEROSTOMY WITH RECIPIENTS URETER IN A TRANSPLANTED KIDNEY WITH URETERAL STRUCTURE

Dmitry Perlin*, Ilya Alexandrov, Alexey Nikolaev, Olga Shevchenko, Vladimir Efremov, Voljsky, Russian Federation

**INTRODUCTION AND OBJECTIVES:** Ureteral strictures are a significant problem following orthotopic or heterotopic kidney transplantation. The incidence of ureteral stricture (US) ranges from 1% to 3% of recipients who undergo renal transplantation. Several factors are directly linked with an increased incidence of US, including infection, ischemia, surgical trauma, rejection, and posttransplantation immunosuppressive therapy. The clinical presentation of US may vary from asymptomatic to disabling upper urinary tract symptoms. Many therapeutic options are presented in the literature. The standard approach to management of US is surgical revision with either a ureteroureterostomy or a pyeloureterostomy (PU). The type of revision surgery and choice of reconstructive technique should be based on the cause and severity of the obstruction. The choice of the reconstructive technique should be based on the type and degree of obstruction, presence of infection, number and length of previous strictures, and patient-specific factors, such as the degree of renal function, remaining life expectancy, and the patient–surgeon relationship. The advantage of the pyeloureterostomy is the ability to preserve renal function. The purpose of this video is to present 2 cases of LapV. For this operation patients were positioned in supine. The procedure was performed successfully using the standard pelvic laparoscopic 5-ports placement along an inverted V line between the umbilicus and both anterior superior iliac spines. Peritoneum was incised between the two obliterated umbilical ligaments, just anterior to the rectum in the pouch of Douglas. The SV cyst was dissected distally and the wall was excised. The specimens were placed in an EndoCatch bag and then removed. A transperitoneal drain was left in both cases.

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Source of Funding: None
INTRODUCTION AND OBJECTIVES: Ureteral obstruction secondary to ischemia is the most common urologic complication of kidney transplantation. Pyeloureteral anastomosis with recipient ureter has shown most satisfactory long-term results in its management. Existing urinary infection and immunosuppression determine the high risk of wound complications. Till last time this procedure has been performed through open surgery, however in 2006 Orvieto M.A. et al. first reported minimally invasive approach using the Da Vinci robotic system.

METHODS: We have experience more than 30 procedures of ureteral strictures repair after kidney transplantation by open surgery during 20 years. Since February 2012 we used pyeloureteral anastomosis with recipient ureter in two patients by laparoscopic approach. The operations lasted 215 and 275 min. respectively.

In both cases the surgery was performed after percutaneous nephrostomy because of deterioration of transplanted kidney function. Internal stent was indwelled laparoscopically. No drain tube was left.

RESULTS: The nephrostomy tubes were removed after 7 and 10 days respectively. The stents were removed after 20 and 27 days respectively. No complications were seen during the surgery and postoperative period. Now serum creatinine level is 0.12 and 0.15 mmol/l after 15 and 12 months after surgery respectively.

CONCLUSIONS: In spite of some difficulties related with topographic landmarks and severe tissues fibrosis after transplantation laparoscopic pyeloureterostomy in transplanted kidney is safe and feasible procedure. The main advantage is absence of risk of most serious complications related with wound infection in immune compromised patients. Moreover, early recovery to usual activity and diet facilitates to prevent pulmonary infections. Moreover, early recovery to usual activity and diet facilitates to prevent pulmonary infections. Further evaluation and assessment is required to evaluate the long-term clinical application of this technique.

Source of Funding: none

V08-07 ROBOT ASSISTED MANAGEMENT OF OBSTRUCTING PROSTATE GLANDS GREATER THAN 150 GM

Mathew Oommen, Kush Patel, Philip Dorsey*, Janet Colli, Michael Pinsky, Benjamin Lee, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Urologists perform over 500,000 invasive procedures annually for symptomatic urinary outflow obstruction. In general, transurethral resection with either bipolar/laser techniques are more than adequate. For glands larger than 150 gm, the gold standard has been the open suprapubic approach. In this video, we present our techniques for a robot assisted suprapubic prostatectomy.

METHODS: A single institution’s experience with robot assisted suprapubic prostatectomy for large benign prostate glands is presented. Techniques to facilitate this procedure such as use of the robotic tenaculum, management of a large median lobe, and identification of the ureteral orifices are discussed.

RESULTS: There were no major perioperative or postoperative complications. Blood transfusions were not required. All patients were discharged on postoperative day one.

CONCLUSIONS: Robot-assisted suprapubic prostatectomy may prove to be a feasible alternative in the management of large volume benign prostate glands. Further evaluation and assessment is required to evaluate the long-term clinical application of this technique.

Source of Funding: None

V08-08 TRANSVESICAL LAPAROSCOPIC CLOSURE OF URETHROVESICAL FISTULAE

Gamal Gholien, Orange, CA, Zhamshid Okhunov*, Orange, CA, Jordan Siegel, Mina Samaan, Orange, CA, Hanul Choi, Please choose an option below

INTRODUCTION AND OBJECTIVES: Genitourinary system fistulas are rarely simple and present a significant treatment challenge requiring expert skills for evaluation and management. We present our laparoscopic technique of transvesical closure of urethrovessical fistula.

METHODS: This is a 63-year old T4 spinal cord patient, who is status post ileovesicostomy and bladder neck closure in 2004. The procedure was complicated by postoperative bowel obstruction requiring a small bowel resection, which was complicated by jejunal injury with subsequent additional surgical intervention. At 12 months in postoperative period patient developed urine leakage per penis. A cystoscopy was performed, which revealed a fistula opening at the previous bladder neck closure site. Given his previous abdominal surgical history a decision was made to approach the fistula laparoscopically.

RESULTS: For more details of the procedure please refer to the video.

CONCLUSIONS: Laparoscopic transvesical fistula closure is feasible, safe method of treatment for urethrovessical fistulas.

Source of Funding: none

V08-09 ODDITIES OF THE PELVIS: MANAGEMENT OF ATYPICAL MASSESS IN THE PELVIS

Jonathan Melquist*, Rosa Park, Stony Brook, NY, Rahuldev Bhalla, New Brunswick, NJ

INTRODUCTION AND OBJECTIVES: We review the evaluation, differential diagnosis, and management of rare pelvic masses through the context of two patients, one with mature cystic teratoma and the other with myxofibrosarcoma.

METHODS: Two patients underwent minimally-invasive resections of pelvic masses of unknown etiology. Patient One is a 26 year-old female with a 6.5 cm recurrent pelvic mass after previous resection of a coccygeal lipoma nine years prior. Patient Two is a 60 year-old male with a 6.2 cm paraprostatic mass discovered on evaluation of elevated PSA. MRI was suspicious for schwannoma.

RESULTS: Our two patients have pathologic diagnoses different than our pre-operative predictions. A minimally-invasive approach (laparoscopic for Patient One and robotic for Patient Two) was required to evaluate the long-term clinical application of this technique.

Source of Funding: None

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<td><strong>PATIENT ONE</strong></td>
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was successful in complete resection of these masses. The procedures were associated with minimal morbidity (Table 1). In reviewing the literature, the differential diagnosis of pelvic masses is vast and must constantly be considered (Table 2).

**CONCLUSIONS:** The urologic oncologist must be prepared for the oddities that present in the pelvis and retroperitoneum. One must consider a broad non-urologic differential diagnosis when operating in this area. Laparoscopic and robotic expertise in the retroperitoneum makes urologists ideal surgeons for operating in this area. Laparoscopic and robotic expertise in the retroperitoneum makes urologists ideal surgeons for operating in this area. Laparoscopic and robotic expertise in the retroperitoneum makes urologists ideal surgeons for operating in this area. Laparoscopic and robotic expertise in the retroperitoneum makes urologists ideal surgeons for operating in this area.

Source of Funding: none

**V08-10 ROBOT-ASSISTED LAPAROSCOPIC EXTRA-VESICAL BLADDER DIVERTICULECTOMY WITH URETERAL RECONSTRUCTION**

Samay Jain*, Khaled Shahrour, Toledo, OH

**INTRODUCTION AND OBJECTIVES:** Bladder diverticula can present significant morbidity for patients. They can be associated with urinary retention and recurrent urinary tract infections. Previously, diverticula of the bladder were excised using an open approach, but with the advent and integration of technology, these procedures can be completed using laparoscopic techniques. We present two cases of robotic bladder diverticulectomy, one of which uniquely also involves a Hutch diverticulum and ureter.

**METHODS:** Inclusion criteria were urinary retention secondary to a bladder diverticulum, work up with urodynamics to ensure the bladder was able to generate pressures sufficient for voiding, no evidence of bladder outlet obstruction. Both patients first underwent photovaporization of the prostate (PVP) and subsequently, went back into retention and required catheterization.

Each patient was positioned in dorsal lithotomy while in steep Trendelenberg. For both procedures, five total laparoscopic ports were used: three 8 mm ports and two 12 mm ports. Each procedure was begun by identifying the ureter. We then performed cystoscopy per urethra and placed the scope into the diverticulum. Once the scope was in the diverticulum, the light source for the robot was extinguished in order to visualize the cystoscope. Light was used to help delineate the borders of the diverticulum and initiate dissection. The neck of the diverticulum was then dissected circumferentially and transected. The bladder was then repaired in a two layer, water tight, fashion. Unique to the second procedure, a Hutch diverticulum was identified and after completing excision of the diverticulum, the ureter was re-implanted into a neo-hiatus on the bladder. The ureter was secured into place with a running, water tight, tension free anastomosis. The posterior lip was first sutured into place. Then, a cystoscope per urethra was used to guide a wire and stent into the ureter. Following this, the ureteral anastomosis was completed and the detrusor closed over it for a tunneled, two layer closure.

**RESULTS:** Both patients spent only one night in the hospital and had their catheters removed seven days post operatively. Neither patient experienced a complication. At a mean of 6 months follow up, both patients are voiding to completion and catheter free.

**CONCLUSIONS:** Robot-assisted laparoscopic bladder diverticulectomy offers excellent functional outcomes with minimal morbidity for select patients in urinary retention.

Source of Funding: none

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**V08-11 ROBOTIC URETERONEOCYSTOSTOMY WITH PSOAS HITCH FOR DISTAL URETERAL THERMAL INJURY**

Omer Burak Argun*, Ilter Tufek, Selcuk Keskin, Hakan Ozveri, Ahmet Sahin, Ali Riza Kural, Istanbul, Turkey

**INTRODUCTION AND OBJECTIVES:** Ureteroneocystostomy can be used for the treatment of patients with a wide variety of ureteral pathology. Over the last decade, robot-assisted surgery has become more commonly used as a minimally invasive approach for reconstructive urinary tract procedures. The aim of this study is to present our experience with robot-assisted ureteroneocystostomy with a psoas hitch for thermal injury of the distal ureter.

**METHODS:** We present a 48-year-old woman with a thermal injury of right distal ureter occurred during robotic hysterectomy. After isolation and mobilization of the ureter, bladder was liberated and pulled cephalad direction for a tension free anastomosis. Psoas hitch and extravesical ureteroneocystostomy was performed using extravesical Lich-Gregoir technique.

**RESULTS:** The total operative time was 120 minutes with an estimated blood loss of 100 mL. Postoperative period was uneventful. The patient was discharged on postoperative day 5 without a Foley catheter or drain. The JJ stent was removed after 4 weeks. An intravenous pyelogram (IVP) was performed 4 weeks after removal of the stent. Right kidney was functioning properly after dilatation proximal to it. The patient did not have any complaint at her last follow-up visit.

**CONCLUSIONS:** Robotic ureteroneocystostomy and psoas hitch is a safe and effective treatment option for the management of distal ureteral injuries. Robotic assistance provided a safe and effective approach for this complex ureteral reconstruction while minimizing morbidity.

Source of Funding: none
**V09-01** **EXTRACORPOREAL LITHOTRIPSY ENDOSCOPICALLY CONTROLLED BY URETERORENOSCOPY (LECURS) USING DIGITAL URETERORENOSCOPE FOR THE TREATMENT OF KIDNEY STONES. A CASE SERIES**

Julien Letendre*, Olivier Traxer, Paris, France

**INTRODUCTION AND OBJECTIVES:** While laser Holmium lithotripsy is the gold standard for the treatment of kidney stone by flexible ureterorenoscopy (FURS), fragmentation of large stones is inefficient and demands long operative times. In order to seek for other options, we wanted to evaluate the feasibility and usefulness of Extracorporeal Lithotripsy Endoscopically Controlled by Ureterorenoscopy (LECURS).

**METHODS:** With the patient positioned in lithotomy on an extracorporeal shock wave lithotripsy (ESWL) table, a digital flexible ureterorenoscope was used to reposition the stones in a gravity dependant calyx and to regroup stones when possible. Under direct vision and with constant irrigation creating a hydric chamber, stones were fragmented with ESWL. Real time adjustment of the focal zone combined with periods of apnea maximized the amount of shock delivered to the stone and optimized the number of shocks delivered. Holmium laser lithotripsy could be used simultaneously to treat the same stone or to treat a stone in a different location. When stones fragments were less then 3 mm, a JJ stent was left in place and patients were evaluated with an ultrasound on post-op day one and with a CT scan 3 weeks later to assess for residual fragments.

**RESULTS:** Nine patients were treated with LECURS. Stones size averaged 15 mm (5–30) and mean operative time was 83 min. A 100% stone fragmentation rate was obtained and 5/9 patients were considered stone free (no residual fragments) after one session. Four patients underwent a second look procedure for extraction of retained residual fragment, with one of these patients having horseshoe kidneys with documented partial uretero-pelvic junction obstruction. Post-operative ultrasound showed slight peri-renal infiltration in two patients. One patient developed an obstructive pyelonephritis requiring antibiotics and placement of a ureteral catheter. On one occasion, the vision of a digital scope became blurred during ESWL requiring repairs.

**CONCLUSIONS:** LECURS seems to be safe and feasible. It seems to combine the advantages of both FURS and ESWL into one intervention and will probably help expand the indications for FURS. Risks for digital flexible ureterorenoscope still need to be investigated further. More studies are necessary to evaluate the benefits and risks of this approach.

**Source of Funding:** None

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**V09-02** **LOWER-MIDDLE CALYX PATHOLOGY AND A NOVEL ENDOSCOPE CONCEPT**

Jorge Campos Castellanos*, Huixquilucan, Mexico

**INTRODUCTION AND OBJECTIVES:** Lower-Middle calyx pathology is the most difficult to reach, particularly if small in nature. A bulbous hemangioma and a microscopic urinary stone at the same infundibulum are treated with a new concept of endoscope that provides readily access to this area by maneuvering the instrument with one hand only and being comfortably seated along the procedure.

**METHODS:** An instrument developed by the author with an ergonomic handle with a rotor at its top that directs the distal active flexible section of the endoscope right to left at its resting position, a shaft with at least three different elastic properties from rigid to flexible and a tip for easier and nearlyatraumatic insertion is utilized. The hemangioma is Holmium lasered and a microscopic stone is extracted by surgeon’s self-coordination.

**RESULTS:** A successful complete treatment of two small and different pathologies is implemented in a short period of time with no fluoroscopy required and a relaxed surgeon.

**CONCLUSIONS:** An ergonomic instrument that adapts to current endoscopic circumstances and operating room has been designed. By author’s own means and resources the research and development of the instrument was completed and two patents obtained after several years. System, apparatus, and method for viewing a visually obscured portion of a cavity US 8075478 B2. Face tip assembly for an endoscope US 8221311 B2.

**Source of Funding:** None
V09-04 A PRECLINICAL FEASIBILITY STUDY OF RETROGRADE ENDOPYELOPLASTY
Mohammed Lezrek*, Hicham Tazi, Adil Slimani Alaoui, Khalil Bazine, Mohammed Alami, Meknes, Morocco

INTRODUCTION AND OBJECTIVES: Percutaneous endopyeloplasty is a horizontal suturing of the longitudinal endopyelotomy incision, via a single percutaneous tract. Some authors think that generally one suture is enough. However, more studies are necessary, and further development of the suturing technique is needed, like to have an absorbable “needle” or anchor, which might be performed using rigid or flexible ureteroscope.

RESULTS: This concept in the form of a cystoscope and a ureteroscope provides two single instruments with straightforward maneuverability, a plug and play assembly with cables that run parallel to instrument’s longitudinal axis that avoids twisting and entanglement. One hand gliding insertion is an attribute as well as that the surgeon can be comfortably seated with restful hand motions along the procedure and self-coordination during tool handling is also possible.

CONCLUSIONS: A concept of endoscopy that eases surgeon’s procedures by being comfortable, readily and faster completing their procedures and barely distressing the patients has been developed. By author’s own means and resources the research and development of the instrument was completed and two patents obtained after several years. System, apparatus, and method for viewing a visually obscured portion of a cavity US 8079478 B2. Face tip assembly for an endoscope US 8221311 B2.

Source of Funding: None

V09-05 URETERAL STONE RETROPULSION PREVENTION DURING AN URETEROSCOPIC LITHOTRIPSY USING A NOVEL REVERSE THERMO-SENSITIVE WATER-SOLUBLE POLYMER
Alberto Perez-Lanaz de Lorca*, Jesus Rosety Rodriguez, Angela Conde Giles, Cristina Leon Delgado, Javier Amores, Javier Cañete, Rodrigo García-Baquero, María José Ledo Cepero, Juan Solo Villalva, Blanca Madurga Patuel, Jose Luis Alvarez-Ossorio Fernandez, Cadiz, Spain

INTRODUCTION AND OBJECTIVES: Diverse devices have been used by urologists to prevent upward migration of stone fragments during endoscopic lithotripsy procedures. These materials are not aware of limitations such as interferences with energy sources, hard handling or ureteral damage. We present the use of a novel reverse thermo-sensitive water-soluble polymer (BackStop®) to prevent the retrograde migration of stone fragments during an endoscopic lithotripsy procedure.

METHODS: A 78 years old male with two stones in the middle ureter was operated. This polymer appears as a liquid at temperatures below 16°C, at room temperature has a thicker viscosity but it is injectable and at body temperature its thickness increases to a viscous gel. Before stone fragmentation the polymer is dispensed above the stone and form a gel plug that conforms to the ureter where it is applied. After complete stone extraction BackStop® gel is completely dissolved by using saline irrigation. Irrigating with cold saline accelerates dissolution.

RESULTS: We started the procedure introducing the ureteroscope helped by a guide. Under direct visualization and using a catheter the liquid was injected above the lithiasis. When the polymer contacted with the body heat, it switched from liquid status to gel status and sealed the urinary tract. BackStop® is compatible with all energy modalities and has not mechanical part that could hinder with the procedure. The fragmentation of the stone was successful and without complications. The gel was reversed to liquid by irrigation with saline at lower temperature than the body temperature. On completion of the fragmentation and stone extraction a double J catheter was placed. One month later a radiological exam was performed to

V09-03 A NOVEL CONCEPT FOR ENDouroLOGY INSTRUMENTATION.
Jorge Campos Castellanos*, Huixquilucan, Mexico

INTRODUCTION AND OBJECTIVES: An endoscopic concept to aid in the everyday endourology procedures is shown by providing an adequate and swift control of the situation with an instrument that adapts to the hand with each maneuvering along the entire procedure, it moves to pre selected areas by surgeon’s reflex reaction. It provides the stability and ease of use of a rigid endoscope with the capabilities of the flexible.

METHODS: An instrument with a handle having a rotor at the top that directs the distal active flexible section of the endoscope right to left at its resting position. A shaft with at least three different elastic properties form rigid to flexible. A proximal rigid, an intermediate passive flexible and the distally controlled active flexible by the rotor section. A specifically design tip for easier non-traumatic insertion is at its front.

RESULTS: This concept in the form of a cystoscope and a ureteroscope shows that technique using a rigid ureteroscope.

CONCLUSIONS: The feasibility of this endoscopic suturing technique, through the ureteroscope, suggests the possibility of retrograde endopyeloplasty, which might be quicker, and might need only, the more common, ureteroscopic skills. Additionally, retrograde Heineke-Mikulicz plasty might be used for caliceal diverticulum neck, infundibulum stenosis, Fraley’s syndrome, ureteral stricture... However, more studies are necessary, and further development of the suturing technique is needed, like to have an absorbable “needle” or anchor, which might be performed using rigid or flexible ureteroscope.

Source of Funding: none
assess that all stone fragments were eliminated, and then the catheter was removed.

CONCLUSIONS: The use of this thermo-sensitive gel to temporarily occlude the ureter during ureteroscopic lithotripsy is feasible and effective. Its dispersion above the lithiasis prevents stone fragments retro propulsion to the upper urinary tract.

Source of Funding: none

V09-06  ENDOSCOPIC REMOVAL OF GIANT URETERAL POLYP
Oktay Demirkesen*, Cagatay Dogan, Bulent Alici, Istanbul, Turkey

INTRODUCTION AND OBJECTIVES: A fibroepithelial polyp of the ureter is a rare benign tumor which develops from mesodermal germ layer. Approximately 200 cases have been reported in the literature. In this video we present a patient with ureteral polyp who has got endoscopic removal of the polyp using holmium laser.

METHODS: A 79 years old female, who has a history of intermittent abdominal pain and macroscopic hematuria, was evaluated with urine cytology and culture and computed tomography (CT). Urine cytology and culture were normal. CT demonstrated solid mass in the urinary bladder. Thereafter, the patient underwent cystoscopy for further evaluation of the bladder mass.

RESULTS: Cystoscopy showed a polypoid tumor, which was mobile and protruded from the right ureteric orifice into the urinary bladder. It was detected by ureterorenoscopy that this lesion was originated from the mid portion of the ureter. It was excised with holmium laser and removed endoscopically. The patient was discharged from the hospital without any intraoperative or early postoperative complications. Pathologic examination revealed a fibroepithelial polyp.

CONCLUSIONS: Endoscopic removal of ureteral polyp is a feasible and successful surgical technique. However it should be distinguished from the transitional cell carcinoma of the ureter to avoid overtreatment such as nephroureterectomy or segmental ureteral resection.

Source of Funding: none

V09-07  TURKISH ROBOT FOR COMMERCIALLY AVAILABLE FLEXIBLE URETERORENOSCOPE FOR THE RETROGRADE INTRA RENAL SURGERY (RIRS)
Remzi Saglam*, Ankara, Turkey, Jens J. Rassweiler, Heilbronn, Germany, Ahmet Yaser Muslumanoglu, Istanbul, Turkey, Ahmet Sinan Kabakci, Ankara, Turkey

INTRODUCTION AND OBJECTIVES: In this presentation we aimed to show some advantages of the new robot RoboflexAvicenna in the treatment of kidney stones, such as precise positioning of a ureterorenoscope distal end, and its stability within the caliceal system, the remote control movement of the laser fiber, to operate seated and away from the radiation.

METHODS: After insertion and fixing the access sheath and covering the robot with a sterile, transparent, plastic sheath, the flexible UreteroRenoScope (fURS) is introduced into the sheath manually and connected to the robot.

Ergonomic chair and control panel can be adjusted in a comfortable position according to the user.

The rotation and forward and backward movement can be controlled by left hand. The selectable speed control for the forward and backward movement of the fURS serves precision in movements.

Attached water pump can be adjusted remotely to increase or decrease the flow rate to provide better vision.

The advantages of the robot to protect the flexible URS:
* Before the insertion of the laser fiber, pressing the button on the touch screen, the tip of the fURS comes automatically in a straight position.
* Laser fiber can be remotely moved forward and backward, It is possible to read the length of laser fiber in mm.
* When necessary, pressing the button on the touch screen, the laser tip moves completely backward.
* The laser can not be shot while the tip of the laser fiber is closer than 2 mm to the tip.

RESULTS: We successfully controlled all functions of the flexible URS by using robot and dusted/fragmented all of the stones.

The connection time of fURS to the robot was shorter than 1 minute. There were no damage of the fURS.

CONCLUSIONS: We found that robotic use of fURS is very suitable to perform it in sitting position, outside of the radiation zone, the position and stability of the tip was satisfied, connection to the robot takes a short time, adjustable irrigation fluid flow provides better vision.

Source of Funding: The Scientific and Technological Research Council of Turkey, Elmed Lithotripsy Systems

V09-08  MODIFIED TECHNIQUE OF RETROGRADE INTRA RENAL SURGERY
Nilkamal Joshi*, Al Ain, United Arab Emirates

INTRODUCTION AND OBJECTIVES: Retrograde Intra Renal Surgery (RIRS) is an established procedure. It is mainly used for removal of upper urinary stones. The procedure has many established advantages and is preferred due to its non invasiveness.

In standard technique,
1. Operating surgeon handles both - flexible scope and camera by himself. This makes maneuvering of the scope, targeting the stone & manipulating the stone very cumbersome & tiring. This leads to lengthy procedure, fatigue to the surgeon, non retrieval of stone & equipment breakage.
2. The camera does not stay in neutral position, making endo vision orientation difficult.
3. The scope is curved near the handle leading to high chance of damage to the inner channel.

METHODS: The Cystoscopy Sheath is introduced in the bladder. 6 Fr and 8 Fr Semi rigid ureterorenoscope are used to dilate the ureter under vision to facilitate the introduction of the initial access sheath. Two guide wires are inserted. Initial access sheath is inserted.

The main modification of the technique is:
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Source of Funding: none

V09-07  TURKISH ROBOT FOR COMMERCIALLY AVAILABLE FLEXIBLE URETERORENOSCOPE FOR THE RETROGRADE INTRA RENAL SURGERY (RIRS)
Remzi Saglam*, Ankara, Turkey, Jens J. Rassweiler, Heilbronn, Germany, Ahmet Yaser Muslumanoglu, Istanbul, Turkey, Ahmet Sinan Kabakci, Ankara, Turkey

INTRODUCTION AND OBJECTIVES: In this presentation we aimed to show some advantages of the new robot RoboflexAvicenna in the treatment of kidney stones, such as precise positioning of a ureterorenoscope distal end, and its stability within the caliceal system, the remote control movement of the laser fiber, to operate seated and away from the radiation.

METHODS: After insertion and fixing the access sheath and covering the robot with a sterile, transparent, plastic sheath, the flexible UreteroRenoScope (fURS) is introduced into the sheath manually and connected to the robot.

Ergonomic chair and control panel can be adjusted in a comfortable position according to the user.

Deflection can be performed precisely, by manipulating the right handle similar to standart fURS.

The rotation and forward and backward movement can be controlled by left handle. The selectable speed control for the forward and backward movement of the fURS serves precision in movements.

Attached water pump can be adjusted remotely to increase or decrease the flow rate to provide better vision.

The advantages of the robot to protect the flexible URS:
* Before the insertion of the laser fiber, pressing the button on the touch screen, the tip of the fURS comes automatically in a straight position.
* Laser fiber can be remotely moved forward and backward, It is possible to read the length of laser fiber in mm.
* When necessary, pressing the button on the touch screen, the laser tip moves completely backward.
* The laser can not be shot while the tip of the laser fiber is closer than 2 mm to the tip.

RESULTS: We successfully controlled all functions of the flexible URS by using robot and dusted/fragmented all of the stones.

The connection time of fURS to the robot was shorter than 1 minute. There were no damage of the fURS.

CONCLUSIONS: We found that robotic use of fURS is very suitable to perform it in sitting position, outside of the radiation zone, the position and stability of the tip was satisfied, connection to the robot takes a short time, adjustable irrigation fluid flow provides better vision.

Source of Funding: The Scientific and Technological Research Council of Turkey, Elmed Lithotripsy Systems
By this method the inner channel stays straight, decreasing the chance of inner channel damage.

The surgeon has full control of his movements and easily concentrates on the procedure without getting fatigue or losing the field of vision. Help of two assistants takes away the strain.

Double channel flexible scope has advantage of non leakage of irrigation while working with a device. Use of smaller laser fiber leads to less chance of damage.

Laser fiber must be inserted gently and in a straight scope.

Laser tip should be just visible before flexing the scope to target the stone.

A specially designed basket catches stones very smoothly from the cup of the calyx.

The double channel scope allows stone being held with a basket and laser inserted through another channel to fragment the stone.

If stone is not focused for grappling or lasing, saline is flushed by a syringe to dislodge the stone.

RESULTS: More than 130 cases of RIRS were done with one scope. Time from starting the procedure to visualize the stone was on average 10 minutes. The operating time reduced from average 3 hours to about 1.5 hour by this technique. Stone clearance rate was 85%.

CONCLUSIONS: Modified technique of RIRS increases the durability of the scope. And also makes the procedure easy, fast & cost effective.

Source of Funding: None

V09-09 EXTRA-ANATOMIC STENTS: CHANGE IN REFRACTORY URETERIC OBSTRUCTION

Samuel Grimsley*, Kesapavilla Subramonian, Birmingham, United Kingdom

INTRODUCTION AND OBJECTIVES: The extra-anatomic stent (EAS) is an alternative to long term nephrostomy in patients with incurable benign or malignant ureteric obstruction in whom conventional ureteric stenting is no longer effective. Both temporary (3 months to one year) and permanent stents exist but have significant attrition due to occlusion or skin erosion. In patients with benign or slow progressing malignant obstruction change of EAS can prolong the lifetime of this method of diversion.

METHODS: A 77 year old female patient with bilateral ureteric obstruction secondary to slowly progressive retroperitoneal neuroendocrine tumour had Paterson Forrester extra-anatomic stents inserted bilaterally 12 months earlier. Using image intensifier guidance the original stent is located as it runs subcutaneously in the anterior abdominal wall. The original stent is exposed, clamped and divided with a guidewire passed through each half to the renal pelvis and bladder respectively. The two stent halves are removed and a replacement stent placed over guidewire under image intensifier guidance.

RESULTS: The replaced extra – anatomic stent is confirmed in position by image intensifier and cystoscopy.

CONCLUSIONS: We demonstrate successful change of extra-anatomic stent for refractory ureteric obstruction.

Source of Funding: None

V09-10 THE TWO-WIRE TECHNIQUE: SHEATHLESS RETROGRADE INTRODUCTION OF FIBROOPTIC URETERORENOSCOPE IN INTRARENAL ENDOSCOPIC LASER LITHOTRIPSY

Basharat Hussain*, Wai Man Chow, Manchester, United Kingdom

INTRODUCTION AND OBJECTIVES: Ureteral access sheath (UAS) induced ureteral wall injury during retrograde intrarenal surgery (RIRS) has been reported as high as 46.5%, ranging from superficial mucosal breaches (33%) to severe injury involving the muscle layer (13.5%). We present a series of 43 consecutive patients who underwent RIRS for upper tract stones using the two-wire technique for introduction of fibreoptic ueterorenoscope to the upper renal tract.

METHODS: 43 patients (F18:M25) with renal calculi were treated by RIRS with fibreoptic ureterorenoscope introduced by retrograde rail-riding using the 2-wire technique without an access sheath. 70% were ESWL failures with 80% lower pole calyceal stones.80% were multiple stones and 26% pre-stented. Stone size ranges from 3 to 22 mm (median 13 mm) and varies from 1 to 7 stones. Fragmentation aiming at complete pulverisation was achieved by using a 273 micron fibre on the Oddyssey 30 (Hol:YAG) system (Cook Medical). Maximum energy (range 690–9800 Joules) was used for complete pulverization with the double pulse duration option. Visual onfirmation of any ureteral breaches was carried out on exit of the fibreoptic ureterorenoscope.

RESULTS: Complete stone clearance was achieved in 40 patients after single treatment. One patient needed 2 treatments for a 22 mm stone and one had 3 sessions to clear seven stones. We failed to gain access in one patient with horseshoe kidney. Treatment lasted between 45 to 80 minutes and all patients except one were discharged within 24 hours. Significant ureteral mucosal/submucosal breach, incidence of sepsis or significant haematuria was not observed.

CONCLUSIONS: The use of access sheath (UAS) is not routinely required in RIRS for ureteral access and repetitive stone fragment retrieval from the upper renal tract, especially when stone pulverization and subsequent clearance is achieved by the effective and safe Oddyssey 30 (Hol:YAG) system utilising the double pulse duration option. The video presents the two-wire technique without deployment of ureteral access sheath is safe. Routine ureteral pre-stenting is not mandatory. Ureteral wall injury has not been observed in this series.

Source of Funding: None

V09-11 UPPER URINARY TRACT AMYLOIDOSIS: CASE PRESENTATION AND ENDOSCOPIC VIDEO

Ariel Schulman*, William Hilton, Antoun Toubaji, Hikmat Al-Ahmadie, Jonathan Coleman, New York, NY

INTRODUCTION AND OBJECTIVES: Amyloidosis is a process where insoluble protein is deposited in the extracellular space of various organs. It occurs as a primary disorder from immune dysfunction or secondary to chronic inflammation. The disorder often occurs in systemic fashion with multi-organ involvement and a progressive course. Less commonly, amyloid is localized to a single organ and has a stable course. It is known to accumulate in the heart, respiratory tract and nervous system and in rare cases in the genitourinary tract. Pathologic diagnosis is made by Congo Red stain. Affected tissue displays a classic apple-green birefringence under polarized light. Presenting symptoms of amyloidosis of the genitourinary tract include flank pain, hematuria and irritative voiding. Imaging and endoscopic appearance are very similar to urothelial carcinoma.

METHODS: We present an index case of a 69 year old female with two years of gross hematuria and flank pain with abnormal
thickening of the right upper pole calyx and mid-ureter on CT urogram. Imaging findings and symptoms have been persistent, but stable. Two previous non-diagnostic ureteroscopies were performed and previous management recommendations included observation and nephroureterectomy. The accompanying video includes clinical history, imaging, endoscopic right ureteroscopy and pyeloscopy and pathology.

RESULTS: Initial re-biopsy and second confirmatory biopsy and soft tissue debridement confirmed the presence of amyloidosis of the upper urinary tract and absence of urothelial carcinoma. The video highlights the endoscopic appearance of amyloid deposition and the similar appearance to carcinoma. Systemic amyloidosis was ruled out with normal serum immunoglobulin and free light chain studies. A PET scan was scheduled to re-evaluate the patient’s known lymphoma and urothelial amyloid in the near future. In consultation with the hematology/oncology service, future management will consist of interval imaging and expectant management of the urinary tract for symptoms.

CONCLUSIONS: Urinary tract amyloidosis is a rare but significant finding during the evaluation of common Urologic symptoms or abnormal imaging findings. It may be mistaken for carcinoma, and in some cases, result in unnecessary overtreatment. Urologists should be familiar with the endoscopic appearance and natural history of the disease. If localized, it usually follows a benign clinical course and can be safely managed with endoscopic fulguration and serial imaging.

Source of Funding: None

V09-12 FLUOROLESS URETEROSCOPY
Min S Jun, Gene O Huang, Roger Li*, D Duane Baldwin, Loma Linda, CA

INTRODUCTION AND OBJECTIVES: Modern radiologic techniques have transformed diagnostic and treatment imaging modalities in medicine. Since 1980, effective radiation dose in the United States has increased sixfold. Furthermore, the use of fluoroscopy has doubled since 1990. Patients with urolithiasis are at risk for repeated exposure to radiation at diagnosis, treatment, and follow-up. We have adopted the as low as reasonably achievable (ALARA) radiation principle at our institution, with the ultimate goal of eliminating unnecessary radiation where possible. In this video, we demonstrate how ureteroscopic laser lithotripsy can be accomplished without the use of any ionizing radiation.

METHODS: The steps for performing safe ureteroscopy without the use of image guidance will be demonstrated in this video. The first step of fluoroless ureteroscopy involves a thorough review of pertinent imaging. While the use of the C-arm is not anticipated, it is prudent to have the machine and the fluoroscopic technologist present. After cystoscope insertion, wire access to the kidney through the ureteral orifice is achieved under the guidance of visual and tactile cues. A dual lumen catheter is utilized to dilate the ureteral orifice and allow passage of a safety wire. This wire is secured and the ureteroscope is passed over the working wire. Ureteroscopy and lithotripsy commence under visual guidance. Upon completion of lithotripsy the length of the ureter is measured during ureteroscope removal. Measured ureter length aids in deploying the ureteral stent without fluoroscopy. Observation of distal curl formation via cystoscopy marks procedure completion. Ideal candidates have high-quality pre-operative imaging and a single stone with normal anatomy. Factors which may complicate this technique include infection, impaction, and presence of ureteral stricture.

RESULTS: This video demonstrates successful fluoroless ureteroscopic laser lithotripsy in a morbidly obese 51 year-old female with multiple right renal calculi.

CONCLUSIONS: We demonstrate a simple technique that has been developed for performance of fluoroless ureteroscopy. If any concerns arise regarding wire or stent placement, radiation reduction can still be achieved using low-dose fluoroscopy. This technique may be particularly useful in younger or pregnant patients, in whom risk from ionizing radiation is highest. Although this video demonstrates the feasibility of the fluoroless technique, further study and comparison with conventional approaches will be necessary to establish its optimal application.

Source of Funding: None

MP16 UROLITHIASIS II

MP16-01 ENDOCKSCOPE: USING MOBILE TECHNOLOGY TO CREATE GLOBAL POINT OF SERVICE ENDOSCOPY
Renai Yoon*, Samir Shreim, Atreya Dash, Ralph Clayman, William Sohn, Hak J. Lee, Irvine, CA

INTRODUCTION AND OBJECTIVES: Advances in mobile technology have led to new innovations in healthcare. Herein, we present our experience with the 2nd generation Endoscope-iPhone (Orange, CA), a specialized lens and docking system with an incorporated LED light source that promotes the coupling of a smartphone (iPhone 4S, Cupertino, CA) with modern fiber-optic endoscopes.

METHODS: The weight (lbs) and lumens output (lux) of the Endoscope system with incorporated LED light source were compared to the standard HD endoscopic equipment with xenon light source. A cost comparison was also completed. Image resolution (line pairs/mm) was compared using a USAF resolution target (Edmund Optics, NJ) and flexible cystoscope (Storz, Germany) coupled to both the Endoscope-iPhone and a HD camera (Storz H3-Z Versatile HD Camera). A 30° laparoscope and a Munsell ColorChecker chart were used to compare color resolution. Finally, cystoscopic and ureteroscopic images of a porcine model with both systems were blindly compared and evaluated by 5 expert endoscopists using a Likert scale.

RESULTS: The weight of the Endoscope system with incorporated LED light source was 0.67 lbs and the combined weight of the Storz HD camera and a standard light cable was 2.07 lbs. The incorporated LED light source yielded 3.27% of the lumens output of a standard xenon light source (1589.4 vs. 48580 lux). The overall cost of the mobile-coupled system with incorporated LED light source was $624 compared to $64,378 for a standard HD endoscopic system. The image resolution was same for both
systems (4.49 vs 4.49 lp/mm). Blue and green demonstrated similar color resolution, while red demonstrated better color resolution for Storz HD Camera. Evaluation of cystoscopic images acquired with the Storz camera were superior in image, color, and overall quality (p = 0.001, 0.016, 0.049). Evaluations of ureteroscopic images yielded no statistical difference in image quality and color (p = 0.120, 0.310), while overall quality was superior for the Storz system (p = 0.027). All experts concluded that the images taken with the Endoscope were acceptable for therapeutic and diagnostic use.

CONCLUSIONS: The Endoscope with incorporated LED light source was found to be lighter and less expensive in comparison to standard systems. The mobile-coupled device also acquired images of the same resolution and similar colors. Finally, the Endoscope yielded acceptable images for both diagnostic and therapeutic use by all expert reviewers.

Source of Funding: None

MP16-02  ENDOSCOPIC MANAGEMENT OF UROLITHIASIS IN THE HORSESHOE KIDNEY

Marcelino Rivera*, Amy Krambeck, Rochester, MN

INTRODUCTION AND OBJECTIVES: We assessed outcomes of patients diagnosed with a horseshoe kidney and symptomatic urolithiasis.

METHODS: A retrospective review was performed of patients diagnosed with a horseshoe kidney who underwent endoscopic management from 2007–2012.

RESULTS: We identified 29 patients with 31 moieties of which 20 (67%) were male. Overall mean age was 48.4 (23–71) and mean stone size was 1.5 cm (0.2–3). The most common presenting symptom was pain in 22 (76%), urinary tract infection (UTI) in 6 (21%) and hematuria in 1 (3%). Of the 31 moieties, 21 (68%) underwent percutaneous nephrolithotomy (PCNL), 9 (29%) ureteroscopy and 1 (3%) extracorporeal shockwave lithotripsy. More than one access was utilized in 3 (14%) patients who underwent PCNL. Six (29%) in the PCNL group required additional procedures, of those 5 were ureteroscopy and 1 a secondary PCNL. All patients, except for 3 (10%), were stone-free on follow-up imaging. Of patients who were not stone-free, all underwent PCNL.

CONCLUSIONS: After careful consideration of the anatomy, individuals with horseshoe kidney and symptomatic urolithiasis can be managed safely by a variety of endoscopic approaches with excellent outcomes.

Source of Funding: None

MP16-03 SINGLE ENDUROLOGY CENTRE EXPERIENCE IN PERCUTANEOUS CHEMOLYSIS OVER THE LAST TEN YEARS


INTRODUCTION AND OBJECTIVES: Over the last decades, percutaneous chemolysis has been performed as a primary or adjuvant treatment for urinary stones, especially in patients who were not stone-free, all underwent PCNL. One patient who underwent PCNL was readmitted for infection. Of patients who were not stone-free, all underwent PCNL. Six (29%) in the PCNL group required additional procedures, of those 5 were ureteroscopy and 1 a secondary PCNL. All patients, except for 3 (10%), were stone-free on follow-up imaging. Of patients who were not stone-free, all underwent PCNL.

CONCLUSIONS: After careful consideration of the anatomy, individuals with horseshoe kidney and symptomatic urolithiasis can be managed safely by a variety of endoscopic approaches with excellent outcomes.

Source of Funding: None

MP16-04 PREVALENCE OF 24-HOUR URINE COLLECTION AMONG HIGH-RISK STONE FORMERS

Jaclyn Milose*, Brent Hollenbeck, Samuel Kaufman, Gary Faerber, J. Stuart Wolf, Jeffrey Montgomery, Alon Weizer, John Hollingsworth, Ann Arbor, MI

INTRODUCTION AND OBJECTIVES: Urinary stone disease is a chronic condition, for which secondary prevention plays an important management role. While contemporary guidelines call for metabolic workups in stone formers, empirical work characterizing the frequency of their use is lacking. To fill this knowledge gap, we measured the prevalence and determinants of 24-hour urine collections among patients at high risk for stone recurrence.

METHODS: Using a previously validated claims-based algorithm, we selected patients with incident urinary stones. We then identified a subset with risk factors for recurrent stone disease (e.g., intestinal malabsorption, nephrocalcinosis) for whom a metabolic evaluation is warranted. Next, we measured the frequency with which these patients received 24-hour urine testing. Finally, we performed multivariable logistic regression, examining patient- and provider-level factors associated with metabolic workup use.
RESULTS: Although the use of 24-hour urine collections among patients at high risk for recurrent stone disease was noted to rise over the study interval (7.6% in 2003 to 9.1% in 2006; P = .002 for trend), the overall prevalence of use was exceedingly low at 8.1%. On multivariable analysis, factors independently associated with metabolic testing included a patient’s geographic region of residence, his level of comorbid illness, and whether or not he was seen by a urologist or nephrologist within 6 months of his incident stone claim (Table).

CONCLUSIONS: Metabolic evaluations in patients at high risk for recurrent stone are uncommon, raising a potential quality of care concern.

Source of Funding: none

MP16-05 MANIFOLD PURE URIC ACID BLADDER STONES: PRESENTATION AND ENDOSCOPIC MANAGEMENT
Shih-Chieh Jeff Chueh*, Fabio C. M. Torricelli, Shujane Shen, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Bladder stones develop in only 3–8% of cases with lower urinary tract symptoms (LUTSs) and bladder outlet obstruction (BOO) even with their tight associations. The pathophysiology is not completely understood, but most bladder stones are composed by calcium. In a few cases, uric acid bladder stones were reported. We present a man with >30 bladder stones and successfully managed solely with endoscopy.

METHODS: A 65 y/o diabetic man presented with acute urinary retention and gross hematuria to our Emergency Department. He had reported LUTSs for years, with good symptomatic response to alpha-blockers. After Foley catheterization computed tomography scan revealed significant prostate enlargement and >30 bladder stones, the largest 17 mm (Figure 1). Despite very large stone burden, he underwent transurethral cystolithotripsy with Holmium laser (Figure 2). A 1000 micron laser fiber was utilized through a 21 Fr rigid cystoscope with settings of 1.0 J·10 Hz * 1.5 J·12 Hz.

RESULTS: Fragmentation of all the stones was successful. Fragments were actively extracted with Ellic evacuator. There were no intra-operative or postoperative complications. A new urethral catheter was removed in 4 days, and he reported smooth voiding afterwards with combination therapy. Stone analysis revealed 100% uric acid stone.

CONCLUSIONS: Uric acid bladder stone pathogenesis seems to be multifactorial with local and systemic factors contributing in different manners and even large stone burdens may be cystoscopically managed. Lower 24-hour urinary magnesium, and pH, increased 24-hour urinary uric acid supersaturation, and the association with severe diabetes, as in this patient have been reported. Regarding the bladder stone treatment, the stone size is the most important parameter when choosing between open and endoscopic technique. The cystolithotripsy is usually reserved to stone burden lower than 2 to 3 cm, but in our case it was feasible and safe.

Source of Funding: none

MP16-06 IS THERE A DIFFERENCE IN 24-HOUR URINE COMPOSITION BETWEEN STONE PATIENTS WITH AND WITHOUT DIABETES MELLITUS?
Christopher Hartman*, Justin Friedlander, Daniel Moreira, Sammy Elsamra, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: Previous studies have demonstrated an increased risk of nephrolithiasis in individuals with diabetes mellitus (DM), especially uric acid (UA) stones. However, whether the urine composition of patients with DM significantly differs from those without DM has only been evaluated in a small number of studies of limited sample sizes. Therefore, we sought to determine the differences in 24-hour urine composition between patients with and without DM in a large cohort of stone formers.

METHODS: We performed a retrospective review of 1117 patients with nephrolithiasis and 24-hour urinalysis (Litholink®) at our institution between March 2002 and February 2012. Univariate t test analysis of 24-hour urine profiles was performed comparing patients with and without DM. Multivariate linear regression models were performed adjusting for clinical patient characteristics and 24-hour urine volume and creatinine.

RESULTS: Of the 1117 patients available for inclusion in this study, a total of 181 (16%) had DM and 936 (84%) did not have DM at the time of urinalysis. Univariate analysis demonstrated

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients without DM</th>
<th>Patients with DM</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI (kg/m²)</td>
<td>28.6 (±5.6)</td>
<td>33.7 (±7.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>pH</td>
<td>6.03 (±0.57)</td>
<td>5.74 (±0.55)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>191.7 (±111.4)</td>
<td>200.6 (±119.9)</td>
<td>0.42</td>
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<tr>
<td>Citrate (mg)</td>
<td>498.3 (±281.0)</td>
<td>669.7 (±483.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Uric acid (g)</td>
<td>0.68 (±0.23)</td>
<td>0.74 (±0.32)</td>
<td>0.01</td>
</tr>
<tr>
<td>Sodium (mEq)</td>
<td>168.9 (±77.1)</td>
<td>193.5 (±88.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Potassium (mEq)</td>
<td>61.6 (±37.7)</td>
<td>70.4 (±37.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sulfate (mEq)</td>
<td>43.1 (±18.6)</td>
<td>48.6 (±23.2)</td>
<td>0.002</td>
</tr>
<tr>
<td>Oxalate (mg)</td>
<td>38.6 (±16.0)</td>
<td>43.2 (±17.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Chloride (mEq)</td>
<td>163.3 (±68.7)</td>
<td>191.1 (±84.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>96.6 (±41.2)</td>
<td>102.5 (±54.8)</td>
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<tr>
<td>Phosphates (g)</td>
<td>0.95 (±0.37)</td>
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<tr>
<td>Creatinine (mg)</td>
<td>1580 (±528.5)</td>
<td>1629 (±570.0)</td>
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<td>&lt;0.001</td>
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<tr>
<td>SSUACaOx</td>
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<td>6.43 (±3.99)</td>
<td>0.44</td>
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<tr>
<td>SSUcP</td>
<td>1.05 (±0.91)</td>
<td>0.67 (±0.74)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Volume (L)</td>
<td>1.89 (±0.84)</td>
<td>2.68 (±0.88)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
significantly higher BMI, total urine volume, citrate, UA, sodium, potassium, sulfate, oxalate, chloride, and supersaturation (SS) of UA in individuals with DM (all \( p < 0.05 \)). However, DM patients had significantly lower SS of calcium phosphate (CaP) and pH (all \( p < 0.05 \); Table 1). Multivariate analysis showed that patients with DM had significantly lower urinary pH (mean difference \( = -0.23 \)) and SS CaP (-0.18) but significantly greater citrate (mean difference \( = 176.7 \) mg), UA (0.044 g), sulfate (3.3 mmol), oxalate (2.83 mg), magnesium (5.1 mmol), phosphate (0.021), creatinine (mg), SSUA (0.31), SSUA (0.59), SScap (-0.18), and volume (L) than patients without DM (all \( p < 0.05 \); Table 2).

CONCLUSIONS: In this large retrospective review of stone formers, DM was associated with multiple differences on 24-hour urinalysis compared to those without DM. Specifically, DM patients had significantly higher uric acid and lower pH. Therefore, control of urinary uric acid and pH may reduce stone formation in this patient population.

Source of Funding: None

**MP16-07 EFFECTIVENESS OF FLEXIBLE URETEROSCOPIC STONE REMOVAL FOR TREATING URETERAL AND IPSILATERAL RENAL STONES: A SINGLE CENTER EXPERIENCE**

Jae Dong Chung*, Seung Hyun Ahn, Jong Kyou Kwon, Tae-Hyoung Kim, Soon Chul Myung, Young Tae Moon, Kyung Do Kim, In Ho Chang, Seoul, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** The aim of this study was to evaluate the effectiveness of simultaneous flexible ureteroscopic removal of stones (URS) for ureteral and ipsilateral renal stones and to analyze the predictive factors for renal stone-free status.

**METHODS:** We retrospectively reviewed the records of patients who underwent simultaneous flexible ureteroscopic removal of ureteral and ipsilateral renal stones from January 2010 to May 2012. All operations used a flexible ureteroscope. We identified 74 cases of retrograde intrarenal surgery and 74 ureteral stones (74 patients). Stone-free status was respectively defined as no visible stones and clinically insignificant residual stones <3 mm on a postoperative image study. Predictive factors for stone-free status were evaluated.

**RESULTS:** The immediate postoperative renal stone-free rate was 70%, which increased to 83% at 1 month after surgery. The immediate postoperative ureteral stone-free rate was 100%. Among all renal stones, 15 (20.3%) were separately located in the renal pelvis, 11 (14.8%) in the upper calyx, 15 (20.3%) in the mid-calyx, and 33 (44.6%) in the lower calyx. The mean cumulative stone burden was \( 92.22 \text{ – } 105.75 \text{ mm}^2 \). In a multivariate analysis, cumulative stone burden <100 mm\(^2\) was a significant predictive factor for postoperative renal stone-free status after 1 month (\( p < 0.01 \)).

**CONCLUSIONS:** Flexible URS can be considered simultaneously for both ureteral and renal stones in selected patients. Flexible URS is a favorable option that promises high stone-free status without significant complications for patients with a stone burden < 100 mm\(^2\).

Source of Funding: none

**MP16-08 AN EVALUATION OF THE IMPACT OF CREATININE TO WEIGHT RATIO BY GENDER IN 24-HOUR URINE STUDIES FOR RENAL STONE PREVENTION**

Justin M. Watson*, Shaun Wason, Michael D. Fabrizio, Norfolk, VA, Nicole L. Miller, Nashville, TN, Mark D. Sawyer, Norfolk, VA

**INTRODUCTION AND OBJECTIVES:** Proper interpretation of 24-hour urines with abnormal or “inadequate” Cr/kg ratios has been recently questioned. We sought to determine if data from our large cohort of stone-formers confirmed limitations of this measure.

**METHODS:** Initial 24-hour urine studies (1/2006–8/2012) for 2,956 non-cystinuric adult stone-formers (M = 1618, F = 1338) were examined. Patients were stratified by gender into low, expected and high Cr/kg ratio using Litholink reference ranges (18.0–24.0 mg/kg for males; 15.0–20.0 mg/kg for females).
RESULTS: Of our patients, 51.2% (M = 48.6%, F = 54.1%) fell outside of the Cr/kg reference ranges. Median age increased as Cr/kg decreased, with a 14 (M) and 20 (F) year difference between low and high ratio groups. BMI and weight both increase as Cr/kg decreases. Most variables differed significantly depending on Cr/kg group (tables). However, oxalate concentration was not different between the male groups and trended downward in women as calcium excretion trended upwards. There was no significant difference calcium-oxalate supersaturation between groups. Between the high and low ratio groups there were mean differences of 98.2 mg/d (M) and 48 mg/d (F) despite no difference in supersaturation of calcium-oxalate (p = 0.20 and 0.34).

CONCLUSIONS: The majority of initial urine studies are not "adequate". Our data confirm limitations of Cr/kg ratio as the measure of an adequate collection. The ratio does not appear to apply equally across age groups. Also, some groups may be inappropriately treated if Cr/kg is not considered, particularly those in the high Cr/kg ratio group who had a high calcium excretion despite no difference in calcium-oxalate supersaturation. Cr/kg-specific reference ranges may be appropriate. Concentration and supersaturation of urolithogenic variables is likely better at assessing risk of urolithogenesis than total excretion in abnormal Cr/kg patients.

Source of Funding: None

MP16-09 INFECTION, SIRS AND SEPSIS IN PATIENTS WITH OBSTRUCTIVE PYELONEPHRITIS DUE TO URETERAL STONES

Jodi Antonelli*, Daniel Mollengarden, Jeffrey Shoss, Yair Lotan, Margaret Pearle, Dallas, TX

INTRODUCTION AND OBJECTIVES: Obstructive pyelonephritis due to a ureteral calculus is a urologic emergency requiring urgent decompression of the collecting system with a ureteral stent or percutaneous nephrostomy (PCN) tube. The hospital course of patients with obstructive pyelonephritis is variable. We sought to evaluate and compare the presenting symptoms and hospital course among patients who presented with obstructive pyelonephritis and ultimately met criteria for urinary tract infection (UTI), systemic inflammatory response (SIRS)/sepsis or septic shock.

METHODS: After obtaining institutional review board approval we reviewed the charts of 121 patients who underwent stent placement for an upper urinary tract stone in the setting of presumed urinary infection between March 2009 and March 2013. We recorded patient co-morbidities, presenting vital signs, serum and urine studies, imaging studies, time to stent placement, appearance of urine at stent placement, and length of hospital stay (LOS). UTI was defined as > 50,000 colony forming units of bacteria in a voided or catheterizable urine specimen. SIRS was defined as having two of the following: body temperature < 36°C
or > 38°C, heart rate > 90 beats/minute (min), respiratory rate > 20 breaths/min, or leukocytes < 4000 cells/mm³ or > 12,000 cells/mm³. Sepsis was defined as SIRS and positive blood or urine culture. Comparisons among groups were made using analysis of variance (ANOVA) for continuous variables and Chi-square for categorical variables.

RESULTS: Among the 121 patients, 34 (28.1%) met criteria for UTI, 79 (65.3%) for SIRS/sepsis and 8 (6.6%) for septic shock. Table 1 shows the variables analyzed and the means of each for the 3 groups. (Table).

CONCLUSIONS: Among patients undergoing stent placement for obstructive pyelonephritis due to stones, the single modifiable factor that differed across the spectrum of infection severity was time to stent placement. These data suggest that prompt decompression of the collecting system in the face of obstruction and infection can be associated with improved outcomes. Further analysis, including those patients who undergo PCN placement in this setting is underway to validate these findings.

Source of Funding: none

MP16-10 MULTIPLE SCLEROSIS AND KIDNEY STONE DISEASE
Shubha De*, Giovanni Marchini, Benjamin Larson, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Multiple sclerosis (MS) is a progressive disease that can involve bladder dysfunction, recurrent UTIs, physical, and sensory changes. Our objective was to characterize stone formers with MS, in terms of stone compositions, urine biochemistry, and clinical presentations.

METHODS: A case matched comparison of 77 patients with MS and stones was performed (controlling for age, sex, BMI). Demographics, voiding function, past medical history, acute presentation, composition and urinary indices were analyzed using Student’s t-tests (p < 0.05).

RESULTS: The average MS patient was 57 y/o, BMI 26.7, and 23.2% could not ambulate independently. MS had significantly more catheters (25%), incontinence (14%), OAB (7.5%) and recurrent UTIs than Matched (p < 0.001).

MS patients presented less with acute flank pain (45% vs 60%), and atypical pain was uncommon (MS 5%, Match 4.1%). MS had more recurrent stones (57% vs 46%), with comparable stone burdens. Stone procedures were equivalent, however conservative management was less common in MS (22% vs 9.6%, p = 0.032). Calcium phosphate stones were more common in MS patients (33% vs 15.3%, p = 0.016). 24 hr urine collections identified oxalate (50.37 vs 42.8 P = 0.048), and pH (6.48 vs 5.98, p = 0.007) levels were significantly higher for MS patients. The use of potassium citrate, HTCZ, allopurinol, were not significantly different.

When patients with significant urinary dysfunction (surgical or catheter drainage) were compared to matched patients, significantly less COM (40 vs 55%, p = 0.04), more CaP (40 vs 16%, p = 0.002), and more struvite (11 vs 1.2%, p = 0.004) stones were identified. 24 hr urine collections showed significantly higher oxaluria (56.1 vs 42.8, p = 0.014), volume (2497 vs 1879, p = 0.15), and pH (6.58 vs 5.96, p = 0.022). No significant differences were identified between MS patients with and without bladder dysfunction.

CONCLUSIONS: MS patients display greater rates of bladder dysfunction, UTIs and immobility than matched controls. With greater amounts of calcium phosphate stones, alkali urine, and oxaluria, these derangements are potentiated with bladder dysfunction (in addition to increased struvite stones).

Therefore, careful evaluation and management of these patients is warranted, as concomitant bladder dysfunction increases the complexity of their stone disease.

Source of Funding: none

MP16-11 BILATERAL TUBELESS AND JJ STENTLESS PCNL EXPERIENCE OF 37 CASES
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INTRODUCTION AND OBJECTIVES: PCNL is well-accepted method of management of renal stone. In PCNL post operatively usually Nephrostomy and D-J stent are used. But Nephrostomy and D-J stent has some morbidity. Tubeless and stentless PCNL is selected cases reduces the morbidity. This study will evaluate the results of tubeless and JJ stentless PCNL in the management of bilateral renal stone in selected cases.

METHODS: From January 2009 to January 2013 total 37 cases of bilateral renal stone were managed by tubeless and JJ stent less PCNL. All cases were operated in urology department of Bangladesh Medical College Hospital, Dhaka. In all cases initially a ureteric catheter and at the end of the procedure compression at renal angle about 10 min. Ureteric catheter was removed 24 hour after operation. Exclusion criteria for the tubeless and stentless approach were more than two percutaneous access, significant perforation of the collecting system, large residual stone burden, significant postoperative bleeding, ureteral obstruction and renal anomaly. The incidence of complication, length of hospitalization, analgesia requirement and interval to return to normal activities were evaluated.

RESULTS: All 37 percutaneous procedures were performed with out significant complication, none of the patients demonstrated urinoma in postoperative renal ultrasound scan. The average length of hospital stay was 1.6 day; the average analgesia requirement was single dose of inj. pethedin, patient return to normal activity within 12 days.
CONCLUSIONS: Tubeless and JJ stent less PCNL is a safe and effective procedure in the management of bilateral renal stone in selected cases. The hospitalization and analgesia requirements are less and returns to normal activities are faster.

Source of Funding: none

MP16-12 NON-LINEAR LOGISTIC REGRESSION MODEL FOR OUTCOMES AFTER ENDOUROLOGIC PROCEDURES: A NOVEL PREDICTOR

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INTRODUCTION AND OBJECTIVES: We aimed to design a thorough and practical non-linear logistic regression model that can be used for outcome prediction after various forms of endourologic intervention.

METHODS: Input variables and outcome data from 382 renal units endourologically treated at a single institution were used to build and cross-validate an independently designed non-linear logistic regression model. Model outcomes were stone-free status and need for a secondary procedure.

RESULTS: The model predicted stone-free status with sensitivity 75.3% and specificity 60.4%, yielding a positive predictive value (PPV) of 75.3% and negative predictive value (NPV) of 60.4%, with classification accuracy of 69.6%. Receiver operating characteristic area under the curve (ROC AUC) was 0.749. The model predicted the need for a secondary procedure with sensitivity 30% and specificity 98.3%, yielding a PPV of 60% and NPV of 75.3% and specificity 60.4%, yielding a positive predictive value (PPV) of 75.3% and negative predictive value (NPV) of 60.4%, with classification accuracy of 69.6%

CONCLUSIONS: This study is proof-of-concept that a non-linear regression model adequately predicts key clinical outcomes after shockwave lithotripsy, ureteroscopic lithotripsy, and percutaneous nephrolithotomy. This model holds promise for further optimization via dataset expansion, preferably with multi-institutional data, and could be developed into a predictive nomogram in the future.

Source of Funding: National Institute of Health through the Mayo Clinic O’Brien Urology Research Center (DK83007)

MP16-13 RANDALL’S PLAQUE AND INTRADUCTAL PLUGGING: ASSOCIATION WITH STONE EVENTS AND COMPOSITION

Mitra de Cogain*, Amy Krambeck, Eric Bergstralh, Xujian Li, John Lieske, Rochester, MN

INTRODUCTION AND OBJECTIVES: We examined the relationship between papillary Randall’s plaque or intermedullary collecting duct (IMCD) plugging and urolithiasis characteristics in percutaneous nephrolithotomy (PCNL) patients.

METHODS: We prospectively enrolled 105 consecutive PCNL patients. Post stone removal papillary mapping for precursor lesions (plaque and plug) was performed, along with papillary biopsy.

RESULTS: The number of stone events (prior spontaneous passage and previous stone procedures) correlated with the degree of IMCD plugging (p<0.05), but not with the amount of Randall’s plaque (p=0.44). The number of renal calculi identified on computed tomography at the time of PCNL did not correlate with the amount of IMCD plugging (p=0.17), and negatively correlated with the amount of plaque (p=0.03). Calcium phosphate stone formers were more likely to have IMCD plugging, although this was not significant (p=0.29). Calcium oxalate stone formers had higher plaque coverage, although this was not significant (p=0.06).

CONCLUSIONS: In this cohort of various stone formers, IMCD plugging correlated with the severity of stone disease, while Randall’s plaque coverage did not. Thus, patients with larger amounts of IMCD plugging may have a clinically more severe stone phenotype and a higher likelihood of calcium phosphate stones. Patients with calcium oxalate stones are more likely to have Randall’s plaque; however the severity of stone disease does not strongly correlate with the amount of plaque present.

Source of Funding: National Institute of Health through the Mayo Clinic O’Brien Urology Research Center (DK83007)

MP16-14 DIABETES MELLITUS AND UROLITHIASIS: DOES RANDALL’S PLACA ACCOUNT FOR INCREASED STONE RISK?

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INTRODUCTION AND OBJECTIVES: Diabetics are at increased risk for urolithiasis; however, the link between precursor stone lesions and diabetes mellitus (DM) has not been explored. We evaluated the relationship between Randall’s plaque, intermedullary collecting duct (IMCD) plugging and DM.

METHODS: We prospectively enrolled percutaneous nephrolithotomy patients. Following stone removal, papillary mapping and papillary biopsy was performed.

RESULTS: We identified 105 patients, 17 with and 88 without DM. Urinary composition and crystal supersaturations were not different between groups (p>0.05). Mean urine pH in diabetics (range 4.9–6.8) and non–diabetics (range 5.0–7.9) was identical 6.1 (p=0.8). Diabetics had larger mean stone size (12.0 mm vs. 6.5 mm, p=0.01) and trended towards lower amounts of severe (>1%) IMCD plugging (29.4% vs. 45.5%, p=0.22) and Randall’s plaque papillary coverage (3.6 % vs. 6.6 %, p=0.08). Both diabetics and non–diabetics most commonly had calcium oxalate stones (64.7% vs. 58.6%). However, non–diabetics more often formed brushite (8.0% vs. 0%) and hydroxyapatite calculi (24.1% vs. 5.9%) while diabetics formed uric acid (17.6% vs. 1.1%) and struvite (11.8% vs. 8.0%) calculi more commonly (p<0.01).

CONCLUSIONS: Although diabetics had similar or lesser amounts of IMCD plugging and Randall’s plaque coverage, their stones were larger, with a significantly different composition. Therefore, the pathway to stone formation may involve different precursor lesions and subsequent processes in diabetics.

Source of Funding: National Institute of Health through the Mayo Clinic O’Brien Urology Research Center (DK83007)

MP16-15 NEW DESIGNED TIP-FLEXIBLE SEMI-RIGID URETEROSCOPY IN THE MANAGEMENT OF RENAL STONES: INITIAL EXPERIENCE

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INTRODUCTION AND OBJECTIVES: A new designed tip-flexible semi-rigid ureteroscope has been developed for the management of renal stones. We present our initial clinical
experience in a prospective study between this new ureteroscopy and the flexible ureteroscopy.

METHODS: 40 consecutive patients with renal stones 1 – 1.5 cm were enrolled in this study and randomized into two groups. The ureteroscopic lithotripsy with holmium laser was conducted with this tip-flexible semi-rigid ureteroscopy (group A) and flexible ureteroscopy (FLEX X2, KARL-Storz, Germany)(group B). Stone location and burden were assessed before operative procedure by computer tomography. Operating time were calculated for the two groups. Complication and stone-free rates were compared between the two groups. Success was based on postoperative imaging with 1-month follow-up.

RESULTS: The success rates of the ureteroscopic insertion for group A and group B were 85% and 95%, respectively. The average stone size were 1.2±0.1 cm (group A) and 1.3±0.1 cm, respectively. The average operation time were 48±12 min for group A and 55±5 min for group B. The stone free-rate were 82.3%±14 M17% and 94.7%(18/19) for group A and group B, respectively. Complications between the two groups were comparable: 1 case in group A suffered high fever (>38°) postoperatively while none had severe complication in group B. The average postoperative hospital stay was 1.2±0.2 d for group A and 1.1±0.1 d for group B.

CONCLUSIONS: The tip-flexible semi-rigid ureteroscopy is a safe and procedure, which combined with these advantages of rigid and flexible ureteroscopy, specially for renal stones with relative small size.

Source of Funding: none

MP16-16 EVALUATION OF HEAVY METALS AND TRACE ELEMENTS CONTENTS IN URINARY CALCULI: MICROANALYTICAL STUDY

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INTRODUCTION AND OBJECTIVES: The presence and role of heavy metals and trace elements in urinary stones formation is debated. The purpose of this study was evaluation and determination of heavy metals and trace elements contents in retrieved urinary stones from patients living in different geographical regions.

METHODS: After approval of Institutional Research Committees, a total of 559 consecutive urinary calculi were retrieved from patients of 6 International Hospitals. The stones were subjected to microanalysis for determination of heavy metals and trace elements contents in each individual sample (22 elements in each stone) by using Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES) analytical technique. Data analysis of elements contents in all examined stones and concentration correlation of each element with Calcium in each stone were determined by One-Way ANOVA test using SPSS software.

RESULTS: Out of 559 analyzed stones there were 482 (89.2%) Non-Urate [318 Calcium oxalate (56.9%), 164 Calcium phosphate (29.3%)] and 77 were Urate stones (13.8%). Heavy metals concentrations of As, Ba, Cr, Fe, K, Mg, Ni, P, Pb, S, Se, Sr and Zn were significantly high in all analyzed stones (P<0.01). Concentration correlation between each element and Calcium content of the stone was significantly high in all types of stones. The ratio was higher in Urate compared to Non-Urate stones. Cu, Fe, Pb, Se, and Ba were noticed in higher concentration in European when compared to Non-European stones. Al, As, Bo, Ca, Cd concentrations were higher in Asian when compared to Non-Asian stones. K, Mg, and Fe concentrations were higher in African stones than other groups.

CONCLUSIONS: Our study showed that many heavy metals and trace elements are present significantly in urinary stones from different geographical regions. The concentration of various elements in these stones differs from country to country. This may be due to either underlying environmental pollution or nutritional factors. Urate stones contained the highest concentration content of heavy metals and trace elements.

Source of Funding: non

MP16-17 EVALUATION OF MICRO CT ANALYSIS OF URINARY STONE COMPOSITION

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INTRODUCTION AND OBJECTIVES: Micro-computed tomography (micro CT) has been shown to provide outstanding images of urinary stones. The aim of this study was to evaluate the reliability of using micro CT alone to identify stone mineral in a clinical scenario.

METHODS: Urinary stones were retrieved from 60 consecutive endoscopic procedures performed in Rabin Medical Center. The samples were analyzed by micro CT using a SkyScan 1172 Micro CT System using voxel sizes between 14 and 22 um; an experienced worker identified mineral content of each specimen using micro CT alone, and then samples were taken for Fourier-transform infrared spectroscopy (FT-IR). Samples were then returned to Israel for a secondary analysis of the samples by FT-IR (blinded to the initial micro CT results).

RESULTS: Table 1 lists the sensitivity and specificity of micro CT analysis for different minerals: calcium oxalate (CaOx) monohydrate (COM); CaOx dihydrate (COD); apatite; uric acid; cystine; brushite; and struvite. This study shows that micro CT was very good at distinguishing COM and COD (which is done by observing a combination of crystal morphology and x-ray attenuation). Micro CT was also very good at identifying uric acid and cystine, which both have distinctive x-ray attenuation values. Micro CT had a poor sensitivity for brushite (which has an x-ray attenuation value similar to that of CaOx) and also missed struvite on 2 specimens (one false positive and one false negative).

CONCLUSIONS: Micro CT shows promise as a routine method for analysis of urinary stone mineral. A primary advantage of micro CT is its ability to non-destructively image a stone specimen in its entirety, so that small regions of distinct mineral can be detected even in a large specimen. This was manifested in the present study by the differences between the FT-IR analyses done blinded or with knowledge of micro CT, where micro CT guidance allowed detection of minor components that were not distributed homogeneously within the specimen. In its present development, micro CT is weakest in its recognition of brushite.

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and struvite, which both are minerals for which the urolgist would like to have knowledge in planning patient treatment. This weakness could possibly be improved by proper training of the micro CT technician, but at present it appears that micro CT analysis of urinary stone mineral should be used along with another method (such as FT-IR) in order to maximize accuracy.

Source of Funding: NIH R01DK059933

MP16-18 SIMULTANEOUS DIGITAL FLEXIBLE URETERORENOSCOPY AND EXTRACORPORAL SHOCK WAVE LITHOTRIPSY: A NEW APPROACH FOR RENAL STONE TREATMENT?

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INTRODUCTION AND OBJECTIVES: Extracorporal shock wave lithotripsy (SWL) has been the standard treatment for most kidney stones. In recent years, refinements of endoscopic techniques and the idea of immediate complete stone removal have led to a shift towards ureteroscopy (URS) and percutaneous nephrolithotomy (PNL). However, depending on stone location and renal anatomy the surgeon may have difficulties to access and remove the stone in one procedure with a single treatment modality. Simultaneous antegrade-retrograde approaches combining flexible URS with PNL have been introduced for such conditions. Based on the same idea we developed a different concept of a combined approach by using simultaneous digital flexible URS and SWL. Our aim was to evaluate the feasibility of such a combined approach.

METHODS: 3 patients with solitary lower pole stones (8–13 mm) were treated by simultaneous flexible URS and SWL. One patient was presented. We used an 8 F digital flexible scope (FlexXc, Karl Storz, Germany) for retrograde access and an 3rd generation electromagnetic lithotripter (Modulith SLK or SLX, Storz Medical, Switzerland). Patients were treated in lithotomy position and general anaesthesia. After retrograde access and visualization of the stone SWL treatment was started under endoscopic and fluoroscopic control. Shock wave rate was 1 Hz, Energy setting for stone SWL treatment was 4–6, and number of shock waves was 2,000–4,000.

RESULTS: All patients could be rendered stone free. Complete stone disintegration by SWL could be achieved in 2/3 patients. Laser lithotripsy was used in one patient. All patients received a DJ stent. Significant complications were not observed. Stone analysis revealed calcium oxalate monohydrate stones (100%) in all patients. The flexible endoscope was not affected by the simultaneous shock wave delivery.

CONCLUSIONS: Our first treatments have proven that combined endoscopic and extracorporeal shock wave treatment of urinary stones is feasible and effective. Further studies have to evaluate this new approach and to define ideal indications and settings.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: Patients with diabetes mellitus (DM) are known to have a propensity for lower urine pH, higher calcium excretion and a higher prevalence nephrolithiasis. Hyperinsulinemia has been linked to hypercalciuria and the co-occurrence of obesity and DM also adds additional lithogenic risks. The impact of glycemic control on stone composition, however, is unknown. We examined the influence of hemoglobin A1c (HgbA1c), a measure of long-term diabetes control, on stone composition.

METHODS: Using an approved institutional stone composition database, we performed a retrospective chart review of 540 stone formers and extracted clinical characteristics known to be associated with stone formation. We also collected data on diabetes management and HgbA1c to assess glycemic control. Patients were categorized based on both major stone composition (>50%), and on the subtype (whether it contained any uric acid, brushite, or >5% calcium phosphate). Variables were compared using Fisher’s exact tests and ANOVA.

RESULTS: In our cohort, we confirmed that diabetic stone formers (n=107) were more likely to have >50% uric acid stones than non-diabetics (20% and 5% respectively, p<0.0001), and less likely to have brushite stones (0% in DM, 4% in non-DM, p=0.019). In analyzing subtype stone compositions (<50%), patients with stones containing any component of uric acid had higher mean HgbA1cs than those with pure CaOx calculi (5.85 vs 6.72, p=0.02, Figure 1). Additionally, patients whose diabetes is managed with oral hypoglycemic medications had more uric acid stones than those managed in other ways (34% vs 10%, p=0.005). This likely reflects poorer diabetic control in patients prescribed oral medications (mean HgbA1c 7.3% vs 6.2%, p<0.0001).

CONCLUSIONS: In our cohort, we confirmed that diabetic stone formers were more likely to form uric acid stones. Better glycemic control, as measured by HgbA1c, may reduce the likelihood of uric acid nephrolithiasis. Additionally, a high index of suspicion for uric acid stones should be maintained in patients with high HgbA1c and targeted therapy considered. Our findings support the inclusion of diabetic control as a component of the multidisciplinary medical management of stone forming patients with diabetes.

Source of Funding: none

MP16-19 HIGHER HEMOGLOBIN A1C IS ASSOCIATED WITH A GREATER LIKELIHOOD OF URIC ACID STONE FORMATION: IS CONTROL OF DIABETES IMPORTANT FOR STONE PREVENTION?

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MP16-20 URETEROSCOPY VERSUS SHOCK WAVE LITHOTRIPSY – FACTORS INFLUENCING PATIENT TREATMENT PREFERENCES

Adam Shrewsberry*, Steven Gerhard, Tania Solomon, Dana Nickleach, Yuan Liu, John Pattaras, Kenneth Ogan, Atlanta, GA
INTRODUCTION AND OBJECTIVES: For patients with uncomplicated ureteral calculi that require treatment, ureteroscopy (URS) and shock wave lithotripsy (SWL) are acceptable first-line treatments. As neither treatment has been confirmed superior to the other, the decision of treatment modality is left up to the provider and patient. Herein, we examine patient preferences for treatment of a ureteral calculus and assess the factors that influence treatment selection.

METHODS: Patients with a urolithiasis (first time or recurrent stone formers) were either self-administered or mailed a questionnaire with a clinical scenario of a stone in the ureter and outcome statistics derived from a Cochrane Review for URS and SWL comparing four parameters: (1) stone-free success rates, (2) complication rate, (3) need for ureteral stent placement, and (4) need for additional surgery. The subjects were asked to choose URS or SWL based on the provided outcomes and to indicate the relative importance that each of the four outcome parameters had on their treatment selection.

RESULTS: A total of 163 patients completed the surveys. The mean age was 53.7 years, 59% were male, and 79% had a history of prior stone-related surgery. Overall, more patients chose URS vs. SWL (62.6% vs. 37.4%, p = 0.001). Ninety-four percent of patients cited stone-free success as extremely or largely important, followed by risk of complications (80%), need for second surgery (69%), and the need for a stent (48%). For patients who chose URS, stone-free success rate and need for a second surgery were of greater importance compared to those who chose SWL. Conversely, for those who chose SWL the need for a stent after surgery was of greater importance compared to the URS group. Patients with a history of URS or a history of URS and SWL favored URS while there was no significant association between history of SWL and procedure preference.

CONCLUSIONS: In our study, patients preferred URS to SWL for treatment of a ureteral calculus. Patient preferences for treatment of ureteral calculi are impacted by a number of factors that the urologist must discuss prior to choosing URS vs. SWL.

Source of Funding: None

MP16-21 HYPERLIPIDEMIA IS ASSOCIATED WITH AN INCREASED RISK OF Nephrolithiasis


INTRODUCTION AND OBJECTIVES: The pathophysiology of nephrolithiasis is multifactorial and obesity, diabetes mellitus (DM) and hypertension (HTN) have been implicated in its formation. Hyperlipidemia (HLD) has recently also received attention as a cause. Congruent with a vascular etiology in stone formation, hyperlipidemia theoretically would be associated with an increased risk. We investigated a possible association of HLD with nephrolithiasis.

METHODS: A random cohort of 60,000 patients was established by collecting the first 5000 patient charts per month in the year 2000. After excluding all pediatric patients, a retrospective study was performed by reviewing age, sex, comorbidities, and last follow up. Median lipid laboratory levels for each patient available were also reviewed. Descriptive statistics were performed as well as Cox proportional-hazards analysis, both univariate and multivariate, to identify factors associated with nephrolithiasis.

RESULTS: 52,184 (22,717 women/29,467 men) patient charts were reviewed. The average age was 31.0 +/- 15.2 years. On univariate analysis a diagnosis of HLD had a hazard ratio (HR) of 2.2 [1.9–2.5, 95% Confidence Interval (CI), p < 0.0001] associated with nephrolithiasis. On multivariate analysis it was HR = 1.2 [1.0–1.5, 95% CI, p = 0.033]. Low-density lipoprotein (LDL) and triglycerides had no association with stone disease, but high-density lipoprotein (HDL) with values below 45 for men and 60 for women had a HR of 1.4 [1.1–1.7, 95% CI, p = 0.003] for stone formation. On multivariate analysis it was a HR = 1.27 [1.03–1.56, 95% CI, p = 0.024].

CONCLUSIONS: HLD is associated with nephrolithiasis. Low levels of HDL appear to increase the risk of stone formation, but the same effect was not seen with LDL or triglyceride levels.

*The views expressed in this article are those of the author and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

Source of Funding: None

MP16-22 GENDER INEQUALITIES IN URINARY METABOLIC EVALUATION OF STONE FORMERS: A 10 YEAR EXPERIENCE FROM A WESTERN INDIAN STONE BELT REGION

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INTRODUCTION AND OBJECTIVES: To identify the various urinary metabolic abnormalities among Indian stone formers and to investigate the differences between the urinary biochemical profile of male and female stone formers.

METHODS: We retrospectively reviewed clinical data for all stone formers who had undergone 48 hour urinary metabolic evaluation from 2003 to 2013 at our tertiary referral center in Western India. We analyzed patient age, gender, 48 hour urinary metabolic parameters of these patients. After excluding the improperly collected samples, data was available for 1857 out of the initial 1986 patients reviewed. Data was analyzed using SPSS 15.0 software.

RESULTS: Mean age was 42.26 ± 16.15 for males and 41.92 ± 17.99 for females. The Male: Female ratio was 3.26:1 (1421:436). The average 24 hr. urine volumes were 2472.83 ± 1397.27 ml for females vs. 2880 ± 1599.26 ml for males respectively. On urine metabolic evaluation the incidence of Hypercalciuria was 40.4% in females vs. 52.9% in males (p < 0.0001*) with mean values being 152 ± 100.30 mg/24 hr vs. 177.52 ± 109.79 mg/24 hr respectively. Similarly the values for Hyperoxaluria were 76.4% in females vs. 62.6% in males (p < 0.0001*) with mean values being 49.3 ± 29.66 mg/24 hr vs. 58.50 ± 37.53 mg/24 hr respectively. For Hyperphosphaturia and Hyperuricemia the values were 0% in females vs. 0.6% in males (p = 0.127, NS) with mean values being 344.35 ± 173.86 mg/24 hr vs. 443.75 ± 231.91 mg/24 hr and 1.1% in females vs. 2.5% in males (p = 0.094, NS) with mean values being 321.82 ± 140.18 mg/24 hr vs. 391.13 ± 167.27 mg/24 hr respectively. While the incidence of Hypocitraturia was 64.9% in females vs. 17.5% in males (p < 0.0001*) with mean values being 245.58 ± 192.45 mg/24 hr vs. 267.35 ± 228.55 mg/24 hr respectively. For Hypomagnesuria the values were 50% in females vs. 39.6% in males (p < 0.0001*) with mean values being 92.29 ± 67.64 mg/24 hr vs. 107.62 ± 77.58 mg/24 hr respectively.

CONCLUSIONS: This study provides valuable information on the major urinary metabolic abnormalities in the Western Indian population. There was a significantly higher incidence of Hypercalciuria in the males while there was a predominance of
Hypomagnesuria, Hyperoxaluria and Hypocitraturia in females. Therefore stone recurrence prevention strategies need to be optimized to appropriately target the gender specific abnormalities discovered in our population.

Source of Funding: none

MP16-23 MONTHLY VARIATIONS IN UROLITHIASIS PRESENTATIONS AND THEIR ASSOCIATION WITH METEOROLOGICAL FACTORS IN NEW YORK CITY


INTRODUCTION AND OBJECTIVES: Nephrolithiasis in the United States has been on the rise over the past several decades. It has been estimated that between 10–15% of the adult population are harboring kidney stones. Seasonal variations in urolithiasis were first investigated in 1960, demonstrating that temperature and sunlight exposure, but not humidity, directly correlated with increased stone disease. We examine the association between meteorological parameters and monthly urolithiasis presentation rates for six years among various populations and demographics of patients at a single institution in New York City.

METHODS: Emergency department data on patient visitations were collected from January 2007 until December 2012. Patient demographics including sex, age, and race were collected and the data was pooled by monthly presentation. Meteorological data was collected using the website “Weather Underground” (web address: http://www.wunderground.com). Average monthly temperature, dew point, precipitation and sea level pressure were obtained and relative humidity was calculated using dew point. Monthly urolithiasis visitations and the correlation of atmospheric factors were analyzed using an auto-regressive integrated moving average (ARIMA) model.

RESULTS: The average stone presentation rates spiked between May and September with the highest month corresponding with August (43.8 per 1,000 visits) (Table 1). The ARIMA models predicting monthly urolithiasis presentation showed temperature to be a significant predictor for the all comers and specifically for males, females and patients 45–65 years-old (all p < 0.05). Ambient temperature, but not relative humidity, sea level pressure, or precipitation was shown to be the only factor to correlate with monthly stone presentation rates.

Table 1. Average Monthly Stone Presentation Rates Correlated with Average Monthly Temperature

![Graph showing the correlation between average monthly temperature and stone presentation rates](image)

CONCLUSIONS: This is the first study examining the role of climate on stone presentation rate in a large Northeastern metropolis. We conclude, for the first time to our knowledge, a study examining the role of climate on stone presentation rates using a large city above the southern “stone belt” states.

Source of Funding: none

MP16-24 URINARY TRACT STONE DEVELOPMENT IN PATIENTS WITH MYELODYSPLASIA SUBJECTED TO AUGMENTATION CYSTOPLASTY

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INTRODUCTION AND OBJECTIVES: Patients with myelodysplasia have risk factors for the development of urinary tract stones. We sought to determine the incidence of developing stones in such patients subjected to augmentation cystoplasty using small bowel.

METHODS: A prospective data base of patients with 435 subjects with myelodysplasia was reviewed. All patients are seen on an annual basis and subjected to plain abdominal imaging, renal ultrasound and serum chemistry testing. After excluding patients who have undergone a renal transplant or who underwent augmentation at another institution, we reviewed the forty patients (9.2%) who had undergone ileal augmentation cystoplasty for management of a non-compliant neurogenic bladder. The majority included a Monti stoma for catheterization access. All patients/families were instructed to perform C.I.C. at least 4 times per day and irrigation of the augmented bladder on a regular basis. None of the patients had a history of urinary tract stones prior to this procedure. Patient demographics, medical history, surgical history, reported compliance, imaging and lab reports were reviewed to determine the incidence of stone development and potential risk factors for this occurrence. Statistical analysis included Student’s t test and Chi square analysis.

RESULTS: Of the 40 patients, 25 have had no stones at an average follow-up of 89.9 months. With an average follow-up of 117.2 months, 15 have developed stones (prevalence 37.5%) for a total of 20 stone events requiring 20 procedures. Of those with stones, 14 had bladder stones and 1 had a renal stone. The patient with the renal stone has never had a bladder stone. The average time between augmentation and stone development was 26.9 months. The stone incidence per year was 6.8%. There were no identifiable risk factors for stone development in this population.

CONCLUSIONS: A significant proportion of patients with myelodysplasia subjected to augmentation cystoplasty with small intestine develop urinary tract stones, predominantly in the augmented bladder. Since there are no identifiable risk factors for this occurrence, all such patients should undergo periodic imaging for stone screening.

Source of Funding: None

MP16-25 USING 24-HOUR URINALYSIS TO PREDICT STONE TYPE


INTRODUCTION AND OBJECTIVES: To determine the accuracy of 24-hour urine analysis in predicting stone type and identify the associations between 24-hour urine elements with stone type.
METHODS: We performed a retrospective review of 503 stone formers with both stone composition analysis and 24-hour urinalysis available. Analysis of 24-hour urine elements across stone types was performed using Fisher’s exact test and analysis of variance. Multinomial logistic regression was used to predict stone type based on 24-hour urinalysis.

RESULTS: A total of 280 (56%) patients had predominantly calcium oxalate, 103 (20%) had uric acid, 93 (19%) had calcium phosphate, 16 (3%) had mixed and 11 (2%) had other stone types. There were several significant patient characteristics and 24-hour urinalysis differences across stone type groups. The statistical model predicted 371 (74%) calcium oxalate, 78 (16%) uric acid, 52 (10%) calcium phosphate, zero mixed and 2 (<1%) other stone types. The model correctly predicted calcium oxalate stones in 85%, uric acid in 51%, calcium phosphate in 31%, mixed and other stone types in 18% of the cases. Of the predicted stone types, correct predictions were 61%, 69%, 56% and 71% for calcium oxalate, uric acid, calcium phosphate and other stone types, respectively. The overall accuracy was 64%. Plots were used to explore the associations between each 24-hour urine element with each predicted stone type adjusted for all the other urinary elements.

CONCLUSIONS: 24-hour urinalysis alone does not accurately predict stone type; however, it may be used in conjunction with other variables to predict stone composition.

Source of Funding: none

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MP16-26 THE PREDICTION FACTORS OF FLEXIBLE URETERORENOSCOPY REQUIREMENT AFTER RIJJD URETERORENOSCOPY IN RENAL PELVIS STONES
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INTRODUCTION AND OBJECTIVES: In this study we examine the success rate of rigid ureterorenoscopy (R-URS) in renal pelvis stones whose size are between 1 and 2 cm and consider the predictive factors of flexible ureterorenoscopy (F-URS) requirement at the time of failure of R-URS.

METHODS: We consider R-URS success in renal pelvis stones and when it fails the predictive factors for F-URS requirement at the same time in 88 patients who underwent retrograd intrarenal surgery (RIRS) in between 2000 and 2012 years. The patients who have stones except renal pelvis are excluded.

RESULTS: The mean patient age was 48.6 ± 16.5 years and follow period 39 ± 11.5 months. In 48 patients R-URS became successful and we did not need to use F-URS. In the other 40 patients we used F-URS and the predictive factors for its requirement were male sex, height and severe hydronephrosis. At the end of the follow period the stone free rates in R-URS and F-URS were 83% and 87% sincerely.

CONCLUSIONS: The usability of R-URS in renal pelvis stones between 1 and 2 cm is influenced with some factors like male sex, height and hydronephrosis. These predictive factors help us to choose the right treatment.

Source of Funding: none
MP17-01 SINGLE PORT INTRAVESICAL LAPAROSCOPIC REPAIR OF VESICOVAGINAL FISTULA

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INTRODUCTION AND OBJECTIVES: to report a new technique for repair of small sized (less than 5 cm), supratrigonal vesico-vaginal fistula using a minimally invasive single port laparoscopic approach to the fistula.

METHODS: In all 10 women with vesico-vaginal fistula were operated upon in the period between 2010 and 2012 in El Galaa teaching hospital using a single port intravesical laparoscopic approach of the fistula where a 2 cm suprapubic incision was done, an anterior bladder wall incision was done in which the port was placed and fixed in the urinary bladder. Complete dissection of the fistulous tract, and complete separation of the urinary bladder from the underneath vaginal wall was done. The urinary bladder was sutured in 2 continuous layers using 00 vicryl.

RESULTS: Follow up for 8 cases was for one year, and 5 months for 2 patients. Follow up was for: urine leakage, any lower urinary symptoms such as burning micturition, frequency, urgency or urge incontinence. Urine analysis was done every 3 months to ensure absence of urinary tract infection. None of the 10 cases had any leakage after the repair. Only one case showed UTI, urgency from the group operated upon for the first time which was treated medically for 3 weeks. No other complications were reported.

CONCLUSIONS: This approach is a new minimally invasive technique where the fistula was exposed directly and has the advantages of short operative time, essay technique, no or very few intra and post-operative complications and short hospital stay.

Source of Funding: None

MP17-02 BILATERAL LAPAROSCOPIC ADRENALECTOMY IN A PREGNANT WOMAN WITH CUSHING'S SYNDROME

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INTRODUCTION AND OBJECTIVES: Cushing’s syndrome (CS) occurs rarely during pregnancy and usually associated with severe maternal and fetal complications. Surgical treatment is the mainstay of therapy of CS in pregnancy.

Here we presented a 31 old pregnant woman with cushing syndrome who underwent bilateral laparoscopic adrenalectomy in her 18th week of pregnancy. Our medline search revealed that this is the first report of “bilateral” laparoscopic adrenalectomy during pregnancy.

METHODS: A 31-year old woman, gravid 1, para 0, was referred to us at 4th months’ gestation with Cushing syndrome. Medical history was remarkable for hypertension and paroxysmal supraventricular tachycardia (PSVT) that was ablated 4 months ago.

After complete evaluation she underwent bilateral laparoscopic adrenalectomy under general anesthesia with transperitoneal approach. At first the patient was placed in the left flank position and open access was done for pneumoperitoneum creation. After completion of left adrenalectomy, position changed to right flank and new trocar insertion was done and right adrenalectomy completed. The carbon dioxide pressure was maintained between 8–12 mmHg during the procedure.

RESULTS: The operation was done without any complication and no need to blood transfusion. Operative time was about 275 minute. Dissection of glands was difficult due to obesity and fragile visceral fat. Post-operative fetal sonography showed no abnormality. After surgery basal cortisol decreased from 60 to 2.8 µg/dl, and 24 hr urine cortisol decreased from 730 to 29 µg/dl.

At 32 weeks she underwent cesarean section. A preterm infant with intrauterine growth retardation (IUGR) was born. The mother and baby were good after discharge and had good condition in a one year follow up.

CONCLUSIONS: Diagnosis and management of CS in pregnancy are still challenging.

When Cushing’s syndrome is diagnosed during pregnancy, therapeutic options depend on the underlying etiology. Surgical treatment includes trans-sphenoidal surgery and bilateral adrenalectomy for patients with Cushing’s disease, and unilateral adrenalectomy for patients with adenoma.

Surgery is the treatment of choice for CS in pregnancy, except perhaps late in the third trimester. Classical or laparoscopic methods have been performed in practice. The end of the first trimester and the first half of the second trimester are considered the best time for surgery. This case shows that laparoscopic adrenalectomy including bilateral procedure is possible during pregnancy and may be considered safe and minimally invasive for these patients.

Source of Funding: none

MP17-03 LAPAROSCOPIC VARICOCELECTOMY FOR CHRONIC SCROTAL PAIN. A SINGLE CENTRE EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Surgical ligation of varicocele is widely used and common procedure, although almost exclusively as a treatment modality for male infertility. Only a few reports have studied varicocelectomy as an option for the treatment of chronic scrotal pain due to varicocele. Pain has been the predominant complain of patients with varicocele in 2–10% of patients according to big population-based studies. Our study aims to study the role of laparoscopic varicocelectomy as a treatment option for chronic pain due to varicocele.

METHODS: Our cohort encompasses 35 patients with dull scrotal pain, worsening with physical activity and clinically detected varicocele. Patients with sharp scrotal pain or any other pathology of the male reproductive system were excluded from the study. Patients mean age was 37.42 y. The mean follow-up was 19.6 months. In 5 patients (14%) the varicocele was bilateral and they were subjected to bilateral surgical ligation of testicular vein. In the rest of the patients (n=30, 86%) the laparoscopic procedure was unilateral – 29 on the left side (83 %) and 1 on the right side (3%). The grade of varicocele was 3 in 17 patients (48.5%), 2 in another 17 (48.5%) and 1 in 1 patient (3%). The mean pre-op VAS score was 2.39 in the scale of 0–5, and in all patient
fertility was not an issue. All patients were followed up at 3 months and bi-annually thereafter.

RESULTS: After the operation 32 patients (91%) had significant improvement in VAS, two had partial improvement (6%), and one had no change (3%). In our cohort we haven’t observed post-op worsening of the symptoms. Mean VAS score post-op at 3 months was 0.4. During the follow-up period we observed 4 recurrences (12%) with 2 re-do procedures, performed by inguinal approach. In 3 of these recurrences (75%) the improvement in pain symptoms was significant. We have observed two cases of wound infection (6%) which resolved uneventfully. Post operatively three cases (9%) of de novo developed hydroceles were observed.

CONCLUSIONS: Laparoscopic varicocelectomy is highly successful option for surgical treatment of varicocele in our cohort, with significant improvement of symptoms in approximately 90% of the patients and minimal number of complications. We feel that this very high success rate can be attributed to the careful selection of patients and excluding those with sharp radiating scrotal pain. Another factor that possibly contributes to this results is the fact that our cohort doesn’t includes small subclinical varicoceles, although this was not explicit excluding criteria.

Source of Funding: none

MP17-04 EXTRAPERITONEAL LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION FOR TESTICULAR NONSEMINOMATOUS GERM CELL TUMORS
Changjun Yin*, Nanjing, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To investigate a modified laparoscopic retroperitoneal lymph node dissection (RLND) technique using an extraperitoneal approach and evaluate its feasibility.

METHODS: A cohort of 26 consecutive patients from a single institution who received extraperitoneal RLND EEL-RLNDE® weeks after orchectomy for primary testicular nonseminomatous germ cell tumor (NSGCT) were analyzed. Patients were placed in supine position with 15 degree tilted up in affected side. Four trocars were introduced. The boundaries of dissection included renal vein (proximal), bifurcation of common iliac vessel (distal), ureter (lateral) and para-abdominal aorta/inferior vena cava area (medial).

RESULTS: EL-RLND was successfully performed in all 26 patients (left 11 cases, right 15 cases). Mean operative time was 154 min. Mean blood loss was 280 ml and without blood transfusion. One conversion to open surgery was in LTA group. The mean postoperative hospitalization was 5 days. Normal antegrade intestinal function recovery time was 2 days. Mean blood loss was 280 ml and without blood transfusion. Intraoperative complication was injury of the vena cava in one case. Mean postoperative intestinal function recovery time was 2 days. Mean postoperative hospitalization was 5 days. Normal antegrade ejaculation was preserved in all patients. Pathologic studies revealed positive lymph nodes in 5 cases (19.2%). No recurrence or distantmetastasis occurred during 3–48 months of follow-up.

CONCLUSIONS: EL-RLND is a feasible procedure through improved extraperitoneal approach, which provides minimal invasion and rapid recovery of patients.

Source of Funding: none

MP17-05 LAPAROSCOPIC PARTIAL VERSUS TOTAL ADRENALECTOMY FOR ADRENAL MASS
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INTRODUCTION AND OBJECTIVES: Many patients with adrenal masses undergo total adrenalectomy. We evaluated laparoscopic partial adrenalectomy (LPA) and laparoscopic total adrenalectomy (LTA) outcomes to determine the usefulness of LPA.

METHODS: Between May 2004 and January 2013, 71 transperitoneal laparoscopic adrenalectomies were performed for adrenal gland masses (14 Conn’s adenomas, 15 pheochromocytomas, 6 Cushing’s adenomas, 19 nonfunctioning tumors, 3 adrenal cysts, 5 metastatic tumors from other site, 3 primary adrenal carcinoma, and 2 neural tumors). LTAs were performed in 44 patients and LPAs in 27. In 27 patients 30 tumors were removed by LPA. We compared perioperative and long-term outcomes of two surgical methods.

RESULTS: 44 patients underwent LTA, 27 including 3 patients with bilateral mass did LPA. There were no differences between the two groups (LTA versus LPA) with regard to patients’ mean age at presentation (49.47 ± 12.73 vs. 50.92 ± 9.20, p = 0.609), mean tumor size (2.91 ± 1.77 cm vs. 2.9 ± 1.8 cm, p = 0.34), postoperative stay (5.54 ± 2.25 days vs. 5.29 ± 2.03 days, p = 0.68), analgesic requirement and time to diet. However, mean operating time was significantly shorter in LPA than that of LTA (201.5 ± 59.33 min vs. 145.78 ± 55.02 min, p < 0.001). Mean estimated blood loss in LPA group was significantly higher than in the LTA group (43.63 ± 55.65 ml vs. 67.03 ± 35.82 ml, p = 0.028) but no patient needed blood transfusion. One conversion to open surgery was in LTA and no major complications developed. Mean follow-up was 25.11 ± 26.48 months in LTA, 28.11 ± 19.46 months in LPA, respectively. Hypokalemia was corrected postoperatively in all patients with Conn’s adenoma, but 1 patient for each group was still hypertensive and prescribed decreased dose of antihypertensive medications at final followup. All patients with functional adrenal masses such as pheochromocytoma, Conn’s adenoma and Cushing’s adenoma had biochemically normalized data after surgery. There were no local recurrences at operation site in patients with neural tumors as well as metastatic tumors during followup.

CONCLUSIONS: Our data demonstrate that LPA is a safe, useful procedure in patient with adrenal mass whether it is hormonally active or not.

Source of Funding: none

MP17-06 LAPAROSCOPIC SACROPEXY USING A TITANIZED POLYPROPYLENE MESH FOR PELVIC ORGAN PROLAPSE: FUNCTIONAL AND ANATOMICAL OUTCOME AFTER 2.5 YEARS
Jan-Peter Jessen, Gunnar Wendt-Nordahl, Thomas Knoll, Patrick Honeck*, Sindelfingen, Germany

INTRODUCTION AND OBJECTIVES: Aim of this study was to describe our experience with a titanized polypropylene mesh (pim, Germany) for laparoscopic sacroectomy (LSC). The titanized polypropylene mesh is a compound material with a covalent bond nanotechnological titanium layer and laser-cut mesh edges. We evaluated 44 consecutive patients undergoing LSC during the last 2.5 years.

METHODS: In this prospective study we evaluated 44 consecutive cases with pelvic organ prolapse undergoing LSC using a titanized polypropylene mesh between June 2009 and January 2012. All patients received a preoperative urodynamic evaluation. Principal outcome measures were anatomic cure (grade I or lower) and subjective cure as well as impact on quality of life measured by a standardised interview and by a prolapse-specific quality-of-life questionnaire (Kings Health and P-QOL questionnaire). Data was also analyzed regarding average operation time, hospitalisation, complications and postoperative outcome.

RESULTS: The mean POP-Q score for pelvic organ prolapsed was 2.7. At a mean follow-up of 16 months, the anatomic cure rate was
95% and no patients required reoperation for recurrent prolapse. Mean operation time for laparoscopic sacrocolpopexy was 177 min (range: 108–322 min). The mean hospitalisation after laparoscopic sacrocolpopexy was 3.3 days. No major complications were observed. Symptoms of preoperative stress urinary incontinence were seen in 55% of the patients. Postoperatively stress urinary incontinence was seen in 18%. The rate of de novo stress urinary incontinence was 4.5%. De novo dyspareunia developed in 2.3%. Patients’ quality of life improved significantly regarding the Kings Health and P-QOL questionnaire (p = 0.02 and p = 0.0008). Erosions did not occur within a maximum follow up of 26 months.

CONCLUSIONS: We demonstrated that LSC using a titanized polypropylene mesh results in a good anatomic and functional outcome as well as significant improvement in life quality after 2.5 years. The titanized mesh seems to have an excellent biocompatibility.

Source of Funding: none

MP17-07 OUTCOMES OF ROBOT-ASSISTED URETERONEOCYSTOSTOMY IN THE MANAGEMENT OF GYNECOLOGICAL SURGERY ASSOCIATED URETERIC COMPLICATIONS

Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Goudelocke, Juan Class, Chattanooga, TN

INTRODUCTION AND OBJECTIVES: Ureteroneocystostomy as a treatment for ureteral stricture, ureteral injury, and ureterovaginal fistula has been described. Robot-assisted pelvic laparoscopic surgery is commonly used as a minimally invasive approach to pelvic genito-urinary reconstructive surgery in the management of the lower ureteral pathology. Here we present our present our experience with robot-assisted ureteroneocystostomy (RAUN) in the management of lower ureteral reconstructive surgery in gynecological surgery related ureteral complications.

METHODS: Patients undergoing robot-assisted ureteroneocystostomy (RAUN) with psoas hitch for gynecological ureteral complications are included in the study. Demographic, operative, perioperative, and complications data were collected prospectively and analyzed.

RESULTS: A total of twenty four female patients underwent robot-assisted ureteroneocystostomy (RAUN) with psoas hitch between 2008 and 2013 by a single surgeon at our institution. Nineteen patients underwent the procedure for an unrecognized delayed ureteral injuries during gynecological surgeries. Three patients had ureterovaginal fistula as a delayed complication of hysterectomy. Two patients suffered from ureteral stricture as a sequelae of pelvic radiation for gynecological malignancies. Three patients in the group also underwent a Boari flap reconstruction in addition to the ureteroneocystostomy. Eleven patient underwent reconstruction on the right ureter and thirteen on the left ureter. The average age for the cohort was 48 years (range 23–89). Mean OR time for the group was 154 minutes. Average EBL was 70 cc with average length of stay being 2.2 days (range 1–5 days). All patient underwent a nuclear renal scan at 3 months post procedure that did not show any evidence of obstruction. At a median follow up of 30 months, no cases of recurrent ureteral obstruction has been reported.

CONCLUSIONS: Robot-assisted ureteroneocystostomy (RAUN) provides a viable minimally invasive approach to gynecological surgery associated ureteral complications. This approach yield an excellent outcome without any evidence of recurrent obstruction and favorable length of stay when compared to the outcomes of traditional open ureteroneocystostomy in the literature. Larger studies with longer follow up are required to further validate these observations.

Source of Funding: none

MP17-08 COMPARISON OF POSTOPERATIVE PAIN AFTER TRANSOBTURATOR OR RETROPUBIC SUBURETHRAL SLING FOR FEMALE STRESS URINARY INCONTINENCE: A PROSPECTIVE RANDOMIZED STUDY

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INTRODUCTION AND OBJECTIVES: The postoperative pain related to the suburethral sling procedures in female stress urinary incontinence is unpredictable even if the procedures are performed by experienced surgeons while most of the procedure related complications may be preventable. Women may present various degree and duration of pain after the procedures. Additionally, many concerns are raised regarding the lithotomy position during the procedures. To evaluate postoperative pain after suburethral sling procedures for female stress urinary incontinence and compare the pain following transobturator tape (TOT) with ten-sion-free vaginal tape (TVT) in randomized trial.

METHODS: A total of 41 consecutive women scheduled to undergo suburethral sling were randomized to receive a TVT or TOT, performed under general anesthesia. Pain perception at the area related to dorsal lithotomy position (hip/back/front region of thigh) and operation site ( groin or suprapubic area) was recorded separately. Postoperative pain was assessed using a ten-point visual analogue scale (VAS) at fixed time-points: 30 min, 3 h and 24 h after surgery. Eligibility criteria included the ability to complete a questionnaire. Exclusion criteria included prior spine surgery, back pain, scoliosis, traumatic spine injury, neurological disease, or hip or knee surgery.

RESULTS: There were no differences between the TVT and TOT groups with regard to age (55.6±7.4 vs. 53.7±7.9 years, p=0.715) and time of procedures (43.8±7.8 vs. 37.1±7.8 minutes, p=0.098), respectively. Higher VAS scores in pain perception related to the lithotomy position were observed in TOT group (1.5±1.6 at 30 min, 1.5±1.5 at 3h) compared to TVT (0.9±1.9 at 30 min, 0.9±1.9 at 3 h) but those were not statistically significant. The perception of pain related to operation sites at the three time points (30 min, 3 h and 24 h) was lower in TVT group compared to TOT, which was not significantly different (mean VAS scores 1.4±1.8, 1.0±1.3, 0.5±1.1 for TVT group vs.1.8±1.9, 1.6±1.8, 0.6±1.1 for TOT, respectively) (p>0.05). There were no significant differences in peri-operative complications between the groups.

CONCLUSIONS: The risk of postoperative pain development after suburethral procedures seems not to be related with the approach methods and most of the pain could be resolved with time. Complications of the lithotomy position may be clinically neglectable in this short-time procedure setting. We would like to have further larger scaled study to clarify the difference in the pain between TOT and TVT more clearly.

Source of Funding: none

MP17-09 A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL OF THE EFFICACY OF TAMULOSIN AFTER EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR A SINGLE PROXIMAL URETERAL STONE

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INTRODUCTION AND OBJECTIVES: The objective of this study was to evaluate the efficacy of tamsulosin on stone clearance after extracorporeal shock wave lithotripsy (ESWL) in patients with a single proximal ureteral stone.

METHODS: This prospective randomized controlled trial was performed on 88 patients with a single proximal ureteral stone. After consenting with a doctor, patients were allocated to the treatment (tamsulosin 0.2 mg once a day) or control (no medication) group, and the efficacy of tamsulosin was evaluated. The primary outcome of this study was the stone-free rate, and the secondary outcome was the period until clearance, pain intensity, analgesics requirement, and incidence of complication.

RESULTS: Stone-free state was reported in 37 (84.1%) patients in the treatment group, and 29 (65.9%) in the control group (p = 0.049). The mean expulsion period of the stone fragments was 10.0 days in the treatment group, and 13.2 days in the control groups (p = 0.012). There was no statistically significant difference in aceclofenac requirement and pain score between the two groups. Only one patient in the treatment group experienced transient dizziness associated with medical expulsive therapy, and the adverse event disappeared spontaneously.

CONCLUSIONS: The results of this prospective randomized controlled trial of the efficacy of tamsulosin after extracorporeal shock wave lithotripsy for a single proximal ureteral stone suggest that tamsulosin helps in the earlier clearance of stone fragments and reduces the expulsion period of the stone fragments after ESWL.

Source of Funding: This research was supported by the grant from the Astellas Pharma Korea (06-2008-2480)

MP17-10 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR CLINICAL STAGE I TESTIS CANCER: INITIAL SERIES AND FEASIBILITY STUDY

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INTRODUCTION AND OBJECTIVES: Retroperitoneal lymph node dissection (RPLND) is a management option with diagnostic and therapeutic intent for low-stage non-seminomatous testicular cancer (NSGCT). Our group recently demonstrated acceptable safety and oncologic outcomes for pure laparoscopic RPLND. This study compared outcomes of an early series of robotic RPLND to a matched cohort of laparoscopic cases.

METHODS: A retrospective review was performed of all robotic and the most recent laparoscopic RPLNDs performed at our institution. Perioperative, pathologic, and functional outcomes were compared to a corresponding number of pure laparoscopic RPLNDs performed for clinical stage (CS) I NSGCT. Robotic and laparoscopic RPLNDs utilized side-specific modified templates and had nerve-sparing intent. Left-sided modified template included para-aortic, interaortocaval and iliac regions. Right-sided modified template included para-caval, interaortocaval, pre-aortic, and iliac regions. All cases were performed with the patient in the full flank position and no patient repositioning was performed during the operation.

RESULTS: A total of 10 robotic RPLNDs have been performed at our institution. No patients experienced open conversion or a major perioperative complication (Clavien ≥ 2). Table 1 provides a 2:1 matched comparison between robotic RPLNDs and the most recent 20 laparoscopic RPLNDs performed by the same surgeon (MEA).

CONCLUSIONS: Robotic RPLND appears to be feasible and safe in the management of CS I NSGCT. Adequate lymph node yields can be obtained and complications are rare. In experienced hands, the learning curve is short and perioperative outcomes are similar to laparoscopic RPLND. Although long-term study is required to confirm oncologic efficacy, this procedure appears to be a viable treatment option in the correctly selected patient with CS I NSGCT.

Source of Funding: none

MP17-11 CORRELATION OF ULTRASOUND WITH SURGERY IN PATIENTS WITH UNILATERAL NON-PALPABLE TESTICLES: IMPACT OF WEIGHT AND CONTRALATERAL TESTICULAR SIZE

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INTRODUCTION AND OBJECTIVES: Surgical exploration (SE) is the gold standard in managing non-palpable (NPT). The value of preoperative ultrasound (US) is debatable with possible value in obese pts and in measuring contralateral descended testicular size, where hypertrophy may be predictive of absent testicle. Herein, we examine the current predictive accuracy of US compared to SE considering body wt and contralateral testicular size.

METHODS: This is a single centre study of patients managed for unilateral NPT over 1 year. All underwent preop US for ipsilateral localization and contralateral size. Pts with testicles rendered...
palpable under anesthesia were excluded. Wt was recorded and a sub-analysis for obese pts (wt>95th percentile on wt-for-age curve) was done. Contralateral size was compared to size of an age matched control group and correlated to SE outcome.

RESULTS: Analysis was completed on 21 pts. On US, 6 testicles were localized and 15 were not visualized. On surgery, 8 testicles were localized and 7 confirmed absent; hence, 2/8 testicles were missed by US. 11 of 15 missed testicles by US were in obese pts. Contralateral hypertrophy significantly correlated with absent testicle on surgery with a (mean±SD) testicular length of 10.7±1.8 mm vs. 17.0±1.9 mm and a (mean±SD) testicular volume of 0.33±0.12 mL vs. 0.76±0.26 mL, in the localized testis vs. the absent testis groups, respectively. Of note, control group measurements were 11±1.0 mm for length and 0.30±0.12 mL for volume. Overall, no testis was found by surgery for a contralateral cut-off length of 15 mm.

CONCLUSIONS: Though US cannot replace the diagnostic certainty of surgery, it localizes NPT in the majority of pts. Its accuracy declines in obese pts, limiting its value. Contralateral size may be a useful predictor of surgery outcome. Whenever available preoperatively, the results of an US may aid in counselling pts with NPT.

Source of Funding: none

MP17-12 COMPARATIVE ANALYSIS OF ROBOTIC VS. OPEN RETROPERITONEAL LYMPH NODE DISSECTION FOR TESTICULAR CANCER STAGING

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INTRODUCTION AND OBJECTIVES: Robotic retroperitoneal lymph node dissection (RPLND) for testicular cancer has been slow to gain acceptance due to technical challenges and concerns about patient safety and oncologic equivalence. Here we compare our initial series of testicular cancer staging robotic RPLNDs to a contemporary series of open RPLNDs to evaluate oncologic and perioperative outcomes.

METHODS: We performed a multicenter review of open and robotic staging RPLNDs for testicular cancer between 2002 and 2012. Robotic RPLND was performed using a camera and 3 robotic arm technique with 2 assistant ports, while open template RPLND was performed in the standard fashion. Clinicopathologic variables including age, BMI, lymph node counts, blood loss, length of stay and Clavien complications were entered into the database and perioperative and oncological outcomes were assessed.

RESULTS: During this period we evaluated 33 open RPLNDs and 16 robotic RPLNDs. Mean follow-up was significantly longer in open than in the robotic series (8 vs. 1.7 months, p<0.034). No significant differences were noted between the open and robotic groups with respect to mean age (28±6.7 vs. 28±7.4 years), mean BMI (26.1±3.8 kg/m2 vs. 27.5±3.6 kg/m2), or tumor characteristics (p>0.05 for all). Mean operative time was similar in the open and robotic groups (319±47 min. vs. 312±51 min.; p=0.672), as was estimated blood loss 200 ml vs. 150 ml (p=0.323). Post-operative day #1 change in hemoglobin, as a surrogate for EBL, was greater in the open RPLND group than in robotic RPLND (–2.8 mg/dl vs. –1.7 mg/dl; p=0.004). Lymph node counts were similar with a mean of 30.6±11.9 in the open group and 27.7±10 in the robotic group (p=0.41). There were no differences in narcotic requirements or Clavien grade complications between groups. Length of stay was 5.6±2.5 days in the open group and 3.8±1.3 days in the robotic group (p=0.004). There was 1 recurrence in the open RPLND group.

CONCLUSIONS: In this multi-center study of robotic vs. open RPLND with short-term follow up we found oncologic equivalence with very few recurrences and statistically similar lymph node yields and complication rates. Robotic RPLND had a significantly decreased EBL and length of stay. Although future studies with longer follow up are needed to better assess oncologic outcomes, robotic RPLND is a promising surgical approach for testicular cancer staging.

Source of Funding: None

MP17-13 POST-CHEMOTHERAPY LAPAROSCOPIC RETROPERITONEAL LYMPH NODE DISSECTION IN LOW VOLUME RESIDUAL GERM CELL CANCER

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INTRODUCTION AND OBJECTIVES: Retroperitoneal lymph node dissection (RPLND) is the most appropriate method for the detection of residual tumor tissue and mature teratoma after chemotherapy in patients with advanced nonseminomatous (NSGCT) or seminomatous (SGCT) germ cell tumors in clinical stage II-III. Open surgical procedures are associated with higher morbidity rates and laparoscopic RPLND offers a minimally invasive procedure with equivalent oncological safety and low morbidity.

METHODS: In 44 patients laparoscopic RPLND (L-RPLND) after platinum-based chemotherapy for clinical stage Ila-III NSGCT was performed unilaterally as well as bilaterally by two surgeons. Patients with retroperitoneal residual tumor >1 cm and normalization of tumor markers after chemotherapy were included. Bilateral L-RPLND was performed with complete contralateral nerve sparing while the decision for ipsilateral nerve preservation was based on the volume of the residual mass in the respective standard field.

RESULTS: L-RPLND was completed in all patients without conversion. Median operation time was 248 min (range 95–397 min) and mean hospitalization time was 5 days (range 3–14 days). Furthermore, there was no difference in recurrence rate of the disease (p=0.45) between patients with unilateral or bilateral dissection. The postoperative ejaculatory function was normal in 41 out of 44 patients. The median follow-up period was 18.5 months (range 3–38 months) and 3 out of 44 patients developed recurrence (6.8%&#8217;).

CONCLUSIONS: Post-chemotherapy L-RPLND is feasible with a lower complication rate and an adequate oncological safety and functional outcome. Due to the complexity of L-RPLND the procedure remains limited to institutions with extensive laparoscopic experience.

Source of Funding: None

MP17-14 ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY: A COMPARISON OF TECHNIQUES

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INTRODUCTION AND OBJECTIVES: Robotic adrenalectomy (RA) is gaining popularity relative to the more established laparoscopic approach. We compared our experience with robotic
and laparoscopic adrenalectomy (LA) techniques and evaluated perioperative variables, outcomes, and complications.

**METHODS:** A total of 48 consecutive procedures were evaluated since 2003 including 11 RA and 37 LA, of which 4 and 3 were partial adrenalectomy procedures respectively. All cases were performed by a single surgeon in a tertiary care medical center. Data was prospectively collected and maintained in a database that was routinely updated. All parameters were analyzed using the Student t-test and described as the mean± standard deviation.

**RESULTS:** The age, gender, and BMI were statistically similar between the RA and LA cohorts (Table 1). Tumor pathology amongst the two groups is described per Table 2. The average tumor size for RA was 4.2±2 cm (1.5–6.8) and 3.3±1.6 cm (0.4–7.2) for LA. Total operating time was similar between RA (157±29 [105–210]) and LA (159±57 [80–288]). The estimated blood loss was statistically higher with RA (98 mL±139 [10–500]) versus LA (43 mL±89 [5–500]) [p<0.05]. With LA, major complications included one incident of intraoperative adrenal vein bleeding/hemorrhage and one episode of transient hand paresthesia. In the RA group there was one incident of intraoperative bleeding/hemorrhage secondary to preoperative antplatelet therapy. There were no conversions to open surgery and no mortality.

**CONCLUSIONS:** Robotic adrenalectomy is an evolving procedure that is safe, effective, and comparable to laparoscopic adrenalectomy. The distinct advantages of robotics are not acutely evident from the results of this study. Surgeon preference and experience, along with cost, must be considered when choosing between the two approaches.

**Source of Funding:** None

**MP17-15 COEXISTENCE OF LOWER EXTREMITY VARICES AND STRESS URINARY INCONTINENCE IN WOMEN**

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**INTRODUCTION AND OBJECTIVES:** Stress urinary incontinence (SUI) is associated with high financial, social and emotional costs. Our knowledge shows that the mechanism of SUI and varicose veins (SUI) is associated with high financial, social and emotional costs. Because of that, in this study we evaluated varicose vein disease in women who have stress urinary incontinence.

**METHODS:** We evaluated 214 women who have urinary incontinence and 108 continent women. The women’s ages, co-morbidities, body mass indexes (BMI) and parity were determined. We used CEAP classification at the physical examination for varicose veins in all women. We assessed the women for SUI at gynecologic position and we determined stress test. Chi-square test was used for statistical analysis.

**RESULTS:** Mean age was 52.1 (29–73) in women who have SUI and 50.8 (31–65) in continent women. There were no statistical difference for age, parity and menopausal situation between groups. BMI were statistically higher in study group than control group. Varicose vein disease more in women with SUI than continent women.

**CONCLUSIONS:** The results from this study showed a significant correlation between SUI and varicose vein disease. SUI and varicose vein disease share common pathophysiological mechanisms. Because of easy and noninvasive evaluation of varicose veins, patients with SUI should be checked by physical examination or females who have varicose veins subjects further evaluated for SUI.

**Source of Funding:** NONE

**MP17-16 MINIMALLY INVASIVE TREATMENT OF URETEROVAGINAL FISTULA: A REVIEW AND REPORT OF A NEW TECHNIQUE**

Khalid Al Otaibi, Reem Al Damanhori*, Alkhobar, Eastern Province, Saudi Arabia

**INTRODUCTION AND OBJECTIVES:** An iatrogenic ureterovaginal fistula (UVF) can be a consequence of difficult pelvic surgery. The patient must endure a long wait before having major surgery to reconstruct the injured ureter. Reports that address the minimally invasive treatment of UVF are limited, and are reviewed here. We introduce the concept of using a Memokath™ 051 stent (PNN A/S, Hornbaek, Denmark) as a promising minimally invasive approach for UVF.

**METHODS:** We used PubMed, Science Direct, Google and the Cochrane Library to assemble appropriate evidence-based reference reports. The keywords used for the search were: ‘Memokath’, ‘stent’; ‘ureterovaginal fistula’ and ‘ureteral injury’. The review showed 42 relevant articles published up to September 2011.

**RESULTS:** Ureteric stenting consistently stopped the vaginal leak of urine. The long-term results were not encouraging after removing the JJ stents at 3 months after insertion. Most patients had a recurrence of the vaginal leak of urine. The outcome was different with the Memokath stent, that remained in situ for a duration far exceeding that of the JJ stent. The Memokath stopped the vaginal leak of urine with no episodes of urinary tract infection and no evidence of stent migration.

**CONCLUSIONS:** Long-term ureteric stenting has two advantages, in that it facilitates urine flow through the ureteric strectured segment down to the bladder, and it stops urine leakage along the fistula. It further promotes the resolution of the ureteric stricture and healing of the fistula. A duration of 3 months was inadequate when a JJ stent was used, whereas longer periods are possible with the Memokath stent. The optimum stenting period required for complete healing of a UVF remains to be defined. Long-term Memokath ureteric stenting can be an effective alternative and minimally invasive approach to conventional surgical repair in selected cases.

**Source of Funding:** None
MP17-17  INTRAVESICAL MIGRATION OF IUCD (INTRAUTERINE DEVICE) WITH CALCULUS FORMATION

Yoheeswaran Nallaswami*, Sangeetha Karunanidhi, Erode, India

INTRODUCTION AND OBJECTIVES: IUCD has been considered to be safest and effective method of contraception, but they also have their own set of complications. Here we report a case of IUCD migration into the bladder with stone formation.

METHODS: Here we report a case of 48 year old woman who under went a cystoscopy removal of IUCD from the bladder which had been inserted 16 years ago. She became pregnant 2 years after IUCD was inserted and delivered a normal infant. The patient was referred to our facility with history of recurrent haematuria, dysuria and frequency for more than 2 years. Cystoscopy revealed a calculi adherent to the bladder wall. On fragmenting the calculi one limb of IUCD was found within the calculus and removing part of the IUCD was embedded in the bladder wall which was freed from the bladder wall using collins knife and removed transurethrally.

RESULTS: Intrauterine device is the most common reversible methods of contraception but has a small failure rate. Its complications though rare include spontaneous abortion, pelvic infection, and ectopic pregnancy and migration.

Migration of IUCD into adjacent organs including pelvis, Appendix, small bowel rectum and iliac veins, have been reported. IUCD migration is more frequent in women who undergo labor with IUCD in place. Due to thinning of uterine walls during postpartum and lactation period, uterine wall is more susceptible to perforation. In our case the patient had undergone a normal delivery following the insertion of IUCD which may explain the cause of migration of IUCD.

Migration of IUCD into the bladder may cause visible haematuria, dysuria, urgency and frequency. The interval between insertion and symptoms vary from 6 months to 30 years. In our case patient presented with symptoms of non resolving dysuria and urgency after 13 years of insertion of IUCD. Bladder stone formation, following migration of IUCD into bladder is not common. One of the factors for stone formation is the duration of IUCD in the bladder. Computerised Tomography evaluation of lost IUCD will not only localise the IUCD but also helps in planning the treatment modality.

There are various methods to recover migrated IUCD from bladder including laparoscopy, suprapubic cystostomy or as in our case removed by cystoscopy.

CONCLUSIONS: IUCD migration in to bladder is uncommon and stone formation around the IUCD is rare. It should be considered in patients, who have delivered in the presence of IUCD, and presence of abdomen pain and urinary tract symptoms resistant to treatment. Cystoscopic removal is a safe and efficient method with low morbidity for retrieval of migrated IUCD in to bladder in selected cases.

Source of Funding: none

MP17-18  FERTILITY OF PATIENTS WITH A HISTORY OF BILATERAL CRYPTORCHIDISM TREATED

Wissem Hmida, Ghassen Tlili*, Faaouzi Mallat, Sidiya Chavey, Nadia Mama, Mahdi Jaidane, Faaouzi Mosbah, Sousse, Tunisia

INTRODUCTION AND OBJECTIVES: Assessing fertility (sperm and the rate of surgical sperm collection) in a population of patients with a history of treated bilateral cryptorchidism.

METHODS: Retrospective and comparative study made in a department of urology and obstetrics and gynecology department of 45 patients aged between 18 and 30 years divided into four groups: group I (20 patients with bilateral testicular lowering), group II (30 patients with unilateral testicular lowering) Group III (20 patients with untreated bilateral testicular ectopia), group IV (5 patients with untreated unilateral undescended testes). A semen analysis and a testicular sperm extraction (TESE) was performed. We studied the reduction of age before or after the age of ten. Then we studied the different parameters of semen analysis, and calculated the rate of positive surgical extraction of sperm according to these different. Then, we studied the rates of successful TESE according to these various characteristics.

RESULTS: The mean age was 28.6 years. A great majority of the patients (81.2%) has benefited of an orchidopexy before the age of 7 years, which does not seem to represent a factor of better forecast of surgical extraction of sperm cells. In the subgroup of the bilateral cryptorchidy, the rate of extraction was 66%. In the subgroup of the one-sided cryptorchidy, it was 63%. The sperm was altered in 78% of patients with a history of cryptorchidism.

CONCLUSIONS: For us, history of cryptorchidism is an etiology of relatively good prognosis for infertility, since the rate of TESE with positive sperm retrieval is 65%. In our population, the subgroups of patients whose FSH is normal and/or whose testicular volume is higher than 10 cm3 are those whose forecast is still better, because the rate of TESE with positive sperm retrieval is 75%.

Source of Funding: none

MP17-19  ROBOT-ASSISTED LYMPH NODE DISSECTION IN TESTIS CANCER. EXPERIENCE IN 12 CONSECUTIVE CASES

Octavio Castillo, Ivar Vidal-Mora, Daniel Revello*, Matias Poblete, Andres Silva, Jorge Lopez-Vallejo, Santiago, Chile

INTRODUCTION AND OBJECTIVES: To analyze the perioperative outcomes of our initial experience in 12 consecutive robot-assisted retroperitoneal lymph node dissection (RPLND).

METHODS: From December 2009 to March 2013, 12 consecutive bilateral robot-assisted RPLND (R-RPLND) were performed using the da Vinci S-HD® at a single centre. The database was performed prospectively. We evaluated demographic, surgical technique and postoperative data.

RESULTS: The mean age was 29 years (23–44). All patients were ASA 1. In four patients we performed a primary R-RPLND and in 8 patients a post chemotherapy R-RPLND. The mean post-chemotherapy residual mass size was 2.56 centimeters (1.2–6). The mean surgical time was 197.5 minutes (120–300) and the mean blood loss was 266.67 mL (100–800). The average hospital stay was 1.8 days (1–2) and the lymph nodes resected 21.67 (16 to 43). An aorta and cava vein injury was successfully repaired in one patient (8.3%) without surgical conversion. Four patients presented Clavien II complications. R-RPLND specimens showed teratoma in 4 patients and active tumor in 1 patient. During a mean follow-up of 24 mo, no patient recurred. No recurrence was observed inside the applied surgical field. No patient died of tumor progression. After bilateral nerve-sparing R-RPLND, 95.2% of patients reported antegrade ejaculation.

CONCLUSIONS: R-RPLND is a feasible procedure and the outcomes are promising, however, more cases and follow-up are necessary to evaluate the perioperative and oncological safety of this procedure.

Source of Funding: None
MP17-20  DIAGNOSIS AND TREATMENT OF ELEVEN CASES OF ADRENOCORTICAL ONCOCYTIC ADENOMA: REPORT OF 11 CASES

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INTRODUCTION AND OBJECTIVES: To investigate the diagnosis and surgical treatment of adrenocortical oncocyotic adenoma.

METHODS: The clinical data from 11 cases of adrenocortical oncocyotic adenoma were retrospectively analyzed and discussed in light of the relevant literature.

RESULTS: 5 males and 6 females patients. Ages 6–58 years old. Two patients had a Cushing’s syndrome, and 2 patients had a hypertension, the other tumor was the incidentalomas. The serum hormone were nomal in 10 patients. The patients who had a Cushing’s syndrome had a high serum cortisol. Ultrasound, CT scan or MRI were performed before surgery. The mean tumor size was 6.8 ± 3.2 (2–13) cm. Seven patients underwent a retroperitoneal laparoscopic procedure, and 4 patients received an open surgery for the resection of the tumor. All the operation were successfully performed. The pathological diagnosis of tumor was adrenocortical oncocyotic adenoma. No recurrence or metastasis was observed after close follow-up observation for 3–30 months.

CONCLUSIONS: Most of adrenocortical oncocyotic adenoma are benign tumors and have favorable prognosis. It was hard to make a confirmed diagnosis of adrenocortical oncocyotic adenoma on clinical symptoms and imaging features before surgery. Reports in the literature are not sure malignant potential, and close follow-up observation is essential.

Source of Funding: None

MP17-21  IS THERE ANY INDICATION OF PERCUTANEOUS BIOPSY OF A LARGE ADRENAL MASS BEFORE CONSIDERING SURGERY?

Janica Chavda*, Aditi Kumar, Tamer El-Husseiny, Nuwan Premachandra, Birmingham, United Kingdom, Sashi Kommu, London, United Kingdom, Aniruddha Chakravarti, Birmingham, United Kingdom

INTRODUCTION AND OBJECTIVES: The increasing use of CT imaging has led to a rise in the incidental findings of adrenal masses. It is necessary to distinguish if the mass is functioning by hormone secretion tests and if the lesion is benign or malignant by CT or MRI according to size and density criteria. Indications for adrenalecetomy include abnormal hormone secretion and/or perceived risk of malignancy when more than 6 cm in size or abnormal CT or MRI. Percutaneous biopsy of a non functioning adrenal mass of more than 6 cm is generally not recommended. We aim to assess whether percutaneous biopsies of adrenal masses are useful preoperatively to determine management plan in three atypical presentations of large right adrenal mass.

METHODS: Three consecutive laparoscopic adrenalectomy (LA) procedures were done in our Urology department for adrenal masses >9 cm in the last five months. The first case presented with a pathological fracture of her femur and no convincing diagnosis of the primary was obtained from the histology of her bone. CT revealed a 15 cm right adrenal mass and a few coeliac lymph nodes. Two attempts at percutaneous biopsies were made from the right adrenal mass. The second case was a presentation of a 9 cm right adrenal mass on CT done for right loin discomfort and increasing tiredness and night sweats. Biopsies were not done as CT was confidently reported as a right adrenal tumour most likely to be malignant. The third patient presented with an incidentally diagnosed 12 cm right adrenal mass on CT. Biopsies were taken. All patients were tested extensively to ensure the masses were not hormonally active.

RESULTS: Both the adrenal biopsies from the two patients showed necrotic tissue only. All three patients underwent LA. Histology results post-operatively confirmed pT2N0M0 (clinically M1) adrenocortical carcinoma in the first, Non Hodgkins Lymphoma (NHL) in the second and a benign cystic haemorrhagic mass in the third. All excision margins were clear.

CONCLUSIONS: Adrenal biopsy in two of the three patients did not reveal significant findings to refute an alternative management plan other than LA. However, if the patient diagnosed with NHL had been biopsied prior to LA, then chemotherapy would have been the preferred option. The usefulness of adrenal biopsy remains uncertain and therefore a larger cohort of patients is required for further investigations.

Source of Funding: None

MP17-22  INVESTIGATION AND MANAGEMENT OF INCIDENTAL ADRENAL MASSES

Jorge Clavijo-Eisele*, Mark Rogers, Shahzad Laghari, Lucy Nicholson, Grimsby, United Kingdom, Diego Abreu, Montevideo, Uruguay

INTRODUCTION AND OBJECTIVES: Adrenal masses are often identified on a CT or MRI scan of the abdomen that has been acquired for further investigations. They are present in up to 10% of adults and the prevalence increases with age. 85% of adrenal incidentalomas are non-functioning adrenal adenomas.

METHODS: Literature review, including Pubmed database and UK guidelines.

Assessing Malignant Potential: size, configuration, presence of lipids, and enhancement.

Assessment of Functionality: clinical, urine metanephrines, serum cortisol, serum potassium, and serum testosterone in women.

Cost analysis of diagnostic and management options.

Generation of algorithm for clinical and multi-disciplinary team meetings use.

RESULTS: Please view table.

CONCLUSIONS: The algorithm should be used as a guide. Patients with significant co-morbidities or diagnosis of adrenal myelolipoma, could be followed or left alone. Adrenalectomy is usually possible laparoscopically. Adrenal biopsy cannot reliably
distinguish an adenoma from an adrenocortical carcinoma. CT-guided biopsy may be useful when an unusual diagnosis is suspected and in patients with known extra-adrenal malignancy.

Source of Funding: none

**MP17-23**  **CHANGING TRENDS IN ACUTE SCROTUM PRESENTATION: UK EXPERIENCE**

Syed Ali Shahzad*, Ugo Otite, Birmingham, United Kingdom

**INTRODUCTION AND OBJECTIVES**: Acute scrotal pain is one of the commonly encountered urological emergencies. Out of various aetiologies, testicular torsion remains of foremost importance in terms of intervention and its consequences. We aimed to look at the presentation, management and outcome of the acute scrotal emergencies in a District General Hospital to identify the incidence of testicular loss and factors involved.

**METHODS**: Retrospective single-centre study of acute scrotal presentations was undertaken between 2009 and 2011. Electronic database was searched using appropriate OPCS codes to identify patients with acute scrotal pain. Duration of symptoms, delay in presentation and outcome of the intervention was recorded and analysed.

**RESULTS**: 217 patients were identified predominantly including testicular torsion 11% (n = 24), intermittent torsion 2.7% (n = 6), torted cyst of morgagni 0.5% (n = 1) and epididymo-orchitis 63.10% (n = 137). 14.2% (n = 31) underwent scrotal exploration with testicular loss in 35.4% (n = 11). Mean age was 17 years. Epididymo-orchitis was confirmed on imaging and treated with Antibiotics following STI screens. Right sided symptoms were associated with poor outcome. Mean duration of symptoms in the testicular loss group was 35 hours compared to 5.5 hrs in salvaged testicle group. Standard 3-point testicular fixation was performed where appropriate.

**CONCLUSIONS**: Delay in presentation due to lack of awareness is identified as an independent risk factor of the poor outcome resulting in testicular loss following acute scrotal pain. Rising incidence of sexually transmitted infections is contributory to more acute scrotal presentations. Authors reiterate the need for mass education of the community using social media to improve outcomes in management of acute scrotum.

Source of Funding: none

**MP17-24**  **THE UTILITY OF NOVEL REUSABLE DOPPLER PROBE INTEGRATED WITH GRASP FORCEPS**

Junichi Inokuchi*, Takeshi Ohdaira, Kejiro Kiyoshima, Katsunori Tatsugami, Akira Yokomizo, Makoto Hashizume, Seiji Naito, Fukuoka, Japan

**INTRODUCTION AND OBJECTIVES**: The identification and isolation of vascular structures are crucial and technically demanding aspects of laparoscopic adrenal or renal surgery. Although there have been many reports regarding the use of intraoperative ultrasound to identify vascular structures, there are few reports to examine the utility of Doppler technology for identification and dissection of these vessels during laparoscopic surgery. We report our initial experience of laparoscopic surgery with newly developed Doppler device integrated with grasp forceps.

**METHODS**: The novel reusable Doppler probe device integrated with single swing grasper (Mizuho Ikakogyo, Co., Japan) was inserted through a 5-mm laparoscopic port during conventional laparoscopic surgery or laparoendoscopic single site surgery (LESS). The Doppler device was moved systematically to obtain an audible signal from the vessels including renal artery, renal vein and left adrenal vein. Various endpoints such as ease of probe use, grasp forceps use, and detection of hilum vessels were recorded.

**RESULTS**: The Doppler probe was used in laparoscopic renal surgery (n = 16) and adrenal surgery (n = 1) by 7 surgeons and laparoendoscopic single site left adrenalectomy (n = 8) by single surgeon. The use of this probe had good concordance with dissection, and there were no technical difficulties or complications. According to the results of a questionnaire for surgeons, the Doppler probe device was shown to be very easy to use in the identification of the renal hilum. However, several surgeons did not use as a grasper due to lack of energy device.

**CONCLUSIONS**: The use of this novel Doppler probe integrated with grasper provides fast, safe, efficient and easy to use during laparoscopic surgery. Surgeons’ opinions suggested that this novel device might have added benefit and utility in patients with high BMI, anomalous vessels, significant adhesions, or during laparoscopic surgery by less experienced surgeons. Randomized comparison with and without Doppler assistance is necessary to confirm the utility of this technology.

Source of Funding: none

**MP17-25**  **TRANSURETHRAL SEMINAL VESICULO-SCOPY FOR INTRACTABLE SEMINAL VESICULITIS**

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**INTRODUCTION AND OBJECTIVES**: To investigate the efficacy and safety of transurethral seminal vesiculoscopy for intractable seminal vesiculitis.

**METHODS**: From May 2008 to October 2011, we recruited 64 patients with intractable seminal vesiculitis. All patients had been treated with systemic anti-inflammatory drugs and topical physical therapy for at least 3 months. Before operation, all the patients received transrectal ultrasound (TRUS) and pelvic magnetic resonance (MRI) to rule out the abnormalities or tumors of urogenital tract. Under general anesthesia, an F7 or F9 seminal vesiculoscopy was inserted into the bilateral ejaculatory duct openings and seminal vesicle cavities through urethra. The ejaculatory ducts and seminal vesicles were visualized to confirm the diagnosis of seminal vesiculitis. The ejaculatory duct was dilated by the endoscope if the stenosis or obstruction existed. An antibiotic solution was injected through the working channel of the endoscope to wash the seminal vesicle cavities.

**RESULTS**: The average operative time was 30 (range 25–40) minutes. The average length of hospitalization was 3 days. Patients were followed up for 6 to 12 months. 62 patients received successfully bilateral seminal vesiculoscopy. In 37 of the 62 patients (92%), the hematospermia disappeared during follow-up. Pain and discomfort were decreased or relieved in all patients. Three patients had painful ejaculation after the procedure that was relieved by oral antibiotics and ß-blockers. One case of postoperative epididymitis was cured after one week of antibiotics. No other complications (such as retrograde ejaculation, rectal injury, or urethral sphincter damage) were observed.

**CONCLUSIONS**: Seminal vesiculoscopy can be performed to diagnose and treat intractable seminal vesiculitis. The procedure is accurate, intuitive, simple, effective, and minimally invasive.

Source of Funding: A Project Funded by the Priority Academic Program Development of Jiangsu Higher Education Institutions (JX10231801).
INTRODUCTION AND OBJECTIVES: Although few authors have published results of robot-assisted laparoscopic partial nephrectomy (RALPN) for complex renal masses larger than 4 cm in size, there are promising operative and short term oncological results. Our aim was to assess operative and pathological results obtained after RALPN in renal masses over 4 cm.

METHODS: Between 2008 and 2012, 178 RALPNs were performed at Seoul National University Bundang Hospital. Data were retrospectively collected: age, BMI, pre and post-operative eGFR, operative time, ischemic time, estimated blood loss, length of hospital stay, complications according to the Clavien-Dindo complication, and pathological results.

RESULTS: Overall, 26 patients with renal masses over 4 cm were included. Median follow up was 16 months. Median age at surgery was 61 years. Median operative and anastomosis times were 168 (55–391) and 42 (20–60) minutes respectively. Mean blood loss was 50 (10–300) mls and hospital stay was 2.5 (1–6) days. Complication rate was 10%. One patient needed conversion to open surgery due to difficult anatomy. Three patients had worsening differential renal function; one required a nephrectomy and one an open revision pyeloplasty. The remaining 57 patients (95%) had symptomatic improvement and adequate drainage on post-operative renograms, at a mean follow up of 46 (6–92) months. The insertion of antegrade stent at time of operation saves time. We have recently started using a barbed suture.

CONCLUSIONS: RALPN is a safe and effective procedure. We now perform pyeloplasty robotically for all patients in our institution.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: Robotic partial nephrectomy (RP) is increasingly popular in definitive treatment of renal tumours <4 cm. We assess early RP outcomes at a high volume centre for other robotic surgery (RARP/RARC). The initial learning curve of a surgeon experienced in robotic radical prostatectomies (>300 cases) but naive to RP was evaluated.

METHODS: From 2010–2012, 80 patients underwent RP performed by a single surgeon. Data were prospectively recorded in a dedicated database and peri-operative and oncologic outcomes were recorded.

RESULTS: Mean tumour size was 2.97 cm, operative time 183 mins (150–300), warm ischemia time (WIT) 18.2 mins (9.5–32) and estimated blood loss (EBL) 159 ml (20–600). With a median hospital stay of 3.48 days (2–9), and no blood transfusions, there were 2 Clavien grade II and 1 IIIb (ureteric stent) complications and 2 focal positive margins (base biopsies clear), with one conversion to radical nephrectomy. Final pathology confirmed malignancy in 60/80 (75%).

Comparing the initial 20 patients to the last 20, mean tumour size increased from 2.49 to 2.84 cm (NS) and mean PADUA complexity score increased from 6.84 to 7.62 (p<0.05). Despite attempting larger and more difficult tumours, mean WIT reduced from 20.08 to 17.16 mins (p<0.05) with no significant change in EBL whilst mean hospital stay decreased from 4.7 to 2.85 days (p<0.05).

CONCLUSIONS: RP is a safe procedure with low morbidity and good oncological outcomes despite increasingly complex
case selection. The learning curve may have been accelerated due to significant prior robotic surgical experience.

Source of Funding: None

MP18-04 COMPARISON OF SELECTIVE PARENCHYMAL CLAMPING TO HILAR CLAMPING DURING ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY

Ryan Hsi*, Liam Macleod, John Gore, Jonathan Wright, Jonathan Harper, Seattle, WA

INTRODUCTION AND OBJECTIVES: Selective regional ischemia during robotic-assisted partial nephrectomy (RALPN) can be achieved using a laparoscopic parenchymal clamp. This study aims to compare perioperative outcomes following RALPN with hilar clamping versus parenchymal clamping.

METHODS: A retrospective review of RALPN patients at a single institution with either hilar or parenchymal clamping was performed. The associations between perioperative factors and clinicopathologic outcomes were determined using the t-test, Fisher’s exact test, and multivariate linear regression.

RESULTS: In 51 patients undergoing RALPN, 36 (71%) and 15 (29%) were performed with hilar and selective parenchymal clamping, respectively. Median tumor diameter was 2.8 cm for both groups (1.1–6.1, p = 0.93). Tumor complexity by nephrometry score was mild (69 vs. 80%), moderate (29 vs. 20%), and high (2 vs. 0%) in the respective groups (p = 0.65). Operative time was significantly less in the parenchymal clamp group (median 245 vs. 320 min, p < 0.0001). There was no difference in blood loss and need for transfusion. On multivariate analysis, hilar-clamping (p = 0.01), higher BMI (p = 0.01), and high complexity tumors (p = 0.02) were significantly associated with longer operative times. The parenchymal clamp group had better preservation of immediate postoperative GFR from baseline to POD2 (median ΔGFR 0 vs. −18 ml/min/1.73 m², p = 0.02). These differences from baseline did not persist (median ΔGFR −6 vs. −7 ml/min/1.73 m², p = 0.35) at a median follow-up of 6.6 months. Final pathology determination of malignancy (p = 0.51) and positive margin rates (p = 0.26) were similar in both groups.

CONCLUSIONS: Compared to hilar clamping, selective regional ischemia with the parenchymal clamp for mild-moderately complex tumors is feasible and safe during RALPN. Parenchymal clamping is associated with enhanced immediate preservation of GFR and shorter operative times.

Source of Funding: None

MP18-05 RETROPERITONEAL VERSUS TRANSPERITONEAL ROBOTIC PARTIAL NEPHRECTOMY FOR POSTERIOR RENAL TUMORS: RESULTS OF MATCHED-PAIR COMPARISON FROM TWO MAJOR REFERRAL CENTERS


INTRODUCTION AND OBJECTIVES: The retroperitoneal approach to renal masses offers several advantages for posterior tumors based on its more direct access to the lesion and hilum. However, there is a paucity of well-designed studies directly comparing surgical and functional outcomes between transperitoneal and retroperitoneal robotic partial nephrectomy. We compared perioperative outcomes between matched cohorts of retroperitoneal and transperitoneal robotic partial nephrectomy for posterior renal tumors.

METHODS: Between 2010 and 2012, RPN was performed via the retroperitoneal approach in 63 patients at 2 institutions. This cohort was matched 1:1 to a group of 63 patients undergoing transperitoneal RPN during the same time period. All renal tumors for both cohorts were posterior. Matches were based on radiologic tumor size, RENAL nephrometry score, and laterality. Study parameters included operative time, estimated blood loss (EBL), warm ischemia time (WIT), length of hospital stay, and pathological features, along with pre- and post-operative renal function. Postoperative complications were classified according to the Clavien Dindo system.

RESULTS: In matched-pair analysis, the retroperitoneal approach to RPN was associated with a decreased median operative time (167.0 vs 248.0 min; p < 0.01), less EBL (100.0 vs 187.5 ml; p = 0.01), shorter hospital length of stay (2.0 vs 4.0; p < 0.01), with a similar WIT (19.0 vs 17.0; p = 0.14) while providing equivalent short-term functional and oncologic outcomes as well as complications compared to the transperitoneal approach (p > 0.05). Rates of malignant tumors were similar between cohorts.

CONCLUSIONS: Retroperitoneal RPN is safe and feasible for posterior renal tumors. Our matched pair comparison with the transperitoneal approach showed shorter total operating time, less blood loss, and shorter duration of hospitalization. There were no statistically significant differences in surgical margin status or complication rates. The retroperitoneal approach may provide an attractive alternative in patients with posterior renal tumors.

Source of Funding: None

MP18-06 EVALUATION OF PERIOPERATIVE OUTCOMES IN ELDERLY PATIENTS AND COMPARISON WITH YOUNGER PATIENTS UNDERGOING ROBOTIC ASSISTED PARTIAL NEPHRECTOMY

Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

INTRODUCTION AND OBJECTIVES: With an aging population the appropriate management of small renal masses has not been fully identified. Particularly in the elderly patient population, the safety of minimally invasive partial nephrectomy has not been identified. We hypothesize that these patients could undergo surgery safely without any compromised outcomes.

METHODS: 307 consecutive patient undergoing robotic partial nephrectomy at a single institution were included in this analysis. Patients were defined as elderly if they were >70 years of age at the time of the procedure. This group was compared to those patients who were younger than 70 at the time of their surgery. Chronic kidney disease stage progression was defined as increasing from stage I or II (GFR > 60) to stage III (GFR < 60) or higher. Patients who progressed from Stage III to Stage IV or higher were also included. Complications were based on the Clavien Scale with complication of grade III or high as considered major complications.

RESULTS: Sixty-five patients (21%) were identified as elderly at the time of their procedure. Perioperative outcomes were similar between both groups. The percentage of patients in the elderly group with malignant lesions was 64% as compared to 78% in the younger group (p = 0.03). Elderly patients were much more likely to have a history of hypertension (86% vs 60%; p < 0.001) or a history of coronary artery disease (23% vs 8%; p < 0.001). Overall, 23% of the elderly patients progressed to in CKD stage as compared to 12% in the younger cohort (p = 0.04). However when performing cox proportion hazards evaluating risk of CKD progression
including tumor size, ischemia time and clamping technique, elderly age was no longer statistically significant (RR 2.63, 95% CI 0.87–7.13, p = 0.08). Overall and major complication rate were similar between the two cohorts (p = 0.45 and 0.24, respectively).

**CONCLUSIONS:** Elderly patients can undergo robotic assisted partial nephrectomy without increased risk of adverse events at the time of surgery. They are not at increased risk for CKD progression following procedure. In elderly patients fit for surgical procedures, the option of robotic partial nephrectomy is a safe option for management of small renal masses.

**Source of Funding:** None

**MP18-07 COMPARING MINIMALLY INVASIVE SURGICAL APPROACHES TO RADICAL NEPHRECTOMY**

Priyanka Arshanapalli, Tim Large*, Jason Sea, Clint Bahler, Thomas Gardner, Chandru Sundaram, Indianapolis, IN

**INTRODUCTION AND OBJECTIVES:** Introduction: We compared operative outcomes of robot assisted (RALN) versus pure laparoscopic (LN) radical nephrectomies (RN). The objective was to observe expected changes in outcomes suggestive of a quicker recovery from surgery between the two minimally invasive surgery (MIS) approaches that are increasingly being adopted by urologists.

**METHODS:** Methods: Retrospective evaluation of patients who underwent LN and RALN for malignancy, ADPKD, and symptomatic non functioning renal units. Of 183 patients undergoing RN identified from May 2007 to July 2012, 134 patients met inclusion criteria for our study.

**RESULTS:** Results: 100 patients undergoing LN were compared to 34 undergoing RALN with similar demographics and presurgical clinical status (table 1). No significant differences in any of our measured outcomes were observed.

**CONCLUSIONS:** Results: 100 patients undergoing LN were compared to 34 undergoing RALN with similar demographics and presurgical clinical status (table 1). No significant differences in any of our measured outcomes were observed.

**Source of Funding:** None

**MP18-08 OPEN AND ROBOTIC NEPHRON SPARING SURGERY FOR T1B OR GREATER RENAL CELL CARCINOMA: A SINGLE CENTER EXPERIENCE**

Amar Singh*, Sarah Hunt, Argil Wheelock, Norman Galen, Colin Goudelocke, Juan Class, Chattanooga, TN

**INTRODUCTION AND OBJECTIVES:** Nephron sparing surgery for renal cell carcinoma (RCC) with tumor size greater than 4 cm (T1b) is becoming prevalent. Outcome data on robotic (RPN) versus open partial nephrectomy (OPN) has been reported. We report a single surgeon experience with RPN and OPN for T1b or greater RCC at our institution.

**METHODS:** Patients undergoing RPN and OPN for T1b or greater RCC between 2007 and 2012 are included. Demographics, operative, perioperative, complications, and recurrence data were prospectively collected and analyzed.

**RESULTS:** Seventy one patients underwent partial nephrectomy for T1b or greater RCC. Twenty-nine of these patients underwent RPN and forty two patients underwent OPN. Patient demographics, ASA, and BMI were similar for both groups. The average tumor size for the RPN and OPN group was 5.9 and 6.1 cm respectively. The two groups had a comparable mean operative times (RPN 152 minutes, OPN 158 minutes, p = 0.18). The average warm ischemia time for the RPN group was 27 minutes. Twenty OPN cases were performed without hilar clamping and twenty cases required cold ischemia time with the average hilar clamping time of 25 minutes. Estimated blood loss for both groups was comparable (RPN 347 cc, OPN 289 cc) with a 18% transfusion rate. Length of stay (LOS) for RPN was significantly shorter than the OPN (2.5 days vs 5.3 days p = 0.003). There was no significant change in the preoperative, postoperative, and 3 month calculated GFR. RPN and OPN had similar complication rates. RPN had 2 cases of prolonged urine leak. OPN had 7 complications. Four cases of prolonged urine leak requiring stents, 2 wound infections requiring negative pressure dressing, and 1 arteriovenous malformation requiring angioembolization. At average follow up of 29 months, there was one case of local recurrence and another of systemic metastatic disease without local recurrence.

**CONCLUSIONS:** OPN and RPN are efficacious treatments for T1b or greater RCC with acceptable morbidity and recurrence risk.
in short term follow-up. Minimally invasive approach may lead to a shorter LOS and earlier convalescence. Larger studies with longer follow up are needed to support these early observations.

Source of Funding: none

MP18-09  ROBOT-ASSISTED MANAGEMENT OF BENIGN DISTAL URETERAL STRICTURES IN REOPERATIVE FIELD: SINGLE INSTITUTION EXPERIENCE

Alonso Carrasco*, Matthew Gettman, George Chow, Matthew Tollefson, Rochester, MN

INTRODUCTION AND OBJECTIVES: Benign distal ureteral strictures are often cause by unrecognized iatrogenic injuries during pelvic surgery. We present our experience with Robotic-Assisted Ureteral Reimplant (RAUR) in management of benign distal ureteral strictures in a reoperative field.

METHODS: A retrospective chart review at Mayo Clinic was performed.

RESULTS: Fifteen patients with mean age of 52 years at time of RAUR were identified. Eleven patients (73%) had a ureteral stricture secondary to unrecognized ureteral injury at time of prior pelvic surgery and 4 due to prior endoscopic ureteral manipulation. Mean operative time, blood loss, and length of hospitalization were 217 minutes, 132 mL, and 2.4 days, respectively. Four patients (25%) required posas hitch. Three (20%) patients were converted to open surgery. Postoperative complications included 1 urinary leak requiring percutaneous nephrostomy tube, 1 UTI, and 2 stent manipulation in three patients. At mean follow-up of 15 months none of the patients had developed recurrence of strictures.

CONCLUSIONS: The RAUR can be safely accomplished in patients with benign ureteral strictures even in the setting of reoperative fields, which constitutes the majority of patients with benign distal ureteral strictures.

Source of Funding: None

MP18-10  PERINEPHRIC FAT THICKNESS INCREASES OPERATIVE COMPLEXITY INDEPENDENT OF NEPHROMETRY SCORE DURING ROBOTIC PARTIAL NEPHRECTOMY


INTRODUCTION AND OBJECTIVES: Partial nephrectomy (PN) in obese patients may be preferred over radical nephrectomy for small renal masses, especially since obesity is an independent risk factor for renal cell carcinoma and the development of end-stage renal disease. While obesity is categorized by body mass index (BMI), it does not predict a patient’s fat distribution including abdominal wall and visceral fat. Visceral fat accumulates around the internal organs and may be a better predictor of operative complexity during PN. The purpose of this study was to determine and compare the association between multiple fat measurements and operative complexity during robot-assisted partial nephrectomy (RAPN).

METHODS: Data was collected from the records and preoperative images of 53 consecutive RAPN cases. Multivariate analyses were performed testing the association between two outcomes (operative time and blood loss) and indicators of fat mass (BMI; fat thickness measurements of the abdominal wall in anterior, posterior, posterolateral and lateral orientation and perinephric fat thickness measured in anterior, posterior, medial and lateral orientation). Adjustments were made for age, gender, tumor side/size, nephrometry score, comorbidities and prior abdominal surgery.

RESULTS: 53 patients underwent RAPN with mean BMI of 30.8 kg/m2 (95% CI 29.7–31.9) and mean follow up of 6.6 months. On multivariate linear regression, each perinephric measurement was independently associated with increased blood loss and operative time, with medial and posterior having the strongest associations. For each 1 mm increase in medial perinephric fat, the EBL increased 24 ml (95% CI 13–34 ml) and operative time increased 3.3 minutes (95% CI 1.0–5.7 minutes). For each 1 mm increase in posterior perinephric fat, the EBL and operative time increases were 19 ml (95% CI 8.1–30 ml) and 3.3 minutes (1.0–5.6 minutes), respectively.

CONCLUSIONS: Perinephric fat thickness, particularly medial and posterior fat, is associated with increased blood loss and operative time in RAPN cases independent of BMI and nephrometry score. These data may be helpful for preoperative risk assessment and counseling.

Source of Funding: None

MP18-11  ROBOTIC NEPHRECTOMY IS NOT COST-LIER THAN STANDARD LAPAROSCOPY WHEN ROBOT AVAILABLE

Daniel Gilbert*, Dublin, OH, Iahn Gonsenhauser, Columbus, OH, Romney Abaza, Dublin, OH

INTRODUCTION AND OBJECTIVES: While robotic surgical systems are unlikely to be purchased by institutions specifically to perform nephrectomy, it is uncertain whether surgeons at hospitals already owning robotic equipment should perform standard laparoscopic nephrectomy (LN) versus robotic nephrectomy (RN). We compared the cost of RN and LN performed at our institution and also developed a cost model based upon our patient data specifically addressing whether the cost of disposables is higher for RN versus LN.

METHODS: All nephrectomy procedures performed during a 2-year period from February 2008 to February 2010 at our institution were included in the study. During this time, RN was performed uniformly by one surgeon and LN performed uniformly by three surgeons such that no selection bias existed in choice of LN versus RN. Cost minimalization analysis was used to compare the average total costs (direct and indirect) of the RN and LN procedures performed, including pharmacy, anesthesia, operating room, laboratory, and hospitalization costs. Additionally, the average cost of standard instrumentation used for RN and LN were compared.

RESULTS: A total of 150 nephrectomies were performed during the study period, including 90 LN and 60 RN. The average total costs of LN (mean =$12,021) and RN (mean =$11,861) did not differ (p = 0.79) when assuming a robot was available. The additional cost contributed to each RN procedure if including the fixed cost of owning robots was $1,040. The average cost of standard instrumentation and disposables used for LN and RN at our institution were $2,344 and $2,010, respectively. The cost of robotic instruments was outweighed by the number of disposable trocars used for LN and the cost of stapling devices, clip applicers, and advanced energy dissection devices.

CONCLUSIONS: Surgeons at institutions already owning robotic surgical systems can perform RN when a robot is available without being costlier than LN. When the fixed costs of investing
in having robots (depreciation and maintenance) are included, these additional costs per case surpass savings in disposables as compared with LN.

**Source of Funding:** None

**MP18-12 THE IMPACT OF BODY MASS INDEX ON RENAL FUNCTIONAL OUTCOMES FOLLOWING MINIMALLY INVASIVE PARTIAL NEPHRECTOMY**

Edris Negron*, Kyle Richards, Joshua Cohn, Zoe Steinberg, Scott Eggener, Arieh Shalhav, Chicago, IL

**INTRODUCTION AND OBJECTIVES:** Partial nephrectomy is the standard of care for the management of small renal masses and is increasingly performed via minimally invasive partial nephrectomy (MIPN). Obesity is a known risk factor for kidney cancer and can potentially make surgery more challenging. Our aim is to assess the impact of body mass index (BMI) on perioperative and renal functional outcomes in patients undergoing MIPN.

**METHODS:** In our IRB-approved, prospectively maintained clinical database, we identified 1,206 patients who underwent kidney surgery from August 2002 until March 2013. Follow up has been maintained every 6 months for 2 years, and yearly thereafter with axial imaging at the discretion of the physician. Estimated glomerular filtration rate (eGFR) was obtained at baseline and at each follow-up visit. From this group, patients that underwent MIPN with more than 12 months of follow up were selected. Exclusion criteria included missing preoperative eGFR or conversion to radical nephrectomy. Patients were separated into 4 cohorts based on BMI: 1. BMI < 25 kg/m², 2. BMI 25–30 kg/m², 3. BMI 30–35 kg/m², and 4. BMI > 35 kg/m². Change in eGFR was compared across demographic and clinical variables via univariate and multivariate regression models.

**RESULTS:** 235 patients met inclusion criteria with overall median follow-up of 17 months [IQR 7, 37]. There was no difference in follow-up, baseline demographic, clinical, perioperative, or pathologic features across BMI groups. Increasing BMI was associated with a significant absolute reduction in eGFR at 1 year on univariate analysis (0.44 mL/min/BSA reduction in GFR per 1 kg/m² increase in BMI, \( p = 0.008 \)). BMI (\( p = 0.046 \)), CCI (\( p = 0.007 \)), tumor size (\( p = 0.012 \)), and preoperative eGFR (\( p < 0.01 \)) were independently associated with significant absolute reduction in eGFR in a multivariate model adjusted for gender, BMI, age-adjusted Charlson Comorbidity Index (CCI), warm ischemia time, and preoperative eGFR. Controlling for the same variables, gender (\( p = 0.05 \)), BMI by category (\( p = 0.035 \)), CCI (\( p = 0.041 \)), and preoperative eGFR (\( p < 0.01 \)) were independently associated with increased odds of being chronic kidney disease stage ≥ III at 1 year.

**CONCLUSIONS:** MIPN is feasible in obese patients with similar perioperative outcomes to non-obese patients. BMI is an independent risk factor for worsening kidney function following MIPN, and these patients should be counseled accordingly.

**Source of Funding:** None

**MP18-13 COST AND SAFETY ANALYSIS OF LAPAROSCOPIC CRYOABLATION AND ROBOTIC PARTIAL NEPHRECTOMY FOR MANAGEMENT OF RENAL MASSES**

Qiang Li*, Zachary Klaassen, Bruce Shingleton, Rabii Madi, Augusta, GA

**INTRODUCTION AND OBJECTIVES:** To compare the cost effectiveness and peri-operative outcomes of laparoscopic cryoablation and robotic partial nephrectomy for the management of T1 kidney tumors.

**METHODS:** From March 2012 until March 2013, we concurrently performed 27 laparoscopic cryoablation (LC) and 25 robotic partial nephrectomies (RPN) for enhancing stage 1 kidney tumors. Peri-operative outcomes as well as operative costs were compared between both groups. Selection of approach was mostly based on surgeon’s preference as well as patient’s and tumor’s characteristics.

**RESULTS:** Both groups did not differ in age, sex, BMI, ASA, pre-operative creatinine and hemoglobin. The mean tumor size in the RPN group was bigger than the LC group (4.0 cm versus 2.6 cm, \( p = 0.019 \)). Nephrometry score was higher as well in the RPN group (9 versus 5, \( p < 0.001 \)). Total surgery time was longer (241 minutes versus 132 minutes, \( p = 0.0001 \)) and estimated blood loss was higher in the RPN (203 ml versus 62 ml, \( p = 0.001 \)). None of the patients in both groups had any intra-operative complications, but 2 patients in the RPN groups presented with delayed kidney bleeding necessitating embolization. One patient in the
cryotherapy group had ischemic CVA. There were no differences in the duration of hospital stay, discharge creatinine, and discharge hemoglobin between both groups. Pathology confirmed the presence of malignancy in 12 (92%) patients who underwent RPN, while only 8 (53%) patients of the LC group showed positive biopsy. There was no evidence of tumor recurrence in both groups. Total OR cost was significantly lower in the LC group ($7811 versus $12115 for RPN, p < 0.001).

CONCLUSIONS: Laparoscopic cryoablation is a relatively safe and cost-effective procedure for selected patients with significant comorbidity who are reluctant to accept more invasive extirpative surgery and are willing to accept the potential need for retreatment for recurrent diseases. Long-term oncological outcome is needed.

Source of Funding: none

MP18-14 PREOPERATIVE, POSTOPERATIVE RENAL FUNCTION TEST USING TC 99M-DTPA FOLLOWING LAPAROSCOPIC AND ROBOT-ASSISTED PARTIAL NEPHRECTOMY AT SHORT WARM ISCHEMIC TIME

Kang Sup Kim*, Yong Sun Choi, Hyuk Jin Cho, Sung-Hoo Hong, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Nephron sparing surgery is considered the standard of treatment for most patients with renal mass. We evaluate preoperative, postoperative glomerular filtration rate (GFR) of patient undergoing laparoscopic partial nephrectomy (LPN) and robot-assisted partial nephrectomy (RAPN) at short warm ischemic time (WIT).

METHODS: We included 42 patients of short WIT (<30 min) who underwent LPN (n=34) and RAPN (n=8) from November 2011 to February 2013. Technetium Tc 99m-diethylene-triaminepentaacetic acid (TC 99m-DTPA) to determine GFR was performed before and 3 month after operation. We analyzed TC 99m-DTPA scintigraphy GFR both operated kidney and contralateral kidney. GFR was normalized by body surface area (BSA) and the GFR using serum creatinine was also estimated a modified Cockcroft-Gault formula adjust for BSA (CG-GFR).

RESULTS: Median WIT was 23.1±3.4 minutes. Preoperative, postoperative serum creatinine level did not show a difference (0.9±0.2 mg/dl vs 0.9±0.3 mg/dl P=0.521). Reduction of GFR of operated kidney and increasing GFR of contralateral kidney showed a significant difference (54.3±13 ml/min/1.73m² vs 43.7±13.8 ml/min/1.73m² P=0.000, 50.17±8.1 ml/min/1.73m² VS 59.2±14.7 ml/min/1.73m² P=0.001 respectively). Preoperative and postoperative CG-GFR of total kidney showed difference (109.4±21.9 ml/min/1.73m² vs 102.2±24.8 ml/min/1.73m² P=0.026), but preoperative and postoperative CG-GFR of total kidney was increased but not show statistical difference (88.6±20.2 ml/min/1.73m² VS 93.2±26.6 ml/min/1.73m² P=0.073).

CONCLUSIONS: Our result showed that short WIT cannot prevent decreasing renal function of operated kidney, and contralateral kidney compensate decreasing renal function of operated kidney. Because of declining postoperative GFR of total kidney. Possible to preserve the kidney is considered better. We identified that Partial nephrectomy was important role for preserving the renal function measure by TC 99m-DTPA. But the limitation of this study was small enrolled numbers and short follow-up periods.

Source of Funding: none

MP18-15 IMPACT OF EARLY ARTERIAL UNCLAMPING DURING ROBOTIC PARTIAL NEPHRECTOMY

Christopher Reilly*, Elton Llukani, Blake Moore, Zihoe Lee, David Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: During robot-assisted partial nephrectomy (RAPN), improvements in renorrhaphy technique may translate into decreased warm ischemia times. We currently utilize a modified sliding clip technique with a double armed barbed suture, and have found that the technique lends itself well to early arterial unclamping. In this technique, an “inner” layer of closure along the cortico-medullary junction is completed, followed by early vessel unclamping, prior to completing the capsular closure. We compare our outcomes for early arterial unclamping versus standard arterial unclamping after completion of renorrhaphy.

METHODS: 115 patients underwent RAPN between Sept 2010 and May 2013 utilizing our double armed suture technique. 32 patients were excluded due to multiple lesions being resected, off clamp resection, selective arterial clamping, or multiple concomitant procedures, leaving a total of 83 patients for analysis. Of these, 35 patients had standard unclamping (Group 1) and 48 patients had early unclamping after the first layer of closure (Group 2). We retrospectively evaluated peri-operative data including age, BMI, tumor size, ASA, robotic console time, warm ischemia time (WIT), estimated blood loss (EBL), length of stay (LOS) and estimated change in GFR (MDRD formula).

RESULTS: Mean patient age (59.4 ± 6.3 years), mean BMI (30.8 ± 3.0), mean tumor size (3.89 ± 3.81 cm), mean RENAL nephrometry score (8.4 ± 7.9), mean console time (113.3 min ± 126.3 min), mean EBL (160.6 ml ± 176.9 ml) and mean LOS (1.8 days ± 3.0) were statistically comparable between Group 1 and 2, respectively. Preoperative ASA score was statistically different between Group 1 and Group 2 (2.3 ± 0.63 vs. 2.7 ± 0.66; P = 0.006).

We found a statistically significant difference in mean WIT (p = 0.00015) in Group 1 (23.9 min ± 7.5) vs Group 2 (17.9 minutes ± 5.3) and mean delta eGFR (p = 0.031) in Group 1 (12.5 ± 17.8) vs. Group 2 (4.1 ± 12.3). Mean follow-up was 7 months (Group 1) vs 5.6 months (Group 2). There were 2 postoperative complications (Claven grade ≥ 2) in Group 1, and 1 in Group 2.

CONCLUSIONS: In our series, early arterial unclamping resulted in a statistically significant reduction in warm ischemia time and change in eGFR during RAPN, but was not associated with alterations in blood loss, console time, postoperative complications or length of stay.

Source of Funding: none

MP18-16 OUTCOMES OF PARTIAL NEPHRECTOMY IN PATIENT WHO MEET PERCUTANEOUS ABLATION CRITERIA

Mark Ball*, Michael Gorin, Gautam Jayram, Mohamad Allaf, Baltimore, MD

INTRODUCTION AND OBJECTIVES: The treatment options for small renal masses are partial nephrectomy (PN), ablation and active surveillance. Previous series have compared oncological outcomes between PN and percutaneous ablation; however, these series include considerable selection bias. We sought to compare patients who met criteria for percutaneous ablation but underwent robotic PN to the rest of our robotic PN cohort.
**Table 1. Demographic and Perioperative Characteristics**

<table>
<thead>
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<th>Characteristic</th>
<th>Pre criteria</th>
<th>Meet Most Criteria</th>
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<td>Age (yr)</td>
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<td>50.3</td>
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<tr>
<td>Male (%)</td>
<td>25 (31.3)</td>
<td>17 (40.2)</td>
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<tr>
<td>BMI</td>
<td>26.3</td>
<td>20.9</td>
<td>0.34</td>
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<tr>
<td>EBL (ml)</td>
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<tr>
<td>ASA</td>
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<td>1 (0–3)</td>
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<tr>
<td>Mean Tumor Size (cm)</td>
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<td>2.0</td>
<td>0.001</td>
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<tr>
<td>Warm Ischemia Time (min)</td>
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<tr>
<td>Retourism</td>
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<tr>
<td>Complications</td>
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<td>48 (18.6)</td>
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</table>

**RESULTS:** Overall, 264 robotic partial nephrectomies were identified. Of these, 40 met ablation criteria while 224 did not. Among preoperative characteristics, Age and BMI were similar in both groups; however females were more likely to meet ablation criteria (p = 0.0085). Among operative characteristics, mean tumor size and warm ischemia time were similar. Mean tumor size at final pathology was larger for patients who did not meet ablation criteria (2.8 cm vs 2.1 cm, p value = 0.003. Among post-operative complications, similar overall and when stratified by Clavien grade. There were no recurrences in either cohort.

**CONCLUSIONS:** Surgical outcomes are relatively similar between laparoscopic and robot-assisted laparoscopic radical nephrectomy procedures. Costs are significantly lower with pure laparoscopic procedures. However, higher stage tumors and retroperitoneal lymph nodes are more readily removed when the robot is used.

Source of Funding: None

**METHODS:** Our departmental robotic PN was queried for patients who met criteria for percutaneous ablation – solitary lesions less than 3 cm, located posteriorly. A total of 40 cases were identified. These were compared to the rest of the PN cohort. Demographics, perioperative characteristics and recurrence data were compared.

**RESULTS:** Overall, 264 robotic partial nephrectomies were identified. Of these, 40 met ablation criteria while 224 did not. Among preoperative characteristics, Age and BMI were similar in both groups; however females were more likely to meet ablation criteria (p = 0.0085). Among operative characteristics, estimated blood loss (EBL), operative time, and warm ischemia time were similar. Mean tumor size at final pathology was larger for patients who did not meet ablation criteria (2.8 cm vs 2.1 cm, p value = 0.003. Among post-operative complications, similar overall and when stratified by Clavien grade. There were no recurrences in our cohort, and the majority of complications were Clavien 1. Ablation remains an alternative treatment option.

Source of Funding: None

**MP18-17 ROBOT-ASSISTED VERSUS PURE LAPAROSCOPIC RADICAL NEPHRECTOMY: ARE ADDITIONAL COSTS OFFSET BY TECHNICAL GAINS?**

Scott Tobis, Helen Levey*, Anees Fazili, Justin Houman, Deep Trivedi, Bryce Allio, Tamara John, Emelian Scosyrev, Jean Joseph, Hani Rashid, Guan Wu, Rochester, NY

**INTRODUCTION AND OBJECTIVES:** Radical nephrectomy is still performed in a pure laparoscopic fashion in some centers with access to a robot, primarily due to concerns over cost-effectiveness. The objective of the present study was to compare traditional and robot-assisted laparoscopic radical nephrectomy with respect to operative outcomes and cost data.

**METHODS:** Patients undergoing laparoscopic or robot-assisted laparoscopic radical nephrectomy at our institution between 2007 and 2011 were included in this retrospective study. Hospital financial records were analyzed for each patient's surgical hospitalization. Charges, expected revenues, and costs generated during the surgical admission were obtained from the hospital finance department. Distributions of continuous variables were compared between the laparoscopic vs. robotic cases using the Wilcoxon-Mann-Whitney test or the t-test (as appropriate). Distributions of categorical variables were compared with Fisher’s exact test.

**RESULTS:** Of the 207 patients included, 114 were laparoscopic and 93 robot-assisted procedures. There were no significant differences in the age, BMI, or Charlson score of either group. Among patients with a tumor, robotic cases were performed on significantly higher clinical stages compared to laparoscopic cases (p = 0.02). Mean estimated blood loss was higher in the robotic group, 230 mL (range, 20–1650) versus 146 mL (20–1000), p = 0.006. Mean operative times were 190 min (117–416) and 187 min (82–325) in the robotic and laparoscopic groups, respectively (p = 0.95). Retroperitoneal lymph node dissection was performed more frequently in the robotic group (42% vs 8%, p < 0.001). Pathologic stage T2-4 disease was more common on final pathology in the robotic group (46%) compared to the laparoscopic group (25%, p < 0.001). There were no significant differences in positive margins (4 robotic, 2 laparoscopic) or major complications (Clavien grade ≥ 3b) between the two groups (5 each). Mean revenues expected for each procedure were similar (laparoscopic $12,663 and robotic $13,257, p = 0.39), but the average total cost was significantly lower in the laparoscopic group ($7,979) compared to the robotic group ($10,554), p < 0.0001.

**CONCLUSIONS:** Surgical outcomes are relatively similar between laparoscopic and robot-assisted laparoscopic radical nephrectomy procedures. Costs are significantly lower with pure laparoscopic procedures. However, higher stage tumors and retroperitoneal lymph nodes are more readily removed when the robot is used.

Source of Funding: None

**MP18-18 THE “EUNORRHAPHY”: A MODIFIED SLIDING CLIP RENORRHAPHY USING A DOUBLED-ARMED BARBED SUTURE FOR ROBOTIC PARTIAL NEPHRECTOMY**

Christopher Reilly*, Elton Lluiani, Blake Moore, Zihao Lee, David Lee, Jack Mydlo, Daniel Eun, Philadelphia, PA

**INTRODUCTION AND OBJECTIVES:** As robotic assisted partial nephrectomy (RAPN) has increased in popularity, the procedure has undergone numerous technical modifications which have simplified the technique and improved operative parameters. We have developed a modification of the sliding clip renorrhaphy, which involves a double armed barbed suture, that we feel significantly decreases the technical difficulties involved with the use and transfer of multiple needles during the repair. We present the data from our series of RAPN utilizing this technique.

**METHODS:** 158 patients underwent RAPN by a single surgeon (DDE) between September 2010 and May 2013, of which 115 were performed using this renorrhaphy technique. 32 patients were excluded from analysis due to multiple tumors resected, concomitant procedures, off clamp resection or subsegmental arterial clamping. The charts of the remaining 83 patients were reviewed retrospectively.

Our technique involves looping a 6” 3-0 V-Loc® (CV-23 needle) and a 12” 0 V-Loc® (GS-21 needle) barbed suture together. The larger suture is placed in to out at the apex of the parenchymal defect, and locked in place at the level of the capsule with a clip. The 3-0 suture is then used to close the collecting system and any
vessels in a running fashion, and is anchored at the completion of this layer outside the capsule with a clip. The capsular closure is then performed with the 0 arm of the suture in a horizontal mattress fashion, anchoring each capsular exit point with a sliding clip.

RESULTS: Mean patient age was 62 years (29–86), mean patient ASA 2.5 (1–4), mean BMI 30.8 (19.7–61.7), mean pathologic tumor size 3.88 cm (0.9–15), mean RENAL Nephrometry score 8.1 (4–11).

Mean console time was 120 min (52–229), mean warm ischemia time 20.3 min (9–45), mean EBL 163 mL (25–600), and mean hospital length of stay 1.5 days (1–8). There were no open conversions and we had one intraoperative complication of an upper pole segmental arterial laceration that was suture repaired. There were 3 postoperative complications of Clavien grade ≥ 2 and one positive margin.

CONCLUSIONS: The Eun Renorrhaphy modification using a sliding clip technique on a double armed barbed suture appears to be safe and effective.

Source of Funding: none

MP18-19 MINIMALLY INVASIVE PARTIAL NEPHRECTOMY VERSUS RENAL CRYOABLATION FOR SMALL RENAL MASSES

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INTRODUCTION AND OBJECTIVES: Minimally invasive partial nephrectomy (MIPN) is the first-line option for the management of small renal masses (SMRs). Renal cryoablation (RC) is being increasingly offered to patients. We compared the perioperative, functional, and oncologic outcomes of MIPN and RC in the treatment of patients with SMRs.

METHODS: Retrospectively reviewed the medical records of 264 patients who underwent minimally invasive nephron-sparing approach (percutaneous renal cryoablation, laparoscopic renal cryoablation, laparoscopic partial nephrectomy, and robotic partial nephrectomy) as a primary treatment for renal mass from January 2003 to March 2013. The tumors were divided into two groups according to the procedure performed: renal cryoablation (percutaneous and laparoscopic renal cryoablation) and minimally invasive partial nephrectomy (laparoscopic and robotic partial nephrectomy).

RESULTS: A total of 271 SMRs were identified in 264 patients (RC, n = 123; MIPN, n = 148). Patients undergoing MIPN were significantly younger (mean age: 60.6 years vs 65.8 years; P < 0.0001). Patients treated under RC were more likely to have a solitary kidney and previous surgery on the ipsilateral kidney (P = 0.003 and P = 0.013, respectively). Median renal mass size (cm) was larger in the MIPN group (3.0 vs 2.4; P < 0.0001). There was no difference in the incidence of perioperative complications (14.6% for RC vs 23.6% for MIPN; P = 0.062). RC was associated with a shorter mean operative and anesthesia time (P < 0.001 and P < 0.0001, respectively), and a shorter mean hospital stay (P < 0.0001). Patients who underwent RC had a significantly higher immediate and delayed treatment failure rate (8.9% vs 2.0%; P = 0.01). The 3-, 5-, and 10-year recurrence-free survival rate was 94.9%, 86.3% and 86.3% and 97.4%, 97.4% and 91.3% for the RC and MIPN groups, respectively (P = 0.123). The 10-year disease-free survival probability was 95.5% for patients in the RC group and 98.5% for patients in the MIPN group (P = 0.930). When comparing exclusively the eGFR postoperative day 1 value between both groups, the MIPN group had a significantly lower value compared to the RC group (P = 0.019) and a significantly reclassification to a higher chronic kidney disease stage (P = 0.033).

CONCLUSIONS: Renal cryoablation and minimally invasive partial nephrectomy remain viable treatment options in the management of SMRs. There were no differences in complication rates. Although MIPN had a lower local recurrence rate, there was an equivalent treatment effect when patients initially treated under RC were salvaged.

Source of Funding: none

MP18-20 ROBOTIC PARTIAL NEPHRECTOMY IN PT1B AND LARGER RENAL MASSES: SINGLE INSTITUTION ANALYSIS WITH 3 YEAR FOLLOW UP

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INTRODUCTION AND OBJECTIVES: Robotic partial nephrectomy has become an established mechanism to afford patients the advantages of a minimally invasive procedure for small renal masses. The outcomes of larger or more aggressive tumors, particularly those greater than 4 cm have not been fully described. Here we report outcomes from our institution for patients with renal masses size 4 cm or larger. In addition, we compare these to surgeries performed on masses less than 4 cm with focus on perioperative outcomes and long-term renal function.

METHODS: 307 consecutive patient undergoing robotic partial nephrectomy at a single institution were include in this analysis. Patients were classified as those having large renal masses (4 cm or larger) based on preoperative axial imaging. Chronic kidney disease stage progression was defined as increasing from stage I or II (GFR > 60) to stage III (GFR < 60) or higher. Patients who progressed from Stage III to Stage IV or higher were also included. Complications were based on the Clavien Scale with complication of grade III or high as considered major complications. All peri and postoperative events were recorded prospectively.

RESULTS: 52 (17%) of patients had renal masses > 4 cm. Of these, 76% were malignant lesions and this was similar to the smaller renal mass cohort (p = 0.73). Patients with larger renal masses had a fewer percentage undergoing unclamped procedure (10% vs 20%, p = 0.05) and required more warm ischemia time when they did have renal hilar clamping (median 24 vs
17 min, \( p = 0.001 \)). Median estimated blood loss was greater in this cohort (150 vs 75 mL, \( p = 0.001 \)) and there was a larger drop in post op day 1 hemoglobin concentration in this cohort as well (−17% vs −15%, \( p = 0.03 \)). Overall complications rate was slightly higher (\( p = 0.03 \)), however the major complication rate was similar between both cohorts (10% vs 8%, \( p = 0.7 \)). Kaplan meier curve demonstrating progression of CKD stage is included in figure 1, with no difference between the two cohorts (\( p = 0.39 \)).

CONCLUSIONS: Overall, robotic partial nephrectomy can be performed safely in patients with renal masses 4 cm or larger. The major complication rate and long term renal functional outcomes appear similar to patients with smaller renal masses.

Source of Funding: None

MP18-21 EQUIVOCAL OVERALL SURVIVAL IN ROBOTIC, LAPAROSCOPIC, AND OPEN NEPHROURETERECTOMY AT INTERMEDIATE FOLLOW UP

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INTRODUCTION AND OBJECTIVES: Upper urinary tract urothelial carcinomas (UTUC) comprise a small subset of urinary tract cancers. Traditional therapy is an open (ONU) removal of the kidney, ureter, and bladder cuff. Developments in surgical technique offer less invasive options, such as laparoscopic (LNU) and robotic (RALNU) approaches, yet data comparing outcomes in these three groups are still unsatisfactory. The purpose of this study is to evaluate overall survival in patients undergoing ONU, LNU and RALNU at a high volume tertiary care center.

METHODS: This is a retrospective single institution chart review of patients with UTUC treated from August 2006 to June 2012 with ONU, LNU, or RALNU. Surgical approach was at the discretion of the 8 attending physicians. Primary outcome assessed was survival based on total follow up months. Survival was plotted on Kaplan-Meier curves, and differences between groups evaluated with log rank analysis. Univariate and multivariate cox proportional hazards analysis were conducted with a model including effect of age, pathologic tumor stage, grade, and surgical approach on survival.

RESULTS: 22 patients had ONU, 48 had LNU, and 34 had pure RALNU. Mean follow up was 28 months (range 1–66). Mean overall survival was 39 months. Cohorts were well matched according to age (\( p = 0.60 \)) and BMI (\( p = 0.90 \)). In our cox proportional hazards analysis, older patients had higher risk of overall mortality (table 1). High grade tumors and higher pathologic stage were significantly related to mortality risk on univariate, but not multivariate analysis. In our univariate analysis, no significant difference in survival comparing either laparoscopic or robotic to an open approach was detected and therefore this wasn’t included in the multivariate model.

CONCLUSIONS: This study shows that survival outcomes at a high volume UTUC treatment center may be equivocal between the three approaches. While retrospective studies have inherent shortcomings compared to prospective randomized controlled trials, our study indicates survival may be equivocal for these approaches.

Source of Funding: Departmental

MP18-22 DEFINING THE LEARNING CURVE OF ROBOTIC PARTIAL NEPHRECTOMY: ANALYSIS OF ISCHEMIA TIMES

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INTRODUCTION AND OBJECTIVES: Minimally invasive, nephron-sparing partial nephrectomy is the optimal treatment for
T1a renal tumors. The learning curve of Robotic partial nephrectomy (RPnx) is one barrier to widespread adoption of this surgical modality. Warm ischemia times (WIT) < 30 minutes have minimal impact on post-operative renal function following (RPnx). Our objective was to define the learning curve by reviewing the number of cases needed to achieve a WIT based on a logarithmic regression to the mean. Previous authors have reported the learning curve for RALPN is between 20–50 cases but there is considerable variability among reported series.

METHODS: Using the prospectively maintained Institutional Review Board approved database, we searched for patients who underwent RPnx, at our facility from August 2008 to January 2013. Demographic, perioperative and oncologic variables were analyzed using Excel and SPSS. Warm ischemia times were placed on a scatter plot, and a logarithmic line-of-best-fit model was used to extrapolate the learning curve based on achievement of the mean. Subset analysis of our first 50 and last 50 cases was also performed.

RESULTS: A total of 204 patients underwent RALPN during this interval. The average WIT for all patients was 18.16 minutes. During the first 50 cases the average WIT was 21.93 minutes, while the last 50 cases the WIT was 17.34 minutes. We extrapolated a learning curve of 36 cases which achieved the regression to the mean ischemia time of 18.16 minutes. Average blood loss was determined to be 235 mL, and the average age at surgery 59.7 years. The average tumor size was 3.12 cm. Review of our database showed the average tumor size was larger in our more recent years. The average tumor size was 3.12 cm. Review of our data-based showed the average tumor size was larger in our more recent cases.

CONCLUSIONS: Review of our experience with implementing robotic assisted partial nephrectomy at our institution found a learning curve is overcome reliably at 36 cases. Other outcomes that may serve as indicators of the robotic learning curve include estimated blood loss, operative time and tumor margin status. Comparing these other measures to ischemia times is a potential area of further inquiry.

Source of Funding: none

MP18-24 DO WE NEED TO CLAMP THE RENAL HILUM LIBERALLY DURING THE INITIAL PHASES OF THE LEARNING CURVE FOR ROBOT-ASSISTED NEPHRON-SPARING SURGERY?

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INTRODUCTION AND OBJECTIVES: We aimed to compare the results of our initial robot-assisted nephron-sparing surgeries (RANSS) performed with or without hilar clamping.

METHODS: After the adaptation of robotic technology in our institution, as of May 2010, a total of 38 RANSS have been performed by a single surgeon. Data were retrospectively collected from a prospectively structured database. Patient and tumor characteristics, perioperative and functional results were abstracted from this database. Tumoral complexity was scored based on R.E.N.A.L., P.A.D.U.A. and C-index methods. Complications occurring within 30 days of surgery were recorded according to the modified Clavien system. Estimated glomerular filtration rate (eGFR) was calculated using the modification of diet in renal disease equation. RANSS which were carried under perfused conditions (group 1, n = 28) and those that required warm-ischemia (group 2, n = 10) were compared.
RESULTS: Mean patient age was 50.3 and 49.5 years in group 1 and 2, respectively (p = 0.867). Mean American Society of Anesthesiologists score did not differ significantly between 2 groups (1.43 in group 1 vs. 1.3 in group 2, p = 0.18). The difference between two groups was insignificant regarding mean tumor size (3.9 cm in group 1 vs. 4.0 cm in group 2). Although tumors operated under warm-ischemia had higher mean R.E.N.A.L. (6.8 vs. 5.8), P.A.D.U.A scores (7.9 vs 7.2) and lower mean C-index (1.4 vs. 1.5) value, their difference remained statistically insignificant.

Mean operative duration was nonsignificantly shorter in group 1 (144.6 vs. 156.0 minutes). Mean warm-ischemia time was 20.5 minutes in group 2. Mean estimated blood loss amount and mean length of hospitalization was similar (p > 0.05). The most common pathologic diagnosis was clear cell renal cell carcinoma in both groups.

Two patients in group 1 and 1 patient in group 2 required blood transfusion postoperatively. A total of 8 Clavien grade 2 and higher complications occurred within 30 days of surgery (4 in each group). Open conversion rates did not differ significantly (4/28 in group 1 vs. 1/10 in group 2). The difference between 2 groups in terms of the mean postoperative change in eGFR was insignificant. We did not encounter any local recurrence after a mean follow-up of 14.45 months.

CONCLUSIONS: Perioperative and functional outcomes of the initial RANSS performed without hilar clamping were similar to that of RANSS performed under ischemic conditions. Creating warm-ischemic conditions during RANSS should not be a liberal decision, even in the initial phases of the learning curve.

Source of Funding: none

MP18-25 LAPAROSCOPIC NEPHROURETERECTOMY IS A SAFE AND ADHERENT MODALITY IN PATIENTS WITH UPPER TRACT UROTHELIAL CARCINOMA IRRESPECTIVE OF BODY MASS INDEX

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INTRODUCTION AND OBJECTIVES: Obesity has been one of the social health problems in all over the world including Japan. In terms of laparoscopic surgery, physician takes into consideration of patient’s body weight because obesity relatively makes it difficult to perform the meticulous operation in the narrow surgical space like retroperitoneal cavity. We evaluated the association of body mass index (BMI) with perioperative outcomes in patients who underwent laparoscopic or open nephroureterectomy.

METHODS: This study included the 78 patients who had been diagnosed with upper tract urothelial carcinoma based on histological examination. From January 2000 to March 2012, we analyzed the consecutive patients who treated with laparoscopic (Lap group, n = 29) or open nephroureterectomy (Open group, n = 49) in this retrospective single-center study. In laparoscopic surgery, nephroureterectomy was performed via retroperitoneal approach following open partial cystectomy. These patients were divided into the following two groups according to BMI, the normal BMI group (less than 25 kg/m²) and high BMI group (more than or equal to 25 kg/m²) using a definition in The Japanese Society for the Study of Obesity. Perioperative parameters were analyzed in both BMI and treatment groups.

RESULTS: Seventeen patients were in high BMI group including 9 in Lap group and 8 in Open group. Estimated blood loss (EBL) was significantly decreased in Lap group compared to Open group regardless of BMI (p = 0.016 and p = 0.019, respectively). There were no significant differences of EBL and operative time in Lap group irrespective of BMI. EBL was significant higher in Open group with high BMI than with normal BMI (p = 0.019). A linear correlation between BMI and EBL was shown in Open group (p = 0.01, r² = 0.20). However, there were no correlations of BMI with EBL and with operative time in Lap group. In addition, there were no statistical differences in terms of pathologic stage and bladder cancer recurrence after the surgery between Lap and Open group.

CONCLUSIONS: Laparoscopic nephroureterectomy through retroperitoneal approach is safely performed with significantly reduced EBL irrespective of BMI in patient with upper tract urothelial carcinoma.

Source of Funding: none

MP18-26 LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH SEGMENTAL RENAL ARTERY CLAMPING

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INTRODUCTION AND OBJECTIVES: Warm ischemic (WI) injury is inevitable in conventional laparoscopic partial nephrectomy (LPN). A novel technique by clamping segmental renal artery can potentially minimize WI injury and preserve postoperative renal function at most. The present study was to evaluate the feasibility and efficiency of this novel technique.

METHODS: From January 2008 to February 2013, 278 patients with renal tumor received LPN with segmental renal artery clamping through retroperitoneal approach. Before operation, all patients received computer tomography angiography (CTA) with three-dimension reconstruction of parenchyma and branches of renal artery. Split renal function was evaluated in all cases through glomerular filtration rate (GFR) study before and 3 mo after the operation. By the orientation of radioimaging study, we dissected the target segmental artery and clamped it with bulldog. Resection of tumor and parenchymal renorraphy were performed as conventional methods.

RESULTS: All LPNs were completed without conversion to open surgery or total nephrectomy. The tumor size was 1 cm to 8.6 cm with mean diameter 3.9 cm. The mean operative time was 83 min with mean blood loss 178 ml (range from 50 to 800 ml). The mean WI time was 21 min. The pathologic analysis revealed 197 clear cell carcinoma, 38 PEComa and 7 oncocytoma, without positive margin in all specimens. 3 months postoperative GFR examination shown fine function of the affected side.

CONCLUSIONS: LPN with segmental artery clamping is safe and feasible in clinical practice with minimizing the intraoperative WI injury.

Source of Funding: None
MP19-01 EMERGENCY SEMIRIGID URETEROSCOPY FOR MANAGEMENT OF DIFFERENT URETERAL DISEASES

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INTRODUCTION AND OBJECTIVES: Objectives: To evaluate outcome and early complications of semirigid ureteroscopy (URS) as an emergency procedure in management of different ureteral diseases.

METHODS: A retrospective analysis of a total 88 patients with 91 ureterorenal units (3 bilateral at same session) underwent emergency semirigid URS, from August 2002 to December 2012. The mean age was 46.4 (±13.365) years of 57 males and 31 females. Eighteen (20.5%) cases of emergency URS were performed in solitary or single functioning ureterorenal units. Spinal anesthesia was reported to in 84 (95.5%) patients and general in only 4 (4.5%) patients. More than 77% of cases were Spinal anesthesia was reported to in 84 (95.5%) patients and 31 females. Eighteen (20.5%) cases of emergency URS were performed to manage ureteral pathology, including hydronephrosis, ureteral stricture, and migrated ureteral stents. The mean patient age was 55.3 years (range 30–78). The mean time from transplant to first endoscopic procedure was 20.9 months and the median time was 14 months. Stents were successfully placed in 47 of the 55 procedures for a success rate of 85.5%. The use of a French angled angiographic catheter was utilized in all cases in order to facilitate ureteral access. Of the 8 failures, the stent would not pass over an appropriately positioned guidewire (n=3), the ureteral orifice could not be accessed due to severe obstruction (n=3), or there was severe angulation of the distal ureter (n=2). These patients were managed with percutaneous nephrostomy placement.

RESULTS: The most common causes of emergencies were acute obstructive renal failure in 51 (58%) cases, and persistent renal colic in 26 (29.5%) cases. Ureteral stone extraction was the major indication for URS in 69 (75.8%) ureterorenal units. The second frequent indication was manipulation for ureteral stenting in 16 (17.6%) ureterorenal units. Intraoperative complications were found in four ureterorenal units (4.4%), ureteral perforation was reported in two ureters (2.2%), ureteral mucosal injury in only one ureter (1.1%) and missed stone in one ureter (1.1%). The overall success rate is 91.2% (83/91 ureterorenal unite). The main cause of failure was access failure in 5 ureters (5.5%), due to ureteric stricture, kinks and unidentified orifice. Early postoperative complications were in form of fever in 5 cases (5.6%), and urosepsis in 2 Cases (2.3%). They were managed conservatively. Forty six (52.3%) cases were performed by urologists under training, who were supervised by senior staff member. There is no significant difference between senior staff and trainee regarding success rate (90.7% and 91.7%, p=0.55) intraoperative complications (4.6% and 4.2%, p=0.59) and early post operative complications (7.4% and 8.3%, p=0.67) respectively.

CONCLUSIONS: Emergency semirigid URS proved to be safe, successful, immediate and definitive intervention for different ureteral diseases.

Source of Funding: Suez Canal University

MP19-02 RETROGRADE ENDOSCOPIC URETERAL STENT PLACEMENT IN TRANSPLANT KIDNEYS: TECHNIQUE AND OUTCOMES OF A CONTEMPORARY SERIES

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INTRODUCTION AND OBJECTIVES: Following renal transplantation, ureteral complications that compromise allograft function are often acutely managed via percutaneous renal access. Retrograde endoscopic ureteral access in this setting is technically challenging and may be associated with a low success rate. As an endoscopic approach can offer a less morbid treatment option, retrograde ureteral stent placement may be utilized to manage chronic, long-term complications without the need for an externally-draining appliance. This may offer improved quality of life and perhaps a decreased risk of urinary tract infection in a susceptible population. We reviewed our experience in a contemporary series of patients undergoing retrograde ureteral stent placement in transplanted kidneys for the management of ureteral complications.

METHODS: The records of all patients (9/2003–5/2013) presenting at a single tertiary medical center with ureteral complications after renal transplantation were reviewed. Patients that underwent attempted retrograde management of the complication were included in the analysis. All patients had undergone Lich-Gregoir ureteral reimplantation at the right or left bladder dome.

RESULTS: A total of 55 retrograde endoscopic procedures were performed to manage ureteral pathology, including hydronephrosis, ureteral stricture, and migrated ureteral stents. The mean patient age was 55.3 years (range 30–78). The mean time from transplant to first endoscopic procedure was 20.9 months and the median time was 14 months. Stents were successfully placed in 47 of the 55 procedures for a success rate of 85.5%. The use of a French angled angiographic catheter was utilized in all cases in order to facilitate ureteral access. Of the 8 failures, the stent would not pass over an appropriately positioned guidewire (n=3), the ureteral orifice could not be accessed due to severe obstruction (n=3), or there was severe angulation of the distal ureter (n=2). These patients were managed with percutaneous nephrostomy placement.

CONCLUSIONS: Retrograde endoscopic access to the transplanted ureter is challenging due to the location of the ureteral orifice on the bladder dome. Endoscopic management of ureteral complications after renal transplantation may be a suitable option for certain individuals and offers a less morbid treatment option then a percutaneous or open surgical approach. In our experience, the use of an angled angiographic catheter is a valuable tool for accessing the transplant ureteral orifice.

Source of Funding: None

MP19-03 SPECTROSCOPIC HIGH-INTENSITY FOCUSED ULTRASOUND (HIFU) MONITORING IN KIDNEY

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INTRODUCTION AND OBJECTIVES: In this study we used a quantitative tissue spectrometer- Zenascope PC1 to quantitatively monitor porcine kidneys during HIFU ablation. HIFU is used to precisely destroy cancerous tissue by coagulation necrosis with heat generated by focusing sonic energy. HIFU has a lot of potential in cancer management; however, little attention has been paid toward the monitoring of the ablation site. The current
MP19 IMAGING, UROLITHIASIS & NEW TECHNIQUES

MP19-04 FLUORESCENCE STAINING STRATEGIES FOR HISTOLOGICAL ASSESSMENT OF PROSTATE BIOPSY

Kate Elfer, New Orleans, LA, Andrew Moore*, Hillary Kimbrell, New Orleans, LA, J. Quincy Brown, New Orleans, LA

INTRODUCTION AND OBJECTIVES: The success of surgical removal of a prostate tumor depends on achieving negative surgical margins (NSM). Histological examinations with hematoxylin and eosin (H&E) stains of sections taken from the excised specimen are performed to confirm NSM. Because these exams are post-operative, a positive surgical margin cannot be easily corrected. Our goal is to develop a fast microscopy system and fluorescent staining approach for intraoperative tumor imaging. In this study, we are systematically optimizing fluorescence staining to determine the similarity of histological detail on prostate biopsies between fluorescence and H&E. Two fluorescent dyes are used to stain different features: a cationic dye and anionic dye. For optimum staining results, we are investigating the effects of pH and dye concentration on the staining selectivity. The fluorescent stains will then be compared to the H&E stain for later use in NSM assessment.

METHODS: For stain optimization, cationic dyes were adjusted from low to neutral pH levels; anionic dyes were adjusted from neutral to high pH levels. Then, the concentration of the dyes was escalated until maximum fluorescence intensity was achieved. Counter-staining procedures were optimized in order to overlay one type of dye with the other for replication of the effects of the H&E stain. Each tissue specimen was imaged with a fluorescence microscope followed by standard H&E staining. The staining similarities, and clinical diagnosis of each specimen using A) fluorescence imaging and B) H&E imaging was compared.

RESULTS: Preliminary data has been acquired for altering the pH of the cationic dye, acridine orange, on a prostate biopsy specimen, seen in figures one and two: a prostate biopsy section (4 microns) stained with acridine orange. A) pH ~ 3 B) pH ~ 4.5 C) pH ~ 6.

CONCLUSIONS: As shown above, as pH increases, the amount of structures stained also increase. Here, decreasing pH is associated with more nuclear staining selectivity. Further tests will be done with other cationic dyes, as well as anionic (cytoplasmic and stromal selective) dyes at varying pH and concentration.

Source of Funding: NIH R21CA159936

MP19-05 IN VIVO OPTICAL COHERENCE TOMOGRAPHY FOR THE EVALUATION OF UPPER URINARY TRACT UROTHELIAL CARCINOMA: INITIAL RESULTS FROM A PILOT STUDY

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INTRODUCTION AND OBJECTIVES: Minimal invasive endoscopic treatment for Upper Urinary Tract Urothelial Carcinoma (UUT-UC) is used in patients with low grade, low stage disease. For this reason, reliable information on tumour stage and grade is imperative. Whereas diagnostic uroteroreoscopy combined with histology is the gold standard, the evaluation is sometimes inconclusive. Optical Coherence Tomography (OCT) is a new high resolution imaging technique based on back-scattered light intensity in depth, which is hypothetically lower in malignant tissue due to larger and irregularly shaped nuclei with a higher refractive index. These changes can be derived from the light scattering property of OCT images, which is quantified by
Each patient had prolonged urine leakage (urinary fistulae after partial nephrectomy between 2007 and 2013. METHODS: Ten patients with UUT-UC underwent URS that included the simultaneous use of 1300 nm OCT. Imaging was performed at places that showed tumor growth. For lesions visible in the OCT image, the attenuation coefficient ($\mu_{oct}$) and presence of the basal membrane under the lesion was determined. OCT diagnosis was compared with biopsy histology and histology findings in nephroureterectomy specimens. RESULTS: In lesions with histology confirmed G1–2 UUT-UC median (interquartile range) $\mu_{oct}$ was 2.296 mm$^{-1}$ (1.505–2.814) compared to 3.528 mm$^{-1}$ (2.744–3.941) in histologically confirmed G3 UUT-UC lesions. Individual tissue layers are clearly seen and the basal membrane appears as a dark line. Presence of a dark layer underneath the lesion indicates a non-invasive tumour. Interruption of this line was seen in invasive lesions. CONCLUSIONS: OCT is a high potential imaging modality that is able to distinguish invasive lesions and non-invasive lesions. In addition there is a difference in $\mu_{oct}$ between low grade and high grade tumour, suggesting that OCT is able to provide information on tumour stage and grade. As this is a pilot study, validation of these results is needed in an extended study. Source of Funding: none

MP19-06 ENDOCOSMIC MANAGEMENT OF URINE LEAKS AFTER PARTIAL NEPHRECTOMY WITH URETEROSCOPIC RETROGRADE FIBRIN SEALANT

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INTRODUCTION AND OBJECTIVES: Urine leak is a known complication of partial nephrectomy with a reported incidence of 3–6%. Especially when the leak fails to resolve with traditional methods of drainage such as ureteral stent placement, patients are often subjected to significant morbidity. Long term failures may be managed by nephrectomy. We present 3 cases of prolonged urine leak after partial nephrectomy managed with ureteroscopic injection of fibrin glue. This series confirms that the use of fibrin sealant is a viable option in the treatment algorithm for urine leak after partial nephrectomy.

METHODS: This is a case series of 3 patients that developed urinary fistulae after partial nephrectomy between 2007 and 2013. Each patient had prolonged urine leakage (> 3 months) following either open or robotic partial nephrectomy that had failed to resolve with ureteral stent placement and bladder drainage using either a suprapubic or Foley catheter. Each patient underwent ureteroscopy with laser ablation or fulguration of the fistula tract using the holmium laser or a Bugbee, followed by retrograde injection of fibrin sealant into the tract through two side-by-side 5 Fr open-ended ureteral catheters.

RESULTS: Three patients (mean age 67, range 64–70 years) underwent retrograde ureteroscopic ablation of their fistula tract followed by instillation of fibrin sealant by the same surgeon at a tertiary-care center. All patients also underwent placement of a retroperitoneal drain in the same setting or pre-operatively. A ureteral stent was also left in place. Initial success was achieved in 67% of the cases (2/3 patients) as determined by cessation of drainage from percutaneous drains and post-operative cross-sectional imaging at 4–8 weeks. One patient subsequently required combined open renal exploration, ureteroscopy, and closure of his fistula with success. All three patients had their kidneys saved.

CONCLUSIONS: Retrograde ureteroscopic ablation and injection of fibrin sealant can be a viable technique for the management of post-operative urinary fistula after partial nephrectomy. Larger series are needed to refine this technique and to determine long-term durability and success.

Source of Funding: none

MP19-07 THE CLINICAL UTILITY OF MRI IN CHARACTERIZING THE DYNAMIC EFFECTS OF 5-ALPHA REDUCTASE INHIBITORS ON PROSTATE ZONAL VOLUMES

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INTRODUCTION AND OBJECTIVES: Volumetric effects of 5x reductase inhibitors (5ARI) on the prostate have been studied using transrectal ultrasound, which provides poor visualization of prostatic zones. We investigate the temporal impacts of 5ARI on prostate zonal volumes and the clinical utility of prostate segmentation based on high-resolution MRI in men with enlarged prostates.

METHODS: A retrospective cohort study of patients who underwent serial 3.0 Tesla prostate MRI from 2007 to 2012 in the setting of PSA elevation and prior negative biopsy or active surveillance protocol for low risk prostate cancer. Nineteen patients who had benign prostatic hyperplasia (BPH) with baseline MRI prior to 5ARI initiation and subsequent MRI follow-up were selected. An age-matched group of 40 patients who had not received any form of therapy was randomly selected as the control cohort. Total prostate volume (TPV), transition zone volume (TZV), and peripheral zone volume (PZV) were calculated using 3D reconstructions and prostate segmentation from T2-weighted MRI. Changes in volumes were correlated with the duration of treatment using linear regression analysis.

RESULTS: Following over two years of treatment, 5ARI decreased TPV significantly (16.7%, p < 0.0001). There were similar decreases in TZV (7.5%, p < 0.001) and PZV (27.4%, p = 0.0002) from baseline. In the control group, TPV and TZV increased (p < 0.0001) while PZV remained stable. When adjusted for the natural growth of prostate zonal volume dynamics seen in the control cohort, approximately 60% reduction of TPV from 5ARI
RESULTS: During the study period a total of 8 kidneys from cadaveric donors were screened, urinary lithiasis was present in 6 organs (75%), 4 organs from 2 male donors and 2 organs from 1 female donor, the mean donor age was 36 years (range 25 to 50), one organ was a horseshoe kidney. In total 15 stones were found, the mean stone diameter was 2.2 mm (range 1 to 6 mm), stones were located in a calyx in all cases, the range of stone density was from 154 to 764 HU (mean 285 HU). Three cases were further corroborated by ex vivo flexible nephroscopy, 5 organs were successfully transplanted, one organ was discarded (HIV positive antibodies), in 2 organs stone extraction was successfully performed at the backtable using flexible nephroscopy, stone baskets and irrigation, 3 organs were transplanted without further therapy and the receptors are currently under surveillance.

CONCLUSIONS: In our small cadaveric kidney donor cohort the incidence of renal lithiasis is considerably higher than previously reported, our findings support, at least in our population, the adoption of NCCT screening for all cadaver kidneys, we are currently investigating the optimal scan parameters. At this point due to the small size of the located stones treatment may not be warranted in every case, however long term surveillance of the stone bearing grafts for complications is ongoing.

Source of Funding: None

MP19-09 REDUCTION OF RADIATION EXPOSURE TO ENDOUROLOGIC SURGEONS WITH THE URO DYN-A-CT
Manuel Ritter*, Marie-Claire Rassweiler, Carolin Hörmann, Mannheim, Germany, Alexandre E. Pelzer, Ingolstadt, Germany, Axel Hacker, Maurice-Stephan Michel, Mannheim, Germany

INTRODUCTION AND OBJECTIVES: In 2011 the worldwide first Uro Dyna-CT has been installed in the endourological operation room (OR) in Mannheim (Germany). The amount of radiation exposed to the surgeon during everyday endourological interventions has been completely unclear. Therefore we wanted to assess the radiation exposure of endourologic surgeons by frequently performed endourologic interventions with the Uro Dyna-CT.

METHODS: During a period of 3 months 13 ureteral stent placements (USP), 15 ureteral stent changing (USC), 19 nephrostomy changes (NC), 5 percutaneous nephrolithotomies (PCNL) and 24 ureterorenoscopies (URS) were assessed. We measured the surgeon’s radiation exposure with one thermoluminescent dosimeter (TLD) at the forehead and one at the surgeon’s ring finger. Each intervention per side was counted and 76 interventions in 64 patients, 40 males and 24 females with a median age of 63.5 [26–91] years were included. TLD were analysed at a central institute (Helmholtz Center, Munich, Germany). The mean effective dose was calculated by the number of performed interventions. Radiation dose detected at the forehead were counted as representative for the lens of the eye and the thyroid.

RESULTS: The mean effective radiation doses detected for the surgeon’s hands were as follows: 0.028 mSv (USP), 0.017 mSv (USC), 0.012 mSv (NC), 1.19 mSv (PCNL) and 0.017 mSv (URS). The doses detected for the surgeons thyroid and eye lenses were: 0.007 mSv (USP), 0.022 mSv (USC), 0.009 mSv (NC), 0.08 mSv (PCNL) and 0.007 mSv (URS).

CONCLUSIONS: In comparison to standard stationary imaging systems in the endourologic OR [1] the radiation exposure to endourologic surgeons can be reduced up to 15 times (URS) if the interventions are performed with the Uro Dyna-CT.

Source of Funding: none

**MP19-10 PRELIMINARY INVESTIGATION OF MICROWAVE ABLATIONS AT 915 MHz IN EX-VIVO AND IN-VIVO PORCINE KIDNEYS**

Karli Pease*, Gideon Lorber, Raymond Leveillee, Nelson Salas, Miami, FL

INTRODUCTION AND OBJECTIVES: Microwave ablation (MWA) produces faster heating over larger volumes of tissue with less susceptibility to heat sink compared to radiofrequency ablation. Permittivity, which is dependent on frequency, differs between the antenna and surrounding tissue, resulting in loss of energy due to reflection at the boundary. A MWA system that offers frequency variability between 902–928 MHz to minimize reflectivity loss and enhance energy output without antenna tip cooling is currently available. The objective of this experiment was to assess the temperatures and ablation sizes in ex-vivo and in-vivo porcine kidneys using the MedWaves AveCure 915 MHz MWA system.

METHODS: Two ablations per kidney were performed in either ex-vivo or in-vivo porcine kidneys using the AveCure 915 MHz System (San Diego, CA) in power mode (24 W) with a single 16 gauge needle. Each ablation was performed at a set temperature of either 96 or 106 °C and irradiation time of 3 or 5 minutes. The needle was inserted 4.0 cm into the kidney at either the upper or lower pole, parallel to Brodel’s line. Temperatures during treatment were measured with 8 fiber optic thermal sensors placed 5 and 15 mm from the antenna axis. Cross lesion volumes, maximum temperatures, and total treatment times (irradiation time plus time between pulses) for each ablation were recorded and compared.

RESULTS: Coagulation zones were ellipsoidal with the major axis in the direction of the needle shaft. In-vivo lesion volumes were smaller than ex-vivo. Coagulation volumes increased with increasing irradiation time at the same set temperature, except for those in-vivo at 96°C due to the number of power stoppages during the 5 minute treatment. Ex-vivo coagulation volumes were significantly different between experiments 1 and 4. Reverse powers over 12 W and subsequent system disruptions were experienced in 4 of the 5-minute trials, resulting in the inability to complete the irradiation, as noted by the maximum temperature variability (Table 1). Ex-vivo cases required longer total treatment time.

CONCLUSIONS: The AveCure 915 MHz MW system with temperature feedback near the probe tip and variable frequency and power output is capable of inducing lesions of various sizes in renal tissue. Reverse power may still be an issue. Additional in-vivo studies will be performed to further support the results.

Source of Funding: none

**Table 1. Ex-vivo (n = 5) and In-vivo (n = 1) Ablation Data**

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Volume (cubic cm)</th>
<th>Max Temp (°C)</th>
<th>Time to complete ablation (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (ex-vivo)</td>
<td>4.12±1.05</td>
<td>92.8±8.13</td>
<td>723±50±17.16</td>
</tr>
<tr>
<td>2 (ex-vivo)</td>
<td>5.77±2.39</td>
<td>95.46±11.27</td>
<td>1297±60±49.86</td>
</tr>
<tr>
<td>3 (ex-vivo)</td>
<td>5.15±1.64</td>
<td>97.67±8.37</td>
<td>524±60±10.2</td>
</tr>
<tr>
<td>4 (ex-vivo)</td>
<td>2.97±1.55</td>
<td>92.05±10.24</td>
<td>970±50±324.59</td>
</tr>
<tr>
<td>1 (in-vivo)</td>
<td>1.71</td>
<td>72.49</td>
<td>245</td>
</tr>
<tr>
<td>2 (in-vivo)</td>
<td>1.083</td>
<td>84.75</td>
<td>375</td>
</tr>
<tr>
<td>3 (in-vivo)</td>
<td>2.100</td>
<td>101.86</td>
<td>306</td>
</tr>
<tr>
<td>4 (in-vivo)</td>
<td>3.318</td>
<td>96.06</td>
<td>485</td>
</tr>
</tbody>
</table>

(Experiment legend: 1: 96°C, 3 min; 2: 96°C, 5 min; 3: 106°C, 3 min; 4: 106°C, 5 min).

**MP19-11 REDUCED RADIATION EXPOSURE OF ENDOUROLOGICAL PATIENTS BY NEW PROTOCOLS IN THE URO DYNAC-CT**

Marie-Claire Rassweiler*, Mannheim, Germany, Rosemarie Banckwitz, Christoph Koebler, Bernd Mueller-Allisaat, Forchheim, Germany, Maurice-Stephan Michel, Axel Haecker, Manuel Ritter, Mannheim, Germany

INTRODUCTION AND OBJECTIVES: The better image quality of a Computed Tomography (CT) is associated with a higher radiation exposure to the patient than conventional X-ray or other imaging modalities. The effective dose of an enhanced CT is 25–35 mSv and of a low dose non contrast CT 0.97–1.9 mSv. With the introduction of the Uro Dyna-CT (Siemens Healthcare, Germany) we have the opportunity of interventional cross sectional 3D-imaging during endourological interventions. We developed new examination protocols to optimize the image quality and reduce the radiation exposure in the Uro Dyna-CT.

METHODS: The protocols were developed with a standard Rando-Alderson phantom. Two artificial stones (Plaster of Paris) were placed in the phantom’s left kidney region. Relevant parameters of the standard abdomen protocol were changed. After each modification another Dyna-CT was performed and two urologists evaluated the image quality regarding detection and visibility of the stones. The dose area product (DAP) served as a corresponding measurement. We developed two stone protocols for high contrast imaging (“Urology stone” and “Urology stone low-dose”). To optimize the examination protocol for soft tissue imaging a Cone Beam phantom (Siemens Healthcare) was used. This phantom contains three different sections of contrast levels in hounsfield units (3–200 HU). We developed a soft tissue protocol with similar image quality but lower radiation dose. To evaluate the effective radiation dose to the patient we embedded 126 thermoluminescence dosimeters (TLDs) in the Rando-Alderson phantom. Every protocol was performed five (Urology Stone low-dose program) respectively. Mean effective dose values per 3D-examination were calculated.

RESULTS: The developed stone protocols for high contrast 3D acquisition program applied a DAP of 549.7 μGy cm² and 163.5 μGy cm² and an effective dose of 1.96 mSv and 0.33 mSv respectively. Soft tissue 3D acquisition program showed a DAP of 5670 μGy cm² and an effective dose of 7.76 mSv.

CONCLUSIONS: Interventional soft-tissue 3D-imaging can be performed with an acceptable radiation dose. High-contrast 3D-imaging in order to identify kidney stones is feasible with extremely low radiation dose. These results encourage to use the advantages of the Uro Dyna-CT interventional 3D-imaging with better image quality for diagnostic and interventional application in Urology.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: To describe the long-term efficacy of a novel technique for persistent and recurrent hemospermia by transurethral seminal vesiculoscopy.

METHODS: Fifty-eight patients with persistent and recurrent hemospermia in our single clinic were successfully performed by transurethral seminal vesiculoscopy since July 2008. The age ranged from 16 to 67 years (mean 32 years), and the course of hemospermia was 6 months to 17 years (mean 30 months). All the patients with hemospermia were not cured by medical treatment or any other physical therapy. The ejaculatory duct and seminal vesicle were conducted to observe under direct vision through the distal seminal tracts using a 4.5/6.5 F rigid ureteroscope.

RESULTS: All the patients with persistent and recurrent hemospermia were confirmed by transurethral seminal vesiculoscopy (23 seminal vesiculitis and 19 seminal stone secondary to them, 7 ejaculatory duct dilation, 5 cysts of seminal vesicle and 4 ejaculatory ducts obstruction). The mean operative time was 35 min (range 10–135 min). There were no complications including injury of urethra and seminal vesicle and postoperative discomforts in the perineal region. The mean follow-up period was 24 months (range 6–52 months). Hemospermia in 53 cases disappeared and 4 patients respectively recurred in 5 to 30 months after receiving transurethral seminal vesiculoscopy. Another one patient with a course of 17 years¡ hemospermia was cured by re-transurethral seminal vesiculoscopy combined with transurethral resection of seminal vesicle cyst.

CONCLUSIONS: The aetiologies of persistent and recurrent hemospermia are mostly associated with seminal vesiculitis and seminal stone secondary to them, 7 ejaculatory duct dilatation, 5 cysts of seminal vesicle and 4 ejaculatory ducts obstruction. The mean follow-up period was 24 months (range 6–52 months). Hemospermia in 53 cases disappeared and 4 patients respectively recurred in 5 to 30 months after receiving transurethral seminal vesiculoscopy. Another one patient with a course of 17 years¡ hemospermia was cured by re-transurethral seminal vesiculoscopy combined with transurethral resection of seminal vesicle cyst.

Source of Funding: Guangdong Provincial Science and Technology Program (2011B060300003), Fundamental Research Funds for the Central Universities (12ykpy40)

### Table 1. Univariable Analysis

<table>
<thead>
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<th>Comparison</th>
<th>+ Margins</th>
<th>- Margins</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Radiodensity (HU)</td>
<td>74.12</td>
<td>77.74</td>
<td>0.745</td>
</tr>
<tr>
<td>Tumor Heterogeneity (HU st. deviation)</td>
<td>27.26</td>
<td>29.04</td>
<td>0.374</td>
</tr>
<tr>
<td>Perinephric stranding (HU)</td>
<td>0.917</td>
<td>0.75</td>
<td>0.527</td>
</tr>
<tr>
<td>Distinctness of Tumor Border</td>
<td>0.68</td>
<td>0.50</td>
<td>0.427</td>
</tr>
<tr>
<td>% Visceral Fat</td>
<td>0.367</td>
<td>0.441</td>
<td>0.25</td>
</tr>
<tr>
<td>Geometric Complexity Index</td>
<td>1.578</td>
<td>1.678</td>
<td>0.083</td>
</tr>
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</table>

### Table 2. Multivariable Analysis

<table>
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<td>Mean Radiodensity (HU)</td>
<td>0.878</td>
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<tr>
<td>Perinephric Stranding</td>
<td>0.602</td>
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<tr>
<td>Distinctness of Tumor</td>
<td>0.007</td>
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<td>Border</td>
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<tr>
<td>% Visceral Fat</td>
<td>0.427</td>
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<tr>
<td>Geometric Complexity</td>
<td>0.099</td>
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<td>Index</td>
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</tbody>
</table>

MP19-14 INITIAL INVESTIGATION OF A 2450 MHZ MICROWAVE SYSTEM FOR ABLATION OF RENAL TISSUES

Karli Pease*, Arturo Castro, Raymond Leveillee, Nelson Salas, Miami, FL
INTRODUCTION AND OBJECTIVES: Microwave ablation (MWA) produces faster heating over larger volumes of tissue with less susceptibility to heat sink compared to radiofrequency ablation. A MWA system which runs at 2450 MHz for 2–8 minutes with a maximum power of 180 W is currently available. The objective of this experiment was to determine the effect of output powers on the lesion size and temperature distribution in an in vivo porcine model when using the MicroSulis Acculis 2450 MHz MTA system.

METHODS: Up to 2 ablations per kidney were performed on 4 Yorkshire pigs (45–49 kg) using the Acculis MTA System (Denmead, Hampshire UK) with a single saline-cooled 1.8 mm needle. The needle was inserted 3.5 cm into the kidney at either the upper or lower pole parallel to Brodel’s line. Temperatures were measured using 8 fiber optic thermal sensors placed 5 and 10 mm from probe axis. Five ablations per output power (60 W, 120 W, 180 W) were performed for 2 minutes. Animals were euthanized following all procedures, and the kidneys were harvested for gross analysis.

RESULTS: Coagulation zones were ellipsoidal with the major axis in the direction of the needle shaft, although all except 3 lesions spanned from the anterior to posterior surfaces (Fig. 1). Average axial diameters (29.74±1.08 mm @ 60 W to 37.02±6.46 mm @ 180 W), minimum transverse diameters (14.50±4.32 mm @ 60 W to 20.62±1.05 mm @ 180 W), and maximum transverse diameters (25.86±3.18 mm @ 60 W to 33.20±4.15 mm @ 180 W) increased with increasing output power and were significantly different when comparing between 60 and 180 W. Minimum and maximum radii did not show the same increasing trend. Maximum temperatures of up to 104.8±2.6 °C (180 W) were measured, but were not significantly different between output powers.

CONCLUSIONS: MWA with the 2450 MHz Acculis system achieves rapid increases in temperature to induce lesions of various sizes in renal tissue. Ablations of up to 3.7 cm were achieved, yet maximum temperatures between each of the output powers were not significantly different. Further studies to determine the relationship between treatment parameters and ablation volume are warranted.

Source of Funding: None

MP19-15 EVIDENCE FOR REVERSE STAGE MIGRATION AFTER ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY

Aaron Bernie*, Ranjith Ramasamy, Adnan Ali, Ashutosh Tewari, New York, NY, Zachary Smith, Please choose an option below

INTRODUCTION AND OBJECTIVES: When PSA testing was instituted for the screening of prostate cancer on a population-based level, there was a significant shift in the distribution of PSA level, lower age and lower stage and grade cancers undergoing prostatectomy, leading to a downward stage migration. A reverse stage migration, or shift back to operating on higher-risk prostate cancer patients, has been shown with retropubic radical prostatectomy. The objective of this analysis was to evaluate for reverse stage migration in patients undergoing robot-assisted laparoscopic prostatectomy (RALP).

METHODS: After IRB approval, the NewYork Presbyterian-Weill Cornell prostatectomy database was used to review all patients that had undergone robotic prostatectomy. These patients were separated into three categories: an early era of 2005–2008, intermediate era of 2009–2010 and a current era of 2011–2012.

RESULTS: A total of 3451 patients underwent robotic prostatectomy by a single surgeon from 2005–2012. Men with clinical T1 tumors declined from 88.3% in the early era to 72.2% in the current era (p<0.0001). Men with preoperative biopsy Gleason 6 disease decreased from the early to current era (p<0.0001), while men with preoperative biopsy Gleason ≥7/8 showed the opposite trend, increasing from the early to current era (p<0.0002). From the early to current era, the proportion of patients with NCCN low risk prostate cancer decreased and those with NCCN intermediate and high risk disease increased (Figure 1). Pathologic T3 disease increased from 15.5% in the early to 30.6% in the current era (p<0.0001). On the other hand, pathologic T2+/SMS decreased from 6.6% in the early era to 3.1% in the current era (p=0.0002) (Table 1).

CONCLUSIONS: We have demonstrated a reverse stage migration in men undergoing robotic prostatectomy. Despite the increasing proportion of men with extra-capsular disease undergoing RALP, the surgical margin status has remained similar. This could reflect both the changing dynamics of the population opting for surgery as well as the learning curve of the surgeon.

Source of Funding: None

FIG. 1. Transverse view of the kidney that was ablated with 180 Watts for 2 minutes.

MP19-16 IMPACT OF URETERAL JET FLOW ON URINARY TRACT STONE FORMATION

Serdar Celik*, Canan Altay, Sakir Ongun, Gorkem Uz, Ozan Bozkurt, Omer Demir, Mustafa Secil, Guven Aslan, Izmir, Turkey

INTRODUCTION AND OBJECTIVES: To investigate the relationship between ureteral jets measured by color Doppler sonography and stone disease.

FIG. 1. Percentage of Sample Categorized as NCCN High Risk Categorized by Era.

Table 1. Pathologic Characteristics of the Sample Categorized by Era.

<table>
<thead>
<tr>
<th>Period</th>
<th>Total (n)</th>
<th>T3a/T3b (n)</th>
<th>% T3a/T3b</th>
<th>T2/T3 (n)</th>
<th>% T2/T3</th>
<th>T2PSM (n)</th>
<th>% T2PSM</th>
<th>N1 (n)</th>
<th>% N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005–2008</td>
<td>1092</td>
<td>331</td>
<td>15.48%</td>
<td>656</td>
<td>65.7%</td>
<td>350</td>
<td>32.2%</td>
<td>9</td>
<td>0.67%</td>
</tr>
<tr>
<td>2009–2010</td>
<td>1082</td>
<td>337</td>
<td>29.01%</td>
<td>649</td>
<td>65.4%</td>
<td>344</td>
<td>31.6%</td>
<td>8</td>
<td>0.74%</td>
</tr>
<tr>
<td>2011–2012</td>
<td>1077</td>
<td>355</td>
<td>32.91%</td>
<td>622</td>
<td>57.7%</td>
<td>340</td>
<td>31.6%</td>
<td>9</td>
<td>0.79%</td>
</tr>
</tbody>
</table>

MP19-15 EVIDENCE FOR REVERSE STAGE MIGRATION AFTER ROBOT-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY

Aaron Bernie*, Ranjith Ramasamy, Adnan Ali, Ashutosh Tewari, New York, NY, Zachary Smith, Please choose an option below

INTRODUCTION AND OBJECTIVES: When PSA testing was instituted for the screening of prostate cancer on a population-based level, there was a significant shift in the distribution of PSA level, lower age and lower stage and grade cancers undergoing prostatectomy, leading to a downward stage migration. A reverse stage migration, or shift back to operating on higher-risk prostate cancer patients, has been shown with retropubic radical prostatectomy. The objective of this analysis was to evaluate for reverse stage migration in patients undergoing robot-assisted laparoscopic prostatectomy (RALP).

METHODS: After IRB approval, the NewYork Presbyterian-Weill Cornell prostatectomy database was used to review all patients that had undergone robotic prostatectomy. These patients were separated into three categories: an early era of 2005–2008, intermediate era of 2009–2010 and a current era of 2011–2012.

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CONCLUSIONS: We have demonstrated a reverse stage migration in men undergoing robotic prostatectomy. Despite the increasing proportion of men with extra-capsular disease undergoing RALP, the surgical margin status has remained similar. This could reflect both the changing dynamics of the population opting for surgery as well as the learning curve of the surgeon.

Source of Funding: None
METHODS: Patients between 18–40 ages who admitted to our clinic between August 2012– June 2013 with flank pain were consecutively included in the study. Bilateral ureteral jet measurements were performed with Doppler sonography after one hour oral hydration with 1000 ml of water to all patients, then all underwent non-contrast enhanced CT. Subjects were grouped as nonobstructive unilateral calyx calculi (Group 1) and control group who have no signs of stone disease (Group 2). Mean jet flow (JETmean) and jet flow patterns (JETpattern) were determined and compared between the renal units of these two groups.

RESULTS: JETmean were significantly lower in group 1 compared to group 2 (p < 0.05) (Table 1). Median JETmean was 9 cm/s in group 1; further analysis for a JETmean lower than a cut-off value of 9 cm/s gave an Odds ratio of 19.3 for stone risk. It was also found that this value had a 61.3% sensitivity and 87.5% specificity for stone formation. Also 95% patients with continuous jet flow pattern had stone disease determined on NCCT.

CONCLUSIONS: Lower ureteral jet flow which refers to decreased ureteral peristalsism seems to have a role in stone formation and subjects with JETmean < 9 cm/s need close follow-up for stone formation. Continuous jet-flow pattern might be a predictor of stone disease. Ureteral jets can be used for the diagnosis and follow-up of stone disease.

Source of Funding: none

MP19-17 EVALUATION OF A DISPOSABLE CYSTOSCOPE IN CONJUNCTION WITH PHOTOSELECTIVE LASER VAPORIZATION OF THE PROSTATE (PVP)

Joseph V. DiTullo, M.D.*, Roseland, NJ, Nina N. Harkhani, Newark, NJ, Rahuldev Bhalla, M.D., Millburn, NJ

INTRODUCTION AND OBJECTIVES: Endoscopic urological procedures are required for direct vision PVP treatment of the prostate. Because of the energy utilized in the vaporization of the prostate, a major risk factor is the destruction of the cystoscope lens or sheath. At our institution, lens destruction approaches 5% of the cases performed, at a cost of over $1000/lens. With that in mind, a devoted disposable cystoscope for laser prostatectomy with built-in safety precautions has a place in modern urology.

METHODS: We had the opportunity to evaluate and employ an FDA approved, 4.5 mm diameter chip-on-the-tip disposable (CMOS) cystoscope with 23 FR Operating Sheath and a 7 FR working channel for irrigation and laser fiber deployment from ProSurg®. Using a standard laptop (HP DV4), we were able to power the integrated LED light source and the chip-on-the-tip camera as well as store and transmit images to the laptop hard drive. At the time of treatment, all that was required was the following:

1. Disposable cystoscope with Operating Sheath
2. Bag of irrigation fluid with tubing
3. Laptop/Tablet computer (Windows 7/Windows 8)
4. USB 2.0 Connecting Cable
5. PVP laser generator and fiber

RESULTS: Using the 23 FR ProSurg NeoLaserScope®, with Operating Sheath, we were able to insert into the male urethra and under direct vision, vaporize prostatic tissue. The laptop was able to record an AVI video and take JPEG and BMP images. Complete endoscopic evaluation of the bladder was possible. The disposable Operating Sheath 23 FR and the CMOS viewing endoscope allowed for good irrigation and instrumentation.

CONCLUSIONS: Cost to maintain and sterilize endoscopic equipment is approaching $60/case. Along with the high risk of laser destruction to cystoscope components, one can make a case for a disposable cystoscope. Additionally, the power light source, video monitor, and documentation device all being replaced by an everyday laptop/tablet computer only adds to the benefits. The portability, disposability, and improving quality demands a functional, low-cost endoscopic system and warrants further evaluation.

Source of Funding: None

MP19-18 STONE DETECTION FOR RENAL COLIC: COMPARATIVE RESULTS BETWEEN IVU AND NCCT

Saheer Anwer*, Tim Bryant, Iain Wilson, Bhaskar Somani, Southampton, United Kingdom

INTRODUCTION AND OBJECTIVES: IVU and NCCT are both used for diagnosis of renal calculi for suspected renal colic. We wanted to compare the stone detection between IVU and a NCCT and whether stone location had an effect on it.

METHODS: Data was collected from 350 IVUs and NCCT, respectively (selected at random) done between Jan 2008 to Dec 2012 in our University teaching hospital for patients presenting with acute renal colic and the results were compared.

RESULTS: NCCT had a stone pick up rate of 49.7% (174/350) of which 39.7% (69/174) had multiple stones. On the contrary IVU had a stone pick up rate of 26.9% (94/350) of which 39.7% (69/174) had multiple stones. A total of 103 stone diagnoses were made on the IVU compared to 269 on the NCCT (as shown in the table).

<table>
<thead>
<tr>
<th>Position of stone</th>
<th>IVU</th>
<th>CT/NCCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper pole</td>
<td>16</td>
<td>43</td>
</tr>
<tr>
<td>Mid pole</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>Lower pole</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Renal pelvis/PUJ</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Ureter</td>
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<td></td>
</tr>
<tr>
<td>Upper ureter</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Mid ureter</td>
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<td>8</td>
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<td>Lower ureter</td>
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<tr>
<td>TOTAL</td>
<td>103</td>
<td>269</td>
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</tbody>
</table>
table). There was no difference in the diagnosis of VUJ stone (IVU, n=24; NCCT, n=25). There was a two to seven fold difference in the diagnosis of renal stones with NCCT picking up 166 renal stones compared to 41 stones on IVU. Upper, mid and lower pole renal calculi were picked up in 16, 5 and 20 patients, respectively on IVU and 43, 35 and 88 patients, respectively on NCCT. There was no statistical difference between the pick up of renal pelvic/PUJ stones (IVU, n=23; NCCT, n=28). Upper, mid and lower ureteric stones were picked up in 2, 5 and 8 patients, respectively on IVU and 9, 8 and 21 patients, respectively on NCCT. While 12 bladder stones were picked up on NCCT, none were picked up on IVU.

CONCLUSIONS: NCCT is statistically significantly better in picking up renal and ureteric stones. The rates of detection of VUJ stone and renal pelvic/PUJ stones are similar between IVU and NCCT. These findings of additional stones picked up on NCCT might be quite significant in patients with acute renal colic or with repeat/recurrent renal colic.

Source of Funding: Nil

MP19-19  A NOVEL TECHNIQUES OF RETROPERITONEAL LAPAROSCOPIC NEPHRON-SPARING SURGERY WITHOUT SUTURE (WITH VIDEO)

Lulin Ma*, Xiaojun Tian, Yi Huang, Beijing, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: To evaluate a novel techniques of retroperitoneal laparoscopic nephron-sparing surgery for kidney tumors without suture.

METHODS: 3 selected patients with kidney mass most of which were out of kidney surface underwent nephron-sparing operation through retroperitoneal laparoscopic approach without suture in our hospital from December, 2010 to May, 2013. There were 2 men and 1 woman with the mean age 58 year old. The mean tumor size was 2.2 cm in diameter (range from 1.5 to 3.0 cm). The clamp of renal artery without suture were performed during the laparoscopic operations.

RESULTS: All the procedures were technically successful without any conversion to open and without no blood transfusion. There were no any haemorrhage, urine leakage complications occurred after operations. The average warm ischemia time is 5 mins (4–7 mins), with average blood loss 50 ml (30–80 ml). Pathological examination confirmed renal clear cell carcinoma in 3 patients. All of the mass margins were negative.

CONCLUSIONS: Retroperitoneal laparoscopic partial nephrectomy without suture is safe and effective to some selected patients with a shorter warm ischemia time which is beneficial to kidney function.

Source of Funding: none

MP19-20  THE IMPACT OF MUSIC ON PAIN AND ANXIETY EXPERIENCED IN PATIENTS UNDERGOING FLEXIBLE CYSTOSCOPY: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL


INTRODUCTION AND OBJECTIVES: To ascertain the effect of music on patients’ experienced anxiety and pain whilst undergoing routine office-based flexible cystoscopies.

METHODS: Patients scheduled for flexible cystoscopy over a one-month period were randomized into two groups. Those in group 1 listened to music during cystoscopy and those in group 2 did not listen to music. The degree of experienced pain and anxiety was determined through patients completing 100 mm visual analogue scales before and after cystoscopy. Both female and male patients were included. Whether the patients had previous cystoscopies was also recorded to evaluate the possible ameliorating effect of prior experience.

RESULTS: Forty patients were enrolled, twenty in group 1 and twenty in group 2. Demographic characteristics were comparable between the two groups. Prior to flexible cystoscopy patients in group 1 (exposed to music) had a lower mean pain (0.4) and anxiety (17.9) versus mean pain (13) and anxiety (43.9) in group 2 (p<0.05). After flexible cystoscopy patients in group 1 had a lower mean pain (3.4) and anxiety (3.7) versus mean pain (17.2) and anxiety (27.8) in group 2 (p<0.05).

CONCLUSIONS: Listening to music during flexible cystoscopy appears to help reduce patients’ experienced pain and anxiety. Finally employing music is a simple, low-cost and safe adjunct to improving patient experience during flexible cystoscopy.

Source of Funding: None

MP19-21  ARE PSA, FREE TO TOTAL PSA RATIO, & p2PSA LEVELS HELPFUL TO MONITOR PATHOLOGICAL GRADES OF PROSTATE CANCER PATIENTS ON ACTIVE SURVEILLANCE?

Waseem Akhter*, Sally Benton, Frank Chinegwundoh, London, United Kingdom

INTRODUCTION AND OBJECTIVES: Repeat TRUS guided and Template prostate biopsy procedures are mainstay investigations to monitor the grade of prostate cancer for patients on active surveillance. We studied the biochemical correlation of PSA, free to total PSA ratios & p2PSA to different grades of CaP.

Objective:
To assess relationship of biochemical markers and grade of prostate cancer.

METHODS: Retrospective data collection of 26 patients who had TRUS guided prostate biopsy and histology confirmed prostate cancer and grade.

RESULTS: Total no. of 26 patients diagnosed with prostate cancer. Low grade (5), Intermediate (12), High grade (9). In low and intermediate grade cancers the values of PSA, f/t psa, and p2PSA were almost similar while these biochemical markers were found raised for high grade prostate cancers.

CONCLUSIONS: We concluded that biochemical markers (psa, f/t psa ratios, p2psa) could be useful to predict the grading of the CaP patients on active surveillance and would require repeat prostate biopsy when these biochemical markers rise significantly to decrease the morbidity & mortality. However, to prove this finding we need a bigger sample size and randomisation.

Source of Funding: None
**MP19-22 ULTRASOUND-GUIDED CRYOABLATION OF SMALL RENAL TUMORS**

Jian Bo Lu, Xiao Qing Wang*, Changchun, China, People's Republic of China

**INTRODUCTION AND OBJECTIVES:** Partial nephrectomy has been shown to be a effective and reliable method of renal parenchymal preservation for small renal tumors. Renal cryoablation remains an option for the treatment of small peripheral renal masses in patients with significant comorbidities. The present study was designed to evaluate the effects of ultrasound-guided renal cryoablation.

**METHODS:** The records of forty two patients with small renal masses (2.0 to 4.2 cm) who underwent ultrasound-guided cryoablation were retrospectively analyzed. A ultrasound guidance percutaneous approach was used to localize the tumors and monitor iceball formation. A double-freeze technique was used. Needle biopsies of solid masses were performed intraoperatively.

**RESULTS:** Renal biopsies revealed renal cell carcinoma in 39 of the 42 patients. The mean operative time was 185 ± 38 min. The serum creatinine show no significant change before and after the procedure. The mean followup time was 18 months. No pancreatic and other abdominal organs injury occurred in all the procedure. There is no evidence of recurrent disease at last follow-up in 32 patients, and follow-up CT scans showed no enhancement of any lesions. Seven patients had a tumor recurrence.

**CONCLUSIONS:** Renal cryoablation appears to be an effective tool for ablation of small renal lesions. A short period follow-up continues to demonstrate efficacy because no patients had growth of treated pathologic lesions or developed metastasis to date. Further data with long-term follow-up and big sample size is necessary to determine the long-term efficacy.

**Source of Funding:** none

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**MP19-23 HOW TO DO PROSTATE BIOPSY IN PATIENTS WITH NO ANUS**

Andy Huang*, Allen Chiu, Thomas Hsueh, Taipei City, Taiwan

**INTRODUCTION AND OBJECTIVES:** Patients who have received anal resection for colorectal cancer will also have prostate problems such as lower urinary symptoms and prostate specific antigen (PSA) elevation. We report five patients who were victims of colorectal cancer received abdominoperineal resection procedure from 2010 to 2013 have rising PSA. There were neither local recurrence nor distant metastasis of rectal cancer. The patients regular follow up in our urologic clinic due to lower urinary tract symptoms, receiving alpha-blocker treatment and the sizes of prostate only could be estimated via suprapubic ultrasound. If the patients whose PSA test revealed twice elevation, prostate biopsy was considered. However, transrectal sonoguide biopsy could not be performed due to previous surgery. Suprapubic ultrasound guided with sextant prostate biopsy via perineal area was performed in these patients. Herein we report our experience in suprapubic, non-transrectal, ultrasound guided transperineal prostate biopsy for patients received abdominoperineal procedure before and reviewed the world literatures.

**METHODS:** We collected five patients who were victims of colorectal cancer received abdominoperineal resection procedure before and their anus are closed. Prostate biopsies by positioned in lithotomy position were done due to PSA rising. The procedure includes stay sutures to fix and elevate the scrotum, then suprapubic ultrasound guided transperineal sextant biopsies were performed.

**RESULTS:** Suprapubic ultrasound guided prostate biopsy were done. Although some angles are hard to take, sextant biopsy was done successfully.

**CONCLUSIONS:** Suprapubic, non-transrectal ultrasound guided prostate biopsy can be done smoothly for patients who do not have anus.

**Source of Funding:** none

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**MP19-24 OUTCOME OF SEMIRIGID URETEROSCOPY FOR BILATERAL URETERAL DISEASES**

Mohamed Bakr*, Hassan Abd Elwaab, Gamal Elatrash, Mostafa Shamaa, Ismailia, Egypt

**INTRODUCTION AND OBJECTIVES:** OBJECTIVES: To evaluate outcome and early complications of simultaneous bilateral semirigid ureteroscopy (URS) in patients with bilateral ureteral diseases.

**METHODS:** A retrospective analysis of a total of 22 patients with 44 ureterorenal units underwent simultaneous bilateral semirigid URS from September 2000 to June 2012. The mean age was 46 (± 10.069) years of 17 males and 5 females. Nineteen cases had elective procedure, while three cases had emergency uroscopic intervention. All the cases were carried out under spinal anesthesia. Fourteen cases were managed by a senior staff, while 8 cases by urologists under training.

**RESULTS:** Ureteral stone disease was the major indication for URS in 29 (65.9%) ureterorenal units. The second frequent indication was diagnostic URS for a filling defect in 10 (22.7%) ureters. Intraoperative complications were found in three ureterorenal units (6.8%), whereas ureteral mucosal injury was reported in two ureters (4.5%) and ureteral perforation was found in one ureter (2.3%). The overall success rate was 90.9% (40 ureterorenal units). Causes of failure were inability to access the ureter in one ureter (2.3%) and inability to extract the stone because of ureteric stricture, kink and perforation in 3 ureters (6.8%). Correlation between senior staff and trainee, regarding intraoperative complications (3.5%, 12.5%) and failure rate (10.7%, 6.2%) respectively, was insignificant (p > 0.05). Early postoperative complications were reported in only one patient (4.5%), who had urosepsis; it was carried out by urologist under training and managed conservatively.

**CONCLUSIONS:** Simultaneous bilateral semirigid URS is a successful, safe intervention for bilateral ureteral diseases in same session with low morbidity by the experienced endourologist. It prevents repeated anesthesia, and hospitalization with its cost.

**Source of Funding:** none

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**MP19-25 LARGE OBLITERATED UPPER URETERIC CALCULI Aim = To compare the efficacy between Laparoscopy & URS in the treatment of large upper ureteric calculi (>2.5 cm)**

Prashant Pattnaik, Mumbai, India, Prashant Pattnaik, Prashant Pattnaik*, Mumbai, India

**INTRODUCTION AND OBJECTIVES:** Aim = To compare the efficacy between Laparoscopy & URS in the treatment of large upper ureteric calculi (>2.5 cm).

**METHODS:** The records of forty two patients with small renal masses (2.0 to 4.2 cm) who underwent ultrasound-guided cryoablation were retrospectively analyzed. A ultrasound guidance percutaneous approach was used to localize the tumors and monitor iceball formation. A double-freeze technique was used. Needle biopsies of solid masses were performed intraoperatively.

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**Source of Funding:** none

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**Source of Funding:** none

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Prashant Pattnaik, Mumbai, India, Prashant Pattnaik, Prashant Pattnaik*, Mumbai, India

**INTRODUCTION AND OBJECTIVES:** Aim = To compare the efficacy between Laparoscopy & URS in the treatment of large upper ureteric calculi (>2.5 cm).
RESULTS:

All the calculi were gradually fragmented into smaller multiple ureteric calculi. Tripsy using Swiss lithoclast was performed to fragment the left ureter was normal & without any calculi. Pneumatic lithotripsy using 8/9.8 F Wolf semi-rigid ureteroscope revealed multiple mobile calculi in one of the two left ureters while the other revealed two separate ureteric orifices on the left side. Ureteroscopy under general anesthesia showed multiple small stone fragments in the left lower ureteric region and few in the bladder area. Oral antibiotics & tamsulosin were prescribed to the patient for one week. Patient continued to pass stone fragments with urine for about 7–10 days. An X-ray KUB done after three weeks showed complete clearance of all stone fragments. Stone analysis of the retrieved fragments revealed calcium oxalate to be the predominant component.

CONCLUSIONS: Intracorporeal pneumatic lithotripsy is an accepted treatment option for lower ureteric calculi & appears to be equally effective for multiple ureteric calculi. Although laser lithotripsy is usually considered to be a better option, but its availability and the cost involved may be a constraint, especially in the developing countries. Hence intracorporeal pneumatic lithotripsy may be considered as a reasonable & cost-effective treatment option for multiple ureteric calculi, with comparable results.

Source of Funding: none

INTRODUCTION AND OBJECTIVES:

A 42 year female presented to our urologic clinic with complaints of recurrent lower urinary tract infections. A general physical examination of the patient was unremarkable. Urine examination revealed 10–12 leucocytes per high power field. Blood chemistry & renal function test were within normal limits. Ultrasound examination of abdomen revealed double pelvi-calyceal system of left kidney with multiple calculi in the left lower ureter. A plain radiograph of the abdomen showed numerous well defined radio-opaque shadows (>12 in number) in the left lower ureteric region. Intravenous urography showed double pelvi-calyceal system of left kidney with two separate ureters and multiple calculi in one of the left lower ureters. The pelvi-calyceal system & ureter of the right kidney appeared normal on the intravenous urogram.

METHODS: Patient was planned for ureteroscopic pneumatic lithotripsy. Cystoscopic examination under general anesthesia revealed two separate ureteric orifices on the left side. Ureteroscopy using 8/9.8 F Wolf semi-rigid ureteroscope revealed multiple mobile calculi in one of the two left ureters while the other left ureter was normal & without any calculi. Pneumatic lithotripsy using Swiss lithoclast was performed to fragment the multiple ureteric calculi.

RESULTS: All the calculi were gradually fragmented into smaller fragments & at the end of the fragmentation a 4 F ureteric catheter could be passed beyond the proximal limit of the stone column. A plain radiograph of abdomen done on first post-operative day showed multiple small stone fragments in the left lower ureteric region and few in the bladder area. Oral antibiotics & tamsulosin 0.4 mg once daily were prescribed to the patient for one week. Patient continued to pass stone fragments with urine for about 7–10 days. An X-ray KUB done after three weeks showed complete clearance of all stone fragments. Stone analysis of the retrieved fragments revealed calcium oxalate to be the predominant component.

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Source of Funding: none

INTRODUCTION AND OBJECTIVES: Endourology is classified as a clean contaminated procedure. There is a tendency to ignore the protocols of infection control and replace it with antibiotics. Urologist & staff members have to take due care to prevent transmission of the infection involved with endourology procedures.

Many patients are potential source of the infection.

Higher chance of infection is with immunocompromised patients. (Ref. 1)

Special risk factors associated with an increased bacterial Load. (Ref. 2)

METHODS: Because endoscopes are inserted into a sterile body cavity classified as “critical” in the Spaulding classification, sterilization is a must.

Equipment are having their tailor made protocols for their re processing

1. After surgical use, residues MUST be removed by through washing to remove any organic substance. Proper brush is used to clean all channels. All equipment MUST be cleaned with Sterile, fully demineralized WATER. Never use Normal Saline for re processing and sterilization as it causes corrosion.

2. Cleaning with demineralized water & enzymatic cleansers. Alkaline detergents may damage flexible scopes. Ultrasonic bath can be used for all accessories but endoscopes.

3. Proper packaging to prevent contamination during transportation and storage.

4. Rust can get transmitted from one to other equipment.

5. Sterilization is only possible with Autoclaving. Plasma sterilization (low temperature H2O2) or ETO (ethylene oxide gas - banned in some countries).

6. Gluteraldehyde can only give high level disinfection, it can not kill bacterial spores.

7. Not advisable to do Surface cleaning of equipment with Spirit or Betadine. Formalin tablet containers are of NO USE AT ALL !

8. Doctors & staff to follow universal precautions for all procedures. Level of disinfection, safety of equipment, & incidences of hospital acquired infections (HAI) are monitored.

13 EUA Guideline & AKI protocols are followed.
RESULTS: Autoclaving is an inexpensive and safe sterilization technique. Plasma sterilization is costly, but safe for flexible endoscopes. After strictly following the guidelines, HAI incidences decreased significantly.

CONCLUSIONS: All medical personnel involved in urology care must adhere to standard protocols of sterilization during endourology care to prevent HAI. Any loophole can pose a threat of HAI.


Ref. (2) J Urol. 1993 May;149(5):1058–60. The risk of exposure to potentially contaminated body fluids in urological surgery. Kapoor DA,

Source of Funding: None

MP19-28 COMPLICATIONS IN UPPER URETEROSCOPY AND LITHOTRIPSY

Andrius Gaizauskas*, Sergejus Gaizauskas, Vilnius, Lithuania

INTRODUCTION AND OBJECTIVES: Ureteroscopy is an usual procedure for ureter stones. In literature data stone free rate is high and complication rate is low, but incidence of complications in upper part of ureter (segment between L2–L5) is higher.

METHODS: From 2007 till 2012 in our department we performed 521 various localisation ureteroscopy cause of stone in ureter. We use 9.8 Ch semirigid ureteroscope and in case of lithotripsy - holmium laser. We always use a safety guidewire. From 2011 we started recording all ureteroscopy complications in upper part of ureter. We performed re-examination and repeated sonoscopy after 2, 4 and 12 weeks after operation to all patients after ureteroscopy in upper part of ureter.

RESULTS: In period 2011–2012 we performed 27 high ureteroscopies and lithotripsies. We achieved 88,9% stone free rate at the end of operation and 100% stone free rate after 1 month after ureteroscopy. But we registrated high incidence of complications.

Simple complications: in 1 (3,7%) case we did not reach the stone cause of narrow ureter; 1 (3,7%) patient had serious stent irritative simptoms; in 6 cases (22,2%) stones migrated from ureter to kidney.

Serious complications: 2 (7,4%) cases of ureter perforation; in 2 cases (7,4%) after 3 months after ureteroscopy we diagnosed ureter strictures. Both patient were asimptomatic and needed ureter repair operations (first case - ureteroscopy+dilatation; second case - ureter resection). In 1 case we had complete ureter avulsion (two point or scabbard avulsion). 5 months after ureteroscopy we performed ileal segment (30 cm) reposition.

CONCLUSIONS: Irrespective of high stone free rate in upper ureteroscopy, complication rate is high. Small complications, such as stone migrations or narrow ureter, which do not allow to reach the stone in ureter, are simple to manage. But large ureteroscopy complications: stricture formation or avulsion always is a change in urology.

We recommend to perform high ureteroscopies only in departments which have appropriate equipment for ureteroscopy (laser, flexible ureteropyeloscopes, baskets etc.). Late (after 3 months) double-check for patients, who underwent high ureteroscopy is recommended.

Source of Funding: none

MP20 ENDOUROLOGY & NEW TECHNOLOGIES II

MP20-01 UROLOGY AND INTERVENTIONAL RADIOLOGY: MOVING TOWARDS AN INTERGRATED CARE MODEL


INTRODUCTION AND OBJECTIVES: Interventional radiology can play a key role in the management of the urological patient. Post procedure follow up is very important as JJ ureteric stents are only licensed for placement for a period of up to 6 months and studies have shown an increased rate of complication even after 6 weeks (El-Faqih et al 1991).

The Imperial College Healthcare NHS Trust performs antegrade ureteric stenting at multiple trust sites based on referrals from a variety of specialties. This poses challenges in terms of coordinating what team is responsible for arranging follow up and may lead to patients being missed or not followed up in a timely fashion.

We have introduced a system whereby all antegrade ureteric stent procedures are recorded in a database compiled by the Interventional Radiology department so that follow up can be audited and any delays rectified.

We present a retrospective study that compares our Trust’s performance in the follow up of patients before and after the introduction of this database.

METHODS: All patients undergoing antegrade ureteric stenting prior to the introduction of the database were identified by

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examining paper records from the Interventional Radiology Department for the period of January 2011 to June 2011. Patients post introduction of the database were identified using the database for the period of August 2012 to December 2012. Patients were excluded if they died within 6 months of stent insertion or they moved to another area.

The data collected was:
- Requesting team
- Clinical indication for intervention
- Whether patients were followed up
- Time to change/removal of stent

This was performed by using electronic clinic attendance records and imaging records.

RESULTS: After exclusion there were 21 stents in the pre Database group and 18 stents in the post database group.

See Results Table:

CONCLUSIONS: Our results suggest that an integrated database which is compiled by Interventional Radiology and is available to the Urology department leads to improvements both in the reducing the number of patients missed to follow up and the time to stent change or removal.

We are working towards creating an automated system electronic system to generate database entries.

Source of Funding: None

MP20-02 MAPPING OF THE USSQ SCORES TO EUROQOL VALUES TO PERFORM ECONOMIC AND UTILITY IMPACT OF URETERAL STENTS
Ana Carvalho, Prof. S. Salek, Hrishi Joshi*, Cardiff, United Kingdom

INTRODUCTION AND OBJECTIVES: Deployment of ureteric stents is a commonly used technology. The Urteric Stent Symptoms Questionnaire (USSQ) is a valid intervention specific instrument to measure QoL impact of stents. Health technology assessments (HTA) prefer comparative utility data. The translation of the USSQ scores would be useful in utility analyses and economic appraisal. This study presents a model for direct translation of the USSQ to utility scores that would make it suitable for HTA.

METHODS: A secondary analyses of two prospective studies, involving 86 patients (154 observations, 86 with and 68 without stent) who completed the USSQ and EQ-5D questionnaires, was performed. Following study of the existing models and correlation analyses, OLS (Ordinary Least Squares) regression was used to develop formulas for converting the USSQ domain scores into EQ-5D utility values.

RESULTS: The EQ-5D utility score (mean ± S.D) with the stent in situ was 0.72 ± 0.2. The OLS regression model, fielded different formulas to convert USSQ domain scores into EQ-5D utility values (UV). For patients with stents, the formulas for the four main global scores were, UV (urinary symptoms) = 0.606 × USSQ scores. UV (pain) = 0.271 × PN scores. UV (general health) = 0.264 × GH scores and UV (work performance) = 0.352 × WP scores. Similar results from the analyses of the post stent scores helped demonstrate reliability for this approach.

CONCLUSIONS: Correlations between the USSQ and EuroQol utility and VAS scores are strong and statistically significant. High correlations and the conversion formulas developed for the USSQ appear to be valid in their use to calculate health state values in cost-utility analyses. It presents additional way to assess impact of current and future ureteric stents and economic appraisal.

Source of Funding: None

MP20-03 ANTEGRADE AND RETROGRADE ENDOPEYELOTOMY AS TREATMENT FOR PRIMARY AND SECONDARY URETEROPELVIC OBSTRUCTION (PUJO)

INTRODUCTION AND OBJECTIVES: We present our experience with endopyelotomy over the last 9 years. We evaluate and compare the results of an antegrade versus retrograde approach, using either laser or cold knife, for primary and secondary (PUJO).

METHODS: 55 patients underwent endopyelotomy as either primary or salvage procedure for PUJO. Both antegrade and retrograde approaches with the use of cold knife and/or laser were used. We retrospectively analysed the pre- and postoperative symptoms, renal function and drainage as evaluated by MAG-3 renogram. Success was defined as radiological and/or renal split function improvement with concomitant symptomatic improvement. Level of statistical significance was considered at p < 0.05.

RESULTS: Of 55 patients (mean age 47 yrs), 32 underwent antegrade endopyelotomy (Group A) and 23 retrograde endopyelotomy (Group B). 22 patients from group A were treated by using cold knife and the rest of the patients from group A and B with laser. Mean follow up was 24.5 months. The overall success rate for the antegrade approach was 78.1% and for the retrograde group 78.2%.

Primary endopyelotomy was performed in 67% and salvage procedures in 33% of the patients. The success rates were 84.6% and 61.1% for primary and salvage endopyelotomy respectively. Success rates for antegrade and retrograde primary procedures were 90% and 80% respectively. There was no statistically significant difference between success rates for antegrade and retrograde laser endopyelotomy in primary (PUJO).

For salvage procedures, antegrade approach presented a success rate of 70%, whereas 50% of the retrograde procedures were successful in this group. There was not a statistically significant difference between success rates for the antegrade approach (using laser or cold knife) and retrograde approach (laser) in the salvage subgroup. However, there was a statistical significance at the 0.05 level between antegrade endopyelotomy with cold knife vs laser fibre in the salvage subgroup.

CONCLUSIONS: Our results for primary and salvage endopyelotomy (antegrade or retrograde) compare favourably with the literature. There was no statistically significant difference in outcomes, between antegrade and retrograde endopyelotomy performed as primary or salvage procedure for (PUJO). Success rate of the cold knife versus laser in the salvage antegrade endopyelotomy, was statistically significant in favour of the laser.

Source of Funding: none

MP20-04 RESCUE FROM PCN DRAINAGE AFTER FAILURE OF INTERNAL URETERAL STENT PLACEMENT FOR EXTRINSIC URETERAL OBSTRUCTION WITH A WIRE-REINFORCED URETERAL STENT

RESULTS: Of 55 patients (mean age 47 yrs), 32 underwent antegrade endopyelotomy (Group A) and 23 retrograde endopyelotomy (Group B). 22 patients from group A were treated by using cold knife and the rest of the patients from group A and B with laser. Mean follow up was 24.5 months. The overall success rate for the antegrade approach was 78.1% and for the retrograde group 78.2%.

Primary endopyelotomy was performed in 67% and salvage procedures in 33% of the patients. The success rates were 84.6% and 61.1% for primary and salvage endopyelotomy respectively. Success rates for antegrade and retrograde primary procedures were 90% and 80% respectively. There was no statistically significant difference between success rates for antegrade and retrograde laser endopyelotomy in primary (PUJO).

For salvage procedures, antegrade approach presented a success rate of 70%, whereas 50% of the retrograde procedures were successful in this group. There was not a statistically significant difference between success rates for the antegrade approach (using laser or cold knife) and retrograde approach (laser) in the salvage subgroup. However, there was a statistical significance at the 0.05 level between antegrade endopyelotomy with cold knife vs laser fibre in the salvage subgroup.

CONCLUSIONS: Our results for primary and salvage endopyelotomy (antegrade or retrograde) compare favourably with the literature. There was no statistically significant difference in outcomes, between antegrade and retrograde endopyelotomy performed as primary or salvage procedure for (PUJO). Success rate of the cold knife versus laser in the salvage antegrade endopyelotomy, was statistically significant in favour of the laser.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Ureteral obstruction due to extrinsic compression is associated with significant morbidity and mortality. Management options for this condition include renal drainage with percutaneous nephrostomy (PCN) or internal ureteral stent placement. A significant portion of patients will have disease progression leading to internal stent obstruction which is almost uniformly managed with PCN. We evaluated a novel, wire-reinforced internal ureteral stent as an alternative to PCN in those patients that fail initial internal ureteral stent placement.

METHODS: A retrospective chart review was performed to identify patients with extrinsic ureteral obstruction that failed conventional plastic internal ureteral stent placement and ultimately underwent placement of wire-reinforced internal ureteral stents (Scaffold) at the University of Michigan Health System between 2006–2011. Outcomes assessed included time to Scaffold stent failure and failure free time with Scaffold stent in place.

RESULTS: A total of 8 patients were identified with extrinsic ureteral obstruction that failed initial conventional ureteral stenting and had a Scaffold stent placed. Scaffold stents ultimately failed in 3 out of 8 patients. Mean time to Scaffold stent failure was 197 days (range 20–536). In the remaining 5 patients, mean failure-free time with Scaffold stents in place was 277 days (range 18–774).

CONCLUSIONS: Scaffold stent placement is a viable alternative to PCN in those patients with extrinsic ureteral obstruction who fail conventional internal ureteral stent placement.

Source of Funding: none

MP20-05 CONSERVATIVE RESECTION AND BCG IN-STILLATION FOR UPPER URINARY TRACT UROTHELIAL CARCINOMA – PRELIMINARY DATA FROM A SINGLE INSTITUTE IN TAIWAN

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INTRODUCTION AND OBJECTIVES: We presented the preliminary result of conservative resection followed by BCG instillation for upper urinary tract urothelial carcinoma in cases with limited renal function reserve.

METHODS: Seven patients (5 female and 2 male) received conservative resection for upper urinary tract urothelial carcinoma due to limited renal function reserve. Either electrocautery resection or Thulium laser ablation was used depending on the tumor location. BCG instillation was performed either antegrade via PCN tube or retrogradely via ureteral catheter. All patients were requested to receive regular followup survey every 3 months.

RESULTS: The median followup period was 20 months (4–44 months). Two cases were found to have recurrent tumor. One received another laser ablation and then remained tumor-free status. The other received nephroureterectomy due to tumor progression. Complications included asthma, hematuria, fever and even urosepsis. No case had disseminated tuberculosis infection.

CONCLUSIONS: Conservative resection combined with BCG instillation is an acceptable alternative treatment for upper urinary tract urothelial carcinoma in cases with limited renal function reserve. Intensive followup is required.

Source of Funding: None

MP20-06 LONG-TERM OUTCOMES OF RESONANCE METALLIC STENTS FOR MALIGNANT AND CHRONIC-BENIGN URETERAL OBSTRUCTION

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INTRODUCTION AND OBJECTIVES: Conservative management of ureteric compression from pelvic malignancy and/or chronic ureteral strictures is with an indwelling ureteral stent. However, traditional polymeric stents often fail to relieve hydronephrosis, particularly with tight or long strictures, and require frequent stent changes. Resonance® metallic stents (RS) remain a potential alternative for patients failing traditional stenting. Given the limited reports on the long-term effectiveness of these stents, we sought to investigate the natural history and long-term outcomes of RS in patients with chronic obstruction.

METHODS: Candidates for RS included patients with ureteral obstruction due to pelvic malignancy and/or chronic benign pathology who failed single or parallel stent placement. Following initial RS placement, serum creatinine (sCr) evaluation and renal ultrasonography were performed 2 weeks postoperatively, and then every 6 months. RS were changed annually, or earlier if patients were symptomatic or had evidence of renal function decline. RS failure was defined as discontinuation of RS for another management modality secondary to discomfort, hematuria, rising sCr, or worsening hydronephrosis.

RESULTS: Review of the Columbia University Database identified 71 RS placed between 1999–2013 in 21 patients (28 renal units, RU). Primary etiology of obstruction was malignant in 19 RU (68%) and chronic stricture disease in 9 RU (32%). Following RS placement, there was radiographic evidence of drainage in 20/21 patients; the remaining patient became anuric and the RS was immediately removed. Overall median follow up time was 28.8 months. Ten patients (14 RU) failed RS management (at a mean of 19.2 months) and required alternative modalities of drainage. Failure was more common to occur in patients with malignant obstruction (63% vs. 22%, p = 0.01). The remaining patients, who either continue to be managed with RS or died of disease, were successfully managed with RS for a mean duration of 20.5 months, and with RS exchanged at an average of 12 month intervals. Side effects included: dysuria (52%), frequency/urgency (24%), stent colic/flank pain (62%), and hematuria (33%).

CONCLUSIONS: RS provides an effective, long-term alternative to nephrostomy tubes or invasive surgical intervention for a select group of patients failing polymeric stenting, especially those with obstruction due to chronic benign stricture disease. The median time between RS exchange (12 months) is significantly longer than that for most polymeric stents, allowing the patient to avoid frequent stent changes.

Source of Funding: Crystal Castañeda was supported by a grant from the Doris Duke Charitable Foundation.

MP20-07 BASELINE SERUM 25-HYDROXYVITAMIN D LEVELS IN MEN UNDERGOING RADICAL PROSTATECTOMY: IS THERE AN ASSOCIATION WITH ADVERSE PATHOLOGIC FEATURES?

Dipak Rajyaguru*, OF 8 PATIENTS MP20-08 ANTERIOR URETHRAL VALVE- A STUDY OF 8 PATIENTS

INTRODUCTION AND OBJECTIVES: Anterior urethral valves (AUV) is a very rare congenital anomaly. Like posterior urethral valve, it produces symptoms of varied intensity. We have studied 8 patients that we have encountered in three different centers.

METHODS: In last 5 years we have treated 8 patients with AUV. Mean age group of those patients were 3.5 years. Parameters studied were- their presenting symptoms, ultrasonography (USG) findings, micturating cystourethrogram (MCUG) findings, mode of treatment and ultimate outcome. Five cases were treated endoscopically, 2 cases by open excision and primary closure and 1 patient required marsupialization with late secondary closure due to active urinary infection. 9.5. Fr pediatric scope was used. Valve fulgurated with 3 Fr Bugbee electrode. In primary repair, the diverticulum was excised and closure was done with vicryl 4.0 over 8 Fr infant feeding tube. One patient presented with gross infection in whom marsupialization followed by delayed secondary closure was done. Foley’s catheter was removed on 2 nd post operative day after endoscopic treatment and 5th post operative day after open repair.

RESULTS: All of the patients had difficulty in passing urine. Seven patients presented with post void dribbling, four patients presented with swelling in urethra. One presented with recurrent urinary tract infection. None of the patients on ultrasound had upper tract dilatation, though four patients on MCUG showed mild degree of vesicoureteral reflux. All cases were diagnosed on MCUG- 5 penoscrotal, 3 proximal penile. Mean follow up was 2.3 years. All our patients recovered completely. None of the patients had recurrence of symptoms, UTI or deterioration of renal functions.

CONCLUSIONS: Congenital anterior urethral valves though rare should be kept in mind whenever the diagnosis of posterior urethral valve is made. Though endoscopic management is treatment of choice, in some cases open surgery remains viable option.

Source of Funding: None

MP20-09 EVOLUTION OF TECHNOLOGY: SHORT TERM OUTCOMES WITH INTEGRATED IMAGING ABLATHERM-HIFU.

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Eric Barret, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: Single-session HIFU is recommended as a curative approach in elderly patients with low-risk PCa. The technology Ablatherm-HIFU (AH) has been applied through an initial prototype, the Maxis model and more recently with the Integrated imaging system (IIS). The real time 7.5 MHz transducer of Ablatherm® HIFU offers a high quality image of the prostate and 3 MHz is the best operating frequency for prostate treatment with HIFU. This ensures that optimal values are used for real time monitoring during the procedure. Previous reports on AH stated a recurrence free survival rate from 73% to 82% at 5 yr for low risk prostate cancer. To report the oncologic outcome of AH in patients with localized prostate cancer treated with the latest generation device Ablatherm-HIFU (IIS).

METHODS: From December 1995 to April 2010, 189 patients with low risk localized PCA have been treated in our institution. Out of these, 43 patients whom received treatment with the IIS and achieved a minimum of 1 year follow-up were considered in this study. Transurethral resection of the prostate was performed before HIFU to downsize large prostate glands larger than 50 cc. Data on Prostate-specific antigen (PSA), clinical stage, cancer control, recurrence and complications has been prospectively collected and retrospectively analyzed in order to define oncologic efficacy, recurrence defined as PSA nadir + 2 (Phoenix definition). Disease-free survival (DFS) was estimated with Kaplan-Meier curves.

RESULTS: We identified 43 patients with a median follow-up of 2.96 years (1–4). Median age at time of treatment was 73 years (50–80), median Pre HIFU-PSA 6.9 ng/ml (1.12–10), median prostate volume 34 g (16–98) and median Gleason score 6 (5–7). Median PSA nadir was 1.76 ng/ml (0.1–9.73) with a median time to nadir of 16.4 weeks (11–48). Recurrence free survival (RFS) rate at 2 yr was 83%. Secondary therapy free survival (STFS) rate was 97%. All patients were retreated with androgen depriviation. 40% of patients presented only with grade 1 complications (dysuria).

CONCLUSIONS: The most recent experience with Ablatherm-HIFU at our center shows and adequate local control and recurrence free survival (RFS at 2 yr: 83% and STFS at 2yr: 97%) at
short follow-up for patients harboring low risk disease. Evaluation of learning curve for the technique and detailed technological modification are warranted to verify the further expansion and application of the technology in patients with intermediate and high risk disease.

Source of Funding: None

- **MP20-10 ENDOSCOPIC INGUINOFEMORAL LYMPH NODE DISSECTION FOR MALIGNANCIES OF THE EXTERNAL GENITALIA**

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**INTRODUCTION AND OBJECTIVES:** Inguinofemoral lymphadenectomy (IFLA) is a standard procedure for malignancies of the external genitalia including penile cancer and melanoma. Open lymphadenectomy (O-IFLA) exhibits significant complication rates of over 50%. Hence, many surgeons are reluctant to offer IFLA despite a significant survival advantage. We are demonstrating our extended experience with a modified endoscopic approach (E-IFLA) for groin lymphadenectomy to minimize morbidity.

**METHODS:** Patients with non-palpable as well as those with palpable nodes who had IFLA were identified. O-IFLA comprised both superficial and deep inguinal lymph node dissection. E-IFLA was used during a 3-trocar approach in the same field. We employed a reduced CO2-pressure of $<5$ mmHg. A suction drain was always placed. Peri- and post-operative outcomes were systematically assessed followed by statistical analysis. Complication reporting was done using the Clavien-Dindo classification.

**RESULTS:** We performed 62 IFLAs in 42 patients. Twenty-eight procedures were completed endoscopically. Follow-up was 57.8 months (2–87). Mean OR-time for O-IFLA was 101.7 minutes (38–444). In 42 patients 28 IFLAs were completed and 24 of these were converted to open procedures. The OR-time for O-IFLA procedures was 101.7 minutes (38–444). Rates of local recurrence were comparable in O-IFLA (7.7%) and E-IFLA (6.6%). Rates of local recurrence were comparable in O-IFLA (7.7%) and E-IFLA (6.6%).

**CONCLUSIONS:** O-IFLA and E-IFLA are efficient with respect to oncological safety. E-IFLA is technically more challenging. E-IFLA can avoid secondary wound healing and lymphatic complications. E-IFLA is a safe procedure while a reduction of CO2-pressures optimizes the safety profile. Since cancer control rates remained equivalent during an extended follow-up oncological durability could be confirmed.

Source of Funding: None

- **MP20-11 UPPER URINARY TRACT RECURRENCE FOLLOWING RADICAL CYSTECTOMY FOR BLADDER CANCER WITH ITS HISTOLOGY: AN ANALYSIS OF INCIDENCE AND RISK FACTORS**

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**INTRODUCTION AND OBJECTIVES:** About 20–30% of bladder cancer (BC) is reported to find at muscle-invasive status at the time of initial presentation and even 20–50% of early detected superficial BC also progressed to invasive with 5–15% of loco-regional recurrence rate during follow-ups. For those muscle-invasive or frequently recur BC, radical cystectomy (RC) with urinary diversion of either neobladder or ileal conduit is a standard treatment, and upper urinary tract recurrence (UUTR) is another important issue during postoperative follow-ups with previously suggested various risk factors for UUTR. So it is important to predict an increased likelihood of UUTR and its risk factors of including histological types to define the monitoring follow-up strategy. The study is aimed to examine the incidence of UUTR and its risk factors following RC in patients with BC, and to evaluate the relationship of UUTR with types of urinary diversion and with the histology of BC.

**METHODS:** From April 1995 to December 2011, medical records of 331 RC patients were retrospectively reviewed. Patients with a history of renal surgery, or concomitant UUTR at RC were excluded.

UUTR was defined as any abnormal findings occurred and proven cancer recurrence in radiographic, endoscopic or pathologic along the upper urinary tract. For the statistical analysis, all clinicopathologic parameters and perioperative parameters were considered.

**RESULTS:** The median age was 63.0 years old with 44 months of median follow-up. Ileal conduit was performed in 175 (52.9%) patients and orthotopic neobladder in 156 (47.1%). The UUTR occurred in 11 (3.3%) patients following nephroureterectomy (3 papillary, and 8 transitional cell). Four variant types of RC (3 papillary, 1 squamous cell) had insignificantly poorer survival than the rest of pure transitional cell (35.4% vs. 40.7% at 9.2 mo, p = 0.468). Among the UUTRs, 8 UUTRs had the same histologic pathology of RC (6 transitional, 2 papillary cells) and the rest of UUTR had different (1 papillary, 1 squamous, 2 transitional cells). The UUTR had poorer survival than non-UUTR (median 39.1 mo vs. 67.3 mo, respectively). The prognostic factors of UUTR showed age (OR 1.04), T stage (OR 7.890), N stage (OR 4.254), and the presence of local recurrence (OR 4.254) significant (p < 0.05).

**CONCLUSIONS:** The study showed that the incidence of UUTR was 3.3% and that the T, N stages and presence of pelvic local recurrence were important risk factors to consider more careful attention during follow-ups.

Source of Funding: none

- **MP20-12 ONCOLOGIC OUTCOME FOLLOWING PRIMARY CRYOABLATION FOR THE TREATMENT OF PROSTATE CANCER ACCORDING TO RISK STRATIFICATION: UPDATED DATA FROM THE COLD REGISTRY**

Stephen Williams*, Garo Tertzakian, Orange, CA, John Ward, Houston, TX, Stephen Jones, Cleveland, OH

**INTRODUCTION AND OBJECTIVES:** We report updated data regarding the oncologic efficacy of primary prostate cryoablation.

**METHODS:** The COLD (Cryo On-Line Data) Registry consists of case report forms obtaining pretreatment and posttreatment information for patients undergoing whole gland prostate cryoablation treated without use of secondary androgen deprivation therapy. A total of 1,191 patients were stratified into low, intermediate and high risk groups. Biochemical success was defined according to the traditional American Society for Therapeutic Radiology and Oncology definition (3 increases) and the newer
Phoenix) definition (nadir + 2). Biopsy was performed at physician discretion but most commonly for cause if a patient had an increasing or suspicious prostate specific antigen.

**RESULTS:** Average patient age was 69.9 +/- 9.9 years. Median pretreatment prostate specific antigen was 5.8 +/- 5.7 ng/ml with clinical stage <T2b being identified in 75%. The 5-year biochemical disease-free status for the entire population was 71.0% +/- 2.1%. The 7-year American Society for Therapeutic Radiology and Oncology biochemical disease-free status was 84.7% +/- 4.5%, 73.4% +/- 4.3% and 75.3% +/- 3.7% for the low, moderate and high risk groups, respectively. Using the Phoenix definition the biochemical disease-free status was 91.1% +/- 2.9%, 78.5% +/- 3.6% and 62.2% +/- 4.9%, respectively. Biopsy after cryotherapy was positive during empiric without cause biopsy in 29 of 253 patients (11.5%). The rectal fistula rate was 0.3% and incontinence was 3.5% with 6.8% of patients using any pads. Intercourse was reported by 33.4% of patients who were potent at baseline.

**CONCLUSIONS:** Whole gland primary cryoablation from a large data registry appears to offer oncologic efficacy with limited perioperative and urinary complications.

**Source of Funding:** None

**MP20-13** Long-term oncologic outcome and complications of laparoscopic radical nephrectomy in 286 consecutive patients in Akita-Japan: relatively high recurrence rate in CT1 tumors

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**INTRODUCTION AND OBJECTIVES:** To assess the oncologic outcome and the incidence of complications of laparoscopic radical nephrectomy (LRN) for renal cell carcinoma (RCC) performed by various indications for 12 years period at a Japanese single-center and its affiliated community hospitals.

**METHODS:** From 2000 to 2011, 286 laparoscopic radical nephrectomies consisting of 208 transperitoneal and 78 retroperitoneal nephrectomies were performed. The factors related to oncologic outcomes and perioperative complications used Satava classification and modified-Clavien classification were retrospectively analyzed.

**RESULTS:** The median duration of postoperative follow-up was 39 months with the minimum follow-up period 4 months. The mean tumor size, operative time and blood loss were 4.4 cm (range 1–12 cm), 221.1 min (range 121–448 min) and 120.5 (range 0–2041 ml), respectively. The 5-year cancer specific survival was 95.0, 83.3, 88.9, and 0%, in Stage I, II, III, and IV, respectively. The 5-year recurrence-free survival was 87.6, 82.5, and 36.4%, in Stage I, II, and III, respectively. A total of 32 complications (11.2%) occurred in 286 patients, intraoperative in 16 (all Satava grade II), early postoperative in 16 (12, 3, and 1, in modified-Clavien grade I, II, and IV, respectively). Major complications requiring open conversion or hand assist occurred in 7 patients (2.4%).

**CONCLUSIONS:** Although laparoscopic radical nephrectomy was performed safely, there was over 10% recurrence rate in stage I (cT1N0M) tumors treated with laparoscopic nephrectomies. The results indicated the need for the accurate assessment of tumor biology in this era of nephron sparing surgeries for stage I tumors.

**Source of Funding:** none

**MP20-14** 5-year experience of metallic mesh stent (Uventa) in malignant ureteral obstruction

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**INTRODUCTION AND OBJECTIVES:** Malignant ureteral obstruction (MUO) is an intractable condition for patients with advanced cancer. Metallic stents have used to correct MUO of patients with malignancy. Our objective was to evaluate the clinical efficacy and safety of metallic mesh stent (Uventa) in MUO from 5-year experience.

**METHODS:** We retrospectively reviewed 110 ureter units from 2009 to 2013. Indications were those who had MUO with a polymeric double-J stent malfunction, severe polymeric stent irritation, or severe pain during periodic stent change. Metallic stents were inserted via cystoscopy or ureteroscopy in a retrograde fashion. Primary success was defined as no obstruction and no additional intervention. Overall success was defined as no obstruction on diuretic renogram or intravenous urography at the
last follow-up and no additional interventions, except supplementary metallic stent instillation.

RESULTS: Metallic stents were inserted without procedure-related complications in 80 patients with MUO. The overall success and primary success rates were 82.7% (91/110 ureter units) and 70.9% (78/110 ureter units) during the follow-up period, which had a median of 331 days (36–1078 days). The most common cause for primary failure was tumor progression beyond the stent segment (71.9%), followed by mucosal hyperplasia at the stent tip (12.5%), bladder invasion of the primary tumor (9.4%) and stent-related pain (6.3%). The complications are persistent pain (15.5%), lower urinary tract symptoms (8.2%), persistent hematuria (5.5%), stent migration (3.6%) and acute pyelonephritis (2.7%).

CONCLUSIONS: Patients with MUO can be managed sufficiently with the metallic stent. This option can be an effective and safe for palliative treatment in advanced cancer.

Source of Funding: none

MP20-15 AN OVERVIEW OF THE USE OF CHECKLISTS IN SURGICAL SPECIALTIES - A SYSTEMATIC REVIEW

Janki Patel*, Kamran Ahmed, London, United Kingdom, Khurshid Guru, Buffalo, NY, Howard Marsh, Kent, United Kingdom, Mohammed Shamim Khan, Prokar Dasgupta, London, United Kingdom

INTRODUCTION AND OBJECTIVES: Surgical procedures present an immense risk to patients, and adverse patient outcomes are frequently due to substandard non-technical skills amongst surgical staff. The implementation of a 19-item Surgical Safety Checklist, developed by the World Health Organisation, is being enforced in operating theatres globally. Significant improvements have been seen in post-operative complications and mortality following the use of the checklist. The objective is to systematically analyse published literature to assess the use of checklists and their impact in different surgical specialties.

METHODS: An English literature search was carried out in January 2013 using MEDLINE, EMBASE and PsycINFO databases. Relevant information was extracted relating to the checklist used, modifications made, surgical specialties in which the checklist was used, compliance with the checklist, the effect of checklist use on patient outcomes, and staff perceptions of the checklist. The PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) were followed.

RESULTS: The literature search found 916 potentially relevant articles, which were narrowed down following an abstract review and a full text review. A final total of 16 studies were identified that observed the use of checklists in various surgical specialties;
INTRODUCTION AND OBJECTIVES: Surgical safety checklists have been shown to significantly improve morbidity and mortality rates amongst patients subsequent to surgery in many specialties, and therefore their use is being widely encouraged and accepted. The use of the WHO Surgical Safety Checklist has drastically improved patient outcomes. The rate of death among surgical patients has shown a reduction from 1.5% to 0.8%, and the incidence of in-patient complications has decreased from 11% to 7% since the introduction of the checklist. Further research is required to determine the long-term effects of checklist implementation. Continual feedback could be given to make staff aware of potential improvements that can be made and to maintain high checklist compliance, and thus high patient safety.

Source of Funding: None

MP20-16 LONG-TERM RESULTS FOR SUBCUTANEOUS DETOUR® PROSTHESIS FOR URETERAL OBSTRUCTION: EXPERIENCES OF IMPLANTATION, AFTER CARE AND MANAGEMENT OF COMPLICATIONS

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INTRODUCTION AND OBJECTIVES: We present the long-term results of implementation of the Detour® prosthesis as an alternative to established methods of surgical, percutaneous or internal urinary diversion.

METHODS: Between 2004 and 2012 a total of 43 prostheses were implanted in 33 patients (mean age 65 years) with ureteral strictures of various origins. In the follow-up the patients underwent examinations and completed questionnaires.

RESULTS: The average follow-up was 23 months (range 1–92 months). Sonographic examinations showed no urinary retention in 38 out of 40 implanted systems. The retention values were stable in 19 patients, improved in 7 and worse in 3. The quality of life (QoL) was high (EORTC QLQ-C30 90%). Intraoperative complications were 2 intestinal lesions and 3 bleeding of the renal-pelvic system. Postoperative urinary tract infections and wound complications were encountered. In the long-term course three infected hydronephroses occurred which were treated and cured with antibiotics and temporary nephrostomy and 4 systems were explanted, including 2 exchanges.

CONCLUSIONS: The system may be considered for patients with ureteral strictures with palliative and curative intent. There were no significant disadvantages in comparison with established methods. There were fewer risks in implantation and complications were manageable. The quality of life was significantly improved.

Source of Funding: None

MP20-17 DOES SOCIOECONOMIC DEPRIVATION, BODY MASS INDEX AND SMOKING STATUS INFLUENCE GRADE, STAGE, MULTIFOCALITY AND RECURRENCES IN UPPER TRACT TRANSITIONAL CELL CARCINOMA?

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INTRODUCTION AND OBJECTIVES: Socio-economic deprivation is associated with aggressive disease and reduced survival in many cancers, however little is known regarding its impact on disease aggressiveness and pattern of recurrences of upper tract transitional cell carcinoma (UT-TCC). We investigated the relationships between Scottish Index of Multiple Deprivation (SIMD), body mass index and smoking status and recurrence in patients with clinically localised resectable UT-TCC.

METHODS: Patients who underwent nephroureterectomy for UT-TCC between 1998 and 2012 at Ninewells Hospital, Dundee were retrospectively evaluated. Patients whose area of residence was ranked in the lowest quantile according to the national Index of Multiple Deprivation were classed as deprived. Overall survival and cumulative risk of recurrence were calculated using the Kaplan-Meier method, conventional and time-dependent cox regression analysis.

RESULTS: 106 patients underwent nephroureterectomy for clinically localized UT-TCC in the study period. Mean age 71.4 years (35–88 years). Mean follow up 4.6 years (1–172 months). Although patients from higher deprivation index had advanced stage (≥ T2) this wasn’t statistically significant (39.6% vs. 54.4%, p = 0.17), high grade disease was similar between the two groups (61.4% vs. 58.3%, p = 0.84). Lower deprivation index had higher rates of multifocal disease (37.5% vs. 21.2%, p = 0.08), however this wasn’t statistically significant. Overall survival rates were slightly higher for the lower deprivation index category (log rank test, p = 0.667). 6-yr raw cumulative recurrence was 22.9% and 24.6% in deprived and non-deprived patients respectively.

Time-dependent Cox regression analysis did not show that deprivation was a significantly stronger predictor of recurrence with or without adjustment for other prognostic variables. Smoking did not influence stage (p = 0.85), grade (P = 0.54) or multifocality (p = 1). Similarly high BMI (≥ 25) did not influence stage (p = 0.28), grade (p = 0.1) or multifocality (p = 1).

CONCLUSIONS: Socio-economic status, smoking and BMI do not appear to be independent predictors of stage/grade, multifocality, recurrence and overall survival in UT-TCC.

Source of Funding: None

MP20-18 TRENDS IN THE MANAGEMENT PATTERNS OF RENAL ANGIOMYOLIPOMAS: A CASE SERIES OF 392 PATIENTS

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INTRODUCTION AND OBJECTIVES: To describe the clinical and radiological features and the trends in the management pattern of renal AML in tertiary care center over the last 30 years.

METHODS: We retrospectively reviewed the charts of patients referred to our institution from 1980 to 2012 with final diagnosis of AML. Demographics, clinical presentation, radiological findings, serum creatinine, chronic kidney disease, and treatment options were recorded. Clinical features and management trends over the study period were analyzed.

RESULTS: Overall, three hundred and ninety two patients (mean age 61.7 ± 16.9 years) with a confirmed diagnosis of AML were included in this analysis. The diagnosis was incidental in 75.2% of cases and symptomatic in 24.8% of them. Of all, 277 (70.5%) and 115 (29.5%) patients were treated with active treatment and surveillance, respectively. Partial nephrectomy was the first elected surgical approach (49%). The size at diagnosis continuously decreased over the study period (p < 0.001) and treatment options shifted, with significant trending towards less invasive
TO TREAT PT1 CLEAR CELL RENAL CELL CARCINOMA

Source of Funding: none

FIG. 1. Evolution of treatment options over the study period. The analysis of variance showed a significant evolution in treatment option over the study period (p < 000.1) in favor of active surveillance, angiembolization and cryoablation. Green lines represent the means for every treatment. OPN: Open partial Nephrectomy; LPN: laparoscopic partial nephrectomy, RALPN: Robotic-assisted laparoscopic partial nephrectomy; ORN: open radical Nephrectomy; LRN: laparoscopic radical nephrectomy; RALRN: Robotic-assisted laparoscopic radical nephrectomy.

CONCLUSIONS: AMLs are currently being diagnosed at a smaller size than before, because of the widespread utilization of different imaging modalities. Moreover, their clinical management has significantly shifted towards nephron-sparing approaches, such as angio-embolization or active surveillance (figure 1).

Source of Funding: None

MP20-19 KIDNEY SIZE AND CANCER SPECIFIC SURVIVAL FOR PATIENTS UNDERGOING NEPHRECTOMY TO TREAT PT1 CLEAR CELL RENAL CELL CARCINOMA


INTRODUCTION AND OBJECTIVES: The incidence of small, localized clear cell renal cell carcinoma (ccRCC) continues to rise, underscoring the need for novel predictors of outcome following surgery for pT1 ccRCC. To date, there has been no effort to explore whether kidney size provides prognostic information for pT1 ccRCC patients. Herein, we examine the association of kidney size and RCC death among pT1 ccRCC patients undergoing surgery.

METHODS: We employed a case-cohort design and sampled 191 patients from our Registry who underwent open radical nephrectomy for unilateral, sporadic, pT1, pN0/NX, M0, non-cystic ccRCC between 1989 and 2004. Of these, 47 patients died from RCC (‘cases’) and 144 patients were alive at last follow-up or died of other causes (‘cohort’). Univariable and multivariable associations with RCC death were evaluated using weighted Cox regression and summarized with hazard ratios (HR) and 95% confidence intervals (CIs).

RESULTS: We observed a positive association between increasing kidney size and risk of RCC death. A 1 cm increase in kidney size was associated with an 18% increased risk of RCC death even after adjusting for tumor size, nuclear grade and presence of necrosis. After multivariable adjustment, those patients with a kidney size above the median were 95% more likely to experience RCC death compared to those with kidney size below the median (HR 1.95; CI 1.00–3.81; p = 0.05).

CONCLUSIONS: Our data suggest that kidney size is an independent predictor of pT1 ccRCC survival. Future investigations are needed to confirm this finding and investigate this issue in larger, organ-confined tumors and other RCC subtypes.

Source of Funding: none

MP20-20 RADIOFREQUENCY ABLATION OF RENAL TUMORS: 4-YEAR FOLLOW-UP RESULTS IN 47 PATIENTS

Soo-dong Kim*, Seong Guk Yoon, Gyung Tak Sung, Busan, Korea, Republic of

INTRODUCTION AND OBJECTIVES: To retrospectively evaluate the intermediate results of radiofrequency ablation (RFA) of small renal masses (SRMs).

METHODS: Percutaneous or laparoscopic RFA was performed on 48 renal tumors in 47 patients. The follow-up included a physical examination, chest radiography, creatinine, and contrast-enhanced CT or MRI. To confirm the pathologic criteria of complete ablation, 35 patients underwent a follow-up biopsy. Recurrence was defined as contrast enhancement after 3 months, lesion growth at subsequent imaging, or viable cancer cells on follow-up biopsy.

RESULTS: Technical success was achieved in 43 of 48 (89.6%) renal tumors. The mean tumor size was 2.3 cm and the mean follow-up period was 49.6 months. Repeated RFA was necessary in 5 tumors due to incomplete ablation. The overall complication rate was 35.8%, of which 96.2% were low-grade complications. Serum creatinine levels at 12 months after RFA did not differ from those before RFA (1.28 vs. 1.36 mg/dL). Four patients were found to have recurrence at various follow-up intervals, and distant metastasis was not found in any cases.

CONCLUSIONS: Radiofrequency ablation is considered to be a useful treatment for selected patients with SRMs as well as for nephron-sparing. Our 4-year follow-up results suggest an excellent therapeutic outcome with RFA, while achieving effective local tumor control.

Source of Funding: Dong-A university

MP20-21 ISOLATION AND BIOLOGICAL BEHAVIOR STUDY OF CD133 POSITIVE CELLS FROM BLADDER CANCER CELL LINE 5637

Shuaiqi Chen, Tao Yang, Yuchuan Hou*, Changchun, China, People's Republic of

INTRODUCTION AND OBJECTIVES: To isolate and culture the CD133 Positive cells from bladder cancer cell line 5637, to assess their invasiveness, tumorigenic ability, and to explore
whether the CD133-positive human bladder cancer cell have the tumor stem cells properties.

**METHODS:** To study the expressions of CD133 in bladder cancer cell line 5637, flow cytometry applied with the magnetic cell sorting (MACS) technology was adopted. We purified CD133 positive cells from bladder cancer cell line 5637 and identified by flow cytometry. Identification of proliferation, Clonogenic capacity and migration capacity of CD133+ and and CD133−cells by MTT assay, Flat colony formation. Identification of differentiation by flow cytometer.

**RESULTS:** (1) CD133+ was expressed on a small fraction of cells in bladder cancer cell line 5637, the percentage of CD133+ cells was 1.45%. Detection of expression of CD133 in bladder cancer cells line 5637 by flow cytometer.

(2) CD133+ cells purified by MACS were in a considerable purity of 93.42%. Purity examination of CD133+ cells by flow cytometer.

(3) The results of MTT assay, Flat colony formation. Wound healing assay show that CD133+ cells display higher proliferative potential, clonogenic capacity and migratory capacity than CD133− cells.

(4) After cultured in serum-containing medium, CD133+ cells could differentiate into a different phenotype of CD133− tumor cells, the percentage of CD133+ cell population decreased rapidly as detected by flow cytometer.

**CONCLUSIONS:** Detection of expression of CD133 in bladder cancer cell line 5637 by flow cytometry. CD133+ cells could be effectively obtained high-speed by MACS. CD133+ cells sorted by flow cytometer were in a considerable purity of 93.45% and can be used for the follow-up experiment. CD133+ cells displayed stem cell-like properties of self-renewal and differentiation compared with the CD133− cells in vitro. CD133+ cells possessed stronger motility than CD133− cells in vitro, CD 133+ cells may contribute to the recurrence and metastasis of bladder carcinoma cell.

Source of Funding: none

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**MP20-22 A NOVEL PNEUMATIC ELECTROCAUTERY DEVICE**

Herman Bagga*, Joe Miller, Thomas Chi, San Francisco, CA, Michael Blomeyer, Walnut Creek, CA, Marshall Stoller, Maxwell Meng, San Francisco, CA

**INTRODUCTION AND OBJECTIVES:** Advantages of electrocautery include precision and ability to effectively coagulate bleeding tissue. When target materials are submerged in fluids such as blood, this fluid must be removed with a suction or sponge to optimize vision for effective and safe electrocautery. This can cause delays and often requires trained surgical assistance. A monopolar electrocautery device using pressurized air to displace fluids was developed to improve visualization of otherwise submerged tissues during surgery.

**METHODS:** A monopolar handheld ‘pencil’ electrocautery device was developed with a nozzle positioned just proximal and adjacent to the electrode blade. This nozzle expelled pressurized air at a rate of 5 liters per minute into the surgical field, focused at target tissues and displacing overlying fluid. Using submerged bovine tissue in saline we evaluated the depth at which our device could desicate tissue in comparison to a traditional handheld Bovie. Next, shaped patterns were drawn on bovine tissue submerged under 0.5–1 cm of opaque red fluid, simulating blood. Our device was used to displace overlying fluid to reveal the patterns, and we assessed its ability to coagulate the targeted shapes.

**RESULTS:** When bovine tissue was submerged in saline, the traditional Bovie device was able to dessicate tissue at a maximal depth of 0.3 cm. In contrast, our pneumocautery device was able to displace fluid to allow for precise tissue desication at a depth up to 1.5 cm. Figure 1 illustrates the ability of our device to expose submerged tissues, which allowed for effective electrocautery. There was no significant splashing of fluid. Figure 2 demonstrates ability to effectively coagulate submerged target lines.

**CONCLUSIONS:** The use of this novel pneumatic electrocautery device allowed for effective displacement of obscuring overlying fluid, improving visualization for improved, precise electrocautery.

Source of Funding: none

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**MP20-23 THE IMPACT OF OUTPATIENT ENDOSCOPY ON UROLOGY SERVICES IN A TERTIARY HOSPITAL IN A LOW RESOURCE ENVIRONMENT**

Augustine Takure, Sikiru Adebayo, Olayiwola Shittu, Linus Okeke, Oluwabunmi Olapade-Olaopa, Augustine Takure*, Ibadan, Nigeria

**INTRODUCTION AND OBJECTIVES:** Since the acceptance of endourology in the 1980’s, a significant number of outpatient endoscopic procedures are now done. We reviewed all outpatient endoscopy procedures done over a 9 year period in our tertiary hospital to see what impact it has on urology services. There is limited inpatient theatre space in our multispecialty surgical hospital. The cost of inpatient admission is also high.

**METHODS:** All patients who had endoscopy from April 2004 to March 2013 were reviewed and the data analysed. The anaesthesia administered was either caudal block or topical. The average cost of outpatient endoscopy ranged from 78–156 USD while it ranged from 625–3125 USD in the inpatient theatre.

**RESULTS:** A total of 1031 patients had 1150 endoscopy procedure done in the outpatient theatre, while 62 endoscopic procedures were performed in the inpatient theatre. Thus 94.3% of the patients had outpatient endoscopy performed in the hospital. The commonest procedures were urethroscopy (518), cystoscopy alone (250), direct visual internal urethrotomy (118) and
cystoscopy with bladder biopsy (63). 1.1% of the procedures were abandoned due to complications.

CONCLUSIONS: Outpatient endoscopy is attractive, affordable, with sedo-anaesthesia. A significant number of procedures are done thus reducing the pressure for space in the inpatient theatre and a corresponding increase in the urological care in a resource limited environment.

Source of Funding: none

MP20-24  1. TITLE: “CLOSED ACCESS” STERILE DRAINAGE: IT WORKS FOR PERITONEAL DIALYSIS—IT WILL WORK FOR THE URINARY BLADDER, ALSO

Chris Smith*, Don Griffith, Houston, TX

INTRODUCTION AND OBJECTIVES: Urinary bladder and the peritoneal cavity are native ‘sterile organs’. 100% of bladder drainage systems are “open access” whereby skin microbes adhere, replicate, and migrate on the external catheter surface into bladder lumen. 100% of chronic urinary drainage [Center for Disease Control [CDC] defined as 30+ continuous days] have colonized urine. Tenckhoff Peritoneal Dialysis systems use ‘Dacron Cuffs’ placed within abdominal wall muscles to block ‘external surface’ migration of commensal skin microbes. Tenckhoff systems commonly have 3–10 cases of exit-site infections or peritonitis per 1000 days of catheter use—which is drastically better than that achieved via ‘open access’ urinary drainage. A new Tissue Bonding Cystostomy combines features of the Tenckhoff and the Foley drainage systems.

METHODS: Water-tight, leak-proof porous polymer coated silicone components have been evaluated in multiple animal species. Bonded components have been challenged, repeatedly with microbial cultures.

RESULTS: Chronic intra-lumenal bacteriuria did not damage or disrupt Prosthesis-smooth muscle unions and body wall implants bonded robustly such unions were not disrupted by repeated high concentration microbial challenge.

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Source of Funding: Uro-Research, LLC
**INTRODUCTION AND OBJECTIVES:** We report the results of retroperitoneal and extraperitoneal laparoscopic surgery performed by single surgeon.

**METHODS:** Between October 2011 and July 2012, a total 27 patients underwent retroperitoneal and extraperitoneal laparoscopic surgery performed by single surgeon. Mean patients age was 52.24±22.35 years and male to female ratio was 15:12. The cases were consisted of 9 adrenalectomy including 5 LESS (laparoscopic single site) and 2 needlescope-assisted surgery, 1 nephrolithotomy without renal ischemia, 1 needlescope-assisted renal cyst marsupialization, 1 partial nephrectomy, 1 simple nephrectomy, 2 metastasectomy including 1 adrenal gland and 1 retroperitoneal lymph nodes metastasized solitarily from lung cancer, 10 radical prostatectomy, and results were analyzed retrospectively.

**RESULTS:** All cases were performed without conversion to open surgery. Mean follow-up period was 15.34±5.26 months. Mean operation time was 190.81±151.14 minutes and average blood loss was 152.85±98.14 ml. Transfusion was performed in 1 case. Mean postoperative hospital stay was 11±4.52 days. All patients started diets on first day after surgery. Major complication did not occur, but just one intestinal obstruction was detected and resolved by supportive care.

**CONCLUSIONS:** Retroperitoneal and extraperitoneal laparoscopy needs the learning curve in making surgical space and understanding anatomy, but it can be overcome within a short period of time. Because of early recovery and low complication rate, we can expect this technique to be standard method for the patients with history of previous open surgery and morbid obesity.

**Source of Funding:** None

**INTRODUCTION AND OBJECTIVES:** The processes of globalization and regionalization changed many fields, including urology. Unfortunately, opinions regarding these phenomena in the urological community are presently often subjective. We examined the locations and quality of the past decade’s basic science research publications to better inform the debate.

**METHODS:** We searched the Journal of Urology for Investigative Urology articles from 2002–2011 and reviewed all 1345 studies. The date of publication and senior author’s nation was recorded. For U.S. papers, the location was divided into four regions. The total number of articles per year was found and the percentage from each region was calculated. To measure quality, the number of times an article was cited was found using the Scopus database. To account for varying times since publication, the citations per month was found.

**RESULTS:** Our analysis of the international data showed that for each year, articles from the U.S., Europe and Asia represented nearly 90% of the studies. Over the course of the decade, the percentage of U.S. and European papers decreased with trend lines of −0.28 (p = 0.75) and −0.50 (p = 0.42) respectively, while Asian studies increased with a trend line of 0.50 (p = 0.35). The U.S. was the largest contributor each year while the trend line for Asia surpassed Europe in 2009. Nationally, both the Northeast and the Midwest trended downward at slopes of −0.96 (p = 0.13) and −0.45 (p = 0.49) respectively, while the South and West increased with slopes of 0.66 (p = 0.37) and 0.75 (p = 0.13). The citation score showed that for each successive year of U.S. articles, the score decreased by 0.01 (p = 0.01), while for Europe and Asia it increased annually by 0.01 (p = 0.93) and 0.01 (p = 0.92), respectively. Patterns in the U.S. regarding numbers of citations annually demonstrated declines in all four regions: Northeast −0.01 (p = 0.04), South −0.02 (p = 0.02), Midwest −0.01 (p = 0.08), and West −0.02 (p = 0.05).

**CONCLUSIONS:** Although statistically inconclusive, our analysis seems to suggest that the percentage and quality of basic science urologic publications from the U.S. decreased, while the percentage and quality of Asian articles increased. Europe showed a decline in the percentage of publications annually, but a small rise in citation score. In the U.S., the amount of research in the Northeast and Midwest may have declined, while in the South and West it likely grew. It is beyond the scope of this project to explain these trends. However, identifying them is the first step in addressing the political, intellectual and economic environments that foster basic science growth.

**Source of Funding:** None

**INTRODUCTION AND OBJECTIVES:** In patients with urinary diversion, retrograde access can be technically challenging secondary to new anatomy that must be negotiated during surgical intervention. Yet, there are distinctive benefits to retrograde access, which is generally safer, and associated with less morbidity than antegrade/percutaneous techniques. In this video, we illustrate retrograde renal access in a patient with a history of urinary diversion.

**METHODS:** An 86 year old female with a history of bladder cancer and cystectomy with ileal conduit was found to have 3 cm mass in the left collecting system on follow up CT. After informed consent was obtained, the patient was taken to the operating room for retrograde renal access to further define the lesion.
RESULTS: Operative time was 60 minutes. Estimated blood loss was negligible. There were no intra-operative complications. The patient tolerated the procedure well and was discharged on the same day as the intervention.

CONCLUSIONS: Retrograde access in patients with urinary diversion is feasible despite being a technically challenging procedure. Careful review of prior operative notes, use of copious irrigation prior to looposcopy, closing off of the conduit to facilitate dilation, and use of access sheaths, are techniques that can be used to aid the surgeon in this difficult intervention.

Source of Funding: None

V10-02 MYTHS, DOUBTS AND FACTS ABOUT LASER LITHOTRIPSY

Peter Kronenberg*, Amadora, Portugal, Olivier Traxer, Paris, France

INTRODUCTION AND OBJECTIVES: Urologists have diverging opinions and beliefs concerning the ideal laser lithotripter setting. We decided to confirm or reject common beliefs by evaluating laser lithotripsy efficiency and retropulsion using innovative testing methods free from any human interaction bias.

METHODS: An automated laser fragmentation testing system was developed, where laser fibers moving at constant velocity over the surface of artificial stones create a fissure, whose wide, depth and volume were analyzed. Lithotripter settings included different pulse energies (0.2–1.2 J), frequencies (5–40 Hz), power levels (4–20 W) and laser fiber diameters (200 and 550 µm), including high frequency vs. low frequency experiments. Other artificial stones were put in direct contact with a laser fiber tip, through which a single laser pulse was fired at various pulse energies (0.2–3.5 J), using small and large laser fibers. All experiments were recorded with high-speed video, the distance the stones travelled measured and each video analyzed in order to detect any unexpected event.

RESULTS: Low frequency with high pulse energy settings showed to be several times (2.1–6.2 x) more efficient than high frequency with low pulse energy at the same power level tested (p < 0.00001). A linear correlation was found between pulse energy and fragmentation volume (p < 0.00001), fissure width (p < 0.00001) and fissure depth (p < 0.00001). No correlation was found between power (W) used and fragmentation volume (p = 0.29), fissure depth (p = 0.06) or fissure width (p = 0.7). No differences were detected concerning laser fiber diameter and fragmentation volume (p = 0.81) except at very low pulse energies (0.2 J) the large fiber was less efficient (p < 0.015). As pulse energy rises, so does the retropulsion distance regardless of fiber size. At equal energy levels, larger laser fiber diameters are associated with significantly greater stone displacement. High-speed video analysis detected that: retropulsion increases considerably if the laser fiber tip is inside a fragmentation crater; stone position is affected by cavitation bubbles resulting from laser emission from fibers that are not in direct contact with the stone even over considerably large distances; very high pulse energies (2.0 J or higher) produce turbulence waves which push the stone even further away than the retropulsion effect alone.

CONCLUSIONS: Automated laser fragmentation testing systems and high-speed video analysis can bring new insights concerning laser lithotripsy, and reveal details that might otherwise remain concealed to the human eye.

Source of Funding: none

V10-03 PERCSAC: A NOVEL DEVICE TO PREVENT STONE FRAGMENT MIGRATION DURING PERCUTANEOUS LITHOTRIPSY

Jodi Antonelli*, Jeffrey Gahan, Justin Friedlander, Heather Beardsley, Margaret Pearle, Jeffrey Cadeddu, Dallas, TX

INTRODUCTION AND OBJECTIVES: Up to 50% of patients with residual stone fragments after percutaneous nephrolithotomy (PCNL) will experience a stone-related event. These events can include the need for prolonged hospitalization, re-admission, or secondary surgical procedures and can be associated with increased morbidity and cost. We have developed a device to capture large stones in an enclosed bag, enabling stone fragmentation during PCNL or cystolithotomy without fragment migration.

METHODS: The ‘PercSac’ device is a polyethylene bag that is placed over a rigid nephroscope. The bag can be advanced and retracted such that the distal tip extends beyond the tip of the scope to capture a stone. The opening of the bag is then tightened to allow containment of the stone. The stone can be treated within the ‘PercSac’ by ultrasonic lithotripsy. The device was tested with both 24 F and 26 F rigid nephroscopes, through a 30 F access sheath, into a 500 ml beaker.

RESULTS: The ‘PercSac’, loaded on either a 24 F or 26 F rigid nephroscope, was passed through a 30 F access sheath. Stones measuring up to 2.6 cm in diameter were captured within the ‘PercSac’. Ultrasonic lithotripsy was performed through the rigid nephroscope, within the cinched bag, without bag destruction or escape of stone fragments. The ‘PercSac’, containing small fragments that weren’t aspirated through the lithotripter, was removed through a 30 F access sheath.

CONCLUSIONS: The ‘PercSac’ has the potential to reduce residual fragments after PCNL or cystolithotomy by containing the stone in an enclosed space during fragmentation and aspiration with an ultrasonic lithotripter. The ‘PercSac’ allows fragmentation of stones measuring up to 3 cm with containment of all residual fragments, thereby preventing migration of stone fragments into inaccessible calyces. Further in vitro testing in both bladder and kidney models using a control comparison is planned.

Source of Funding: None

V10-04 COMBINED ROBOTIC CYSTOLITHOTOMY, URETEROLITHOTOMY, AND PYELOLITHOTOMY IN A MORBIDLY OBESE PATIENT

Mathew Oommen*, Ahmet Gudeologlu, Kevin Lee, Jamin Brahmbhatt, Sijo Parekattil, Winter Haven, FL

INTRODUCTION AND OBJECTIVES: Calcified and forgotten ureteral stents are a challenge in management. However, the same scenario of a significantly calcified and fragmented ureteral stent – combined with a significant bladder calculus and ureteral and renal pelvic calculi in a morbidly obese patient is even more challenging.

METHODS: A 71 year old female patient weighing 301 pounds presented with chronic suprapubic discomfort and right flank pain. The work-up revealed a significant stone burden, not only in the bladder, but also in the upper ureter and the renal pelvic.

A one-step approach utilizing the Da Vinci robot was used to perform a robotic cystolithotomy with extraction of the lower moiety of the stone burden. Without undocking, the robot was utilized to perform a ureterolithotomy and pyelolithotomy. The
stones and the calcified stent were removed intact. Flexible nephroscopy and antegrade flexible ureteroscopy did not reveal any residual fragments.

RESULTS: After post-operative day 1 the patient was discharged. A cystogram on postoperative day 10 revealed no leak; the foley catheter and JP drain were removed. The ureteral stent was removed six weeks post operatively. The patient is stone-free, symptom-free, and infection-free.

CONCLUSIONS: Innovative approaches can be utilized using robotic and laparoscopic techniques to remove large stone volumes in the bladder and renal pelvis.

Source of Funding: None

V10-05 TRANSPERITONEAL FLEXIBLE ENDOSCOPY FACILITATES STONE REMOVAL DURING MINIMALLY INVASIVE PYELOLITHOTOMY

James Borin*, Jeff McDaniel, Sarah Chan, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Large stones in the renal pelvis and proximal ureter may be amenable to laparoscopic or robotic pyelolithotomy. In select patients, this will increase the chances of rendering a patient stone-free with decreased risk of bleeding or sepsis. In this video, we demonstrate our technique of minimally invasive pyelolithotomy facilitated by transperitoneal endoscopy to remove residual stone fragments.

METHODS: Two patients with significant stone burdens in the proximal ureter (1.9 × 2.5 cm) and renal pelvis (4.6 × 4.0 cm) underwent laparoscopic and robotic pyelolithotomy, respectively. In addition to the primary calculus, preoperative CT scans demonstrated several lower pole stones in both patients.

RESULTS: Mean OR time was 222 minutes and there were no intraoperative complications. Lower pole stones were removed via transperitoneal renal endoscopy using a flexible cystoscope and basket. Both patients required an additional ureteroscopy; one patient to remove small stones in the contralateral kidney, the other to remove a lower pole stone which was not accessible intraoperatively. Stents were removed at the time of ureteroscopy.

CONCLUSIONS: Laparoscopic and robotic pyelolithotomy can provide an alternative to percutaneous nephrolithotomy in selected patients. Transperitoneal flexible endoscopy is a useful adjunct to facilitate stone removal. Ureteroscopy may be performed, if necessary, at the time of stent removal.

Source of Funding: none

V10-06 IATROGENIC COLON INJURY DURING PERCUTANEOUS STONE EXTRACTION

Sammy Elsamra*, Nithin Theckumparambil, Justin Friedlander, Hector Motato, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: Iatrogenic colonic perforation is a rare yet well described complication of percutaneous stone extraction (PSE). Herein we present a video summarizing the clinical course of a patient who sustained this complication. Her clinical management and outcome is also portrayed.

METHODS: An 82 year old woman with partial staghorn calculus in the left lower pole moiety of horseshoe kidney underwent PSE. Her case was unremarkable. A computerized tomography of her abdomen and pelvis performed on postoperative day one to assess for residual stone burden revealed a colonic perforation. Given her stable clinical course, she was placed on broad spectrum antibiotics and taken back to the operating room for placement of a double-J ureteral stent and percutaneous colostomy tube through the original tract. We demonstrated our technique for proper intra-luminal placement of the percutaneous colostomy tube with the use of a cobra catheter.

RESULTS: The patient had an uneventful course thereafter and a percutaneous colostogram performed on postoperative day ten revealed no leakage from the colon at the prior site of injury.

CONCLUSIONS: Horseshoe kidney is associated with increased risk for iatrogenic colonic injury during PSE. Expectant management of an iatrogenic colonic perforation is suitable in select patients. Cobra catheter may aid in intra-luminal placement of percutaneous colostomy tube.

Source of Funding: None

V10-07 RETROGRADE ENDOSCOPIC MANAGEMENT OF CALYCEAL DIVERTICULUM WITH CONCOMITANT RENAL CALCULI

Mathew Oommen, Kush Patel, Arthur Caire, Philip Dorsey*, Ben Woodson, Raja Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: The presence of symptomatic renal calculi within a calyceal diverticulum, especially a small one, can pose a treatment challenge to a practicing urologist. We present our technique of retrograde intrarenal surgery as a viable option for optimal therapy.

METHODS: CT scan and retrograde pyelogram was diagnostic for a calyceal diverticulum containing numerous calculi. Options were discussed including a percutaneous renal surgery, laparoscopy, and retrograde intrarenal surgery. Based on the distance from the renal capsule, body habitus, and small size of the diverticulum, the decision was made to perform a retrograde approach.

RESULTS: Retrograde intrarenal surgery was performed with the aid of the flexible ureteroscope, holmium laser, and fluoroscopic guidance. Once the wall of the diverticulum was localized within the renal pelvis, the holmium laser was used to enter the diverticulum. Upon entry, multiple renal calculi were identified. Basket extraction was performed along with holmium laser lithotripsy. A double-J ureteral stent was placed once the larger stones had been extracted and a large enough channel had been created for easy passage of the residual fragments.

CONCLUSIONS: Retrograde intrarenal surgery for the treatment of calyceal diverticulum with concomitant renal calculi is a viable option. Patient selection is crucial when choosing the best approach for treatment.

Source of Funding: None

V10-08 ANTEROGRADE URETERORENOSCOPY – PERCUTANEOUS LITHOTRIPSY AND INTESTINAL DILATION OF URETERTOSIGMOIDOSTOMY STENOSIS AND ASSOCIATED LITHIASIS

Sandro Gaspar*, José Dias, Tito Leitão, Ricardo Silva, Joao Lopes, Tomé Lopes, Lisboa, Portugal

INTRODUCTION AND OBJECTIVES: Uretersigmoidostomy stenosis and consequent obstructive lithiasis in a patient with a single kidney, could immediately imply, just a few years ago, an open surgery, possibly with a new urinary tract diversion. With the advent of endourological and percutaneous techniques, patients and urologists have an extra set of therapeutic strategies available.
We present a case of a 66-year-old male, who performed a ureterosigmoidostomy during a surgical correction of a bladder extrophy, as a child. He also had a right kidney nephrectomy for a non-functioning kidney 25 years before.

He referred to the emergency room one month before surgery with renal colic. Imaging revealed a distal ureteral stenosis, with a large obstructive stone (3 cm of diameter), located proximal to the uretero-colic anastomosis. A left percutaneous nephrostomy was placed.

METHODS: The usual preferred retrograde approach in urinary lithiasis was not possible due to the distal ureteral stenosis and the potential infectious complications. A combined approach was therefore selected.

An anterograde approach was proposed with simultaneous colonoscopy and ureterorcolic anastomosis retrograde dilatation. The patient was placed in the modified Valdivia position and the percutaneous nephrostomy access was used to dilate the entry tract until a 24 French working sheath was placed. An anterograde flexible ureterorenoscopy was performed and a Holmium laser fiber was introduced and endoscopic lithotripsy was initiated. A guide-wire was place through the uretero-colic anastomosis. Simultaneous colonoscopy was performed and retrograde mechanical dilatation of anastomosis was attempted. Stone fragments were then removed and a 6th French nephrostomy tube was placed. A Mono-J stent was also placed through the previously dilated uretero-colic junction and through the percutaneous tract.

RESULTS: Mono-J stent was also placed through the colonoscopy after seven days and the patient discharged.

Nephrostography was performed after one month confirming unobstructed urinary tract and left percutaneous nephrostomy was removed.

CONCLUSIONS: Percutaneous approach is an excellent technique, suited to deal with the most challenging situations.

Source of Funding: None

V10-09 RETROGRADE PERCUTANEOUS EXTRAPELVIC LASER ENDOPEYELOTOMY
Khalid Alotaibi*, Khobar, Saudi Arabia

INTRODUCTION AND OBJECTIVES: Minimally invasive surgery is gradually replacing conventional surgery as a primary line of treatment for ureteropelvic obstruction. Percutaneous endopyelotomy is not without problems. We describe our experience with retrograde approach for both percutaneous renal puncture and guide wire advancement. We also describe extrapelvic laser endopyelotomy that avoids injury to any peri-pelvic blood vessels during pyelotomy as those vessels are easily detected during the procedure.

METHODS: A total of 39 patients (13 males and 26 females) aged 13–55 years (mean 37 years) had percutaneous laser endopyelotomy between March 1998 and December 2013. Retrograde percutaneous access is completed with the patient in the dorsal lithotomy position with a support to the hemipelvis and scapula on the operated side. A Lawson catheter is directed into a selected posterior middle or upper calyx by the deflecting wire. The penetrating wire is passed over the 12th rib. On its protrusion under the skin, a 1 cm incision is made over its tip allowing it to exit through the skin. A second safety guide wire is subsequently advanced antegrade by the Lawson catheter. The distal tip of the safety guide wire emerges from the cystoscope side channel. The percutaneous renal tract is dilated using high pressure nephromax, and the nephroscope is introduced through a 34 Fr sheath.

A 0.365 micron laser fiber is passed through a 5 inch ureteral catheter. It is used to complete a 1.5 cm long full thickness incision in the wall of the renal pelvis at the 7 o’clock position. This window in the pelvic wall facilitates visualization of peripelvic fat, ureteropelvic junction and upper ureter from the outside. Any crossing blood vessels are easily noticed and avoided, while small blood vessels are coagulated using holmium laser. The initial incision made in the pelvic wall is extended towards the ureteropelvic junction and downwards for at least 1 cm along the upper ureter where a healthy ureteral wall is reached. At the end of the procedure, 14–7 F endopyelotomy tapered stent is placed.

RESULTS: With a mean patient follow-up of 24 months (range 12 to 48 months), the overall success was 87% (34 of 39). The success rate for primary and secondary UPJ obstruction was 86.6% (26 of 30) and 88.8% (8 of 9), respectively. The mean time to failure was 15 months (range 1 to 79).

CONCLUSIONS: Percutaneous extrapelvic laser endopyelotomy. With retrograde nephrostomy access technique while patient is in the dorsolithotomy position is a safe and effective treatment for UPJ obstruction.

Source of Funding: none
METHODS: The patient is a 35 year old male with a 1.5 cm lower pole stone on the right kidney and was consented for the above procedure and filming/photography. The patient is positioned supine according to the Barts ‘flank-free’ modification for PCNL procedures. Anatomical landmarks are identified and marked and retrograde opacification of the kidney guides the puncture into an inferior lower pole calyx. An 8 Fr. dilator is followed by placement of a guidewire through to the bladder and cystoscopic extraction to secure access. Further dilation of the tract to 14 Fr. follows and a working guide wire is introduced over which the 13 Fr outer Ultra-mini sheath is advanced. A 3.5 Fr Ultra-mini optic fiber is advance with the inner sheath into the kidney to identify the stone. Lithotripsy is achieved by using a 200-micron laser fiber and a Nd: YAG Holmium laser. Fragments are flushed out of the kidney via retrograde gradient provided by a dual lumen catheter previously advanced to the pelviureteric junction. Antegrade flushing is also possible via the outer sheath inflow channel that is connected to a two-lumen stop cock extension tube. The procedure is concluded without placement of a nephrostomy or double J stent (totally tubeless).

RESULTS: Stone free status was achieved for this patient who completed an unremarkable recovery and was discharged from hospital within 24 hours of admission.

CONCLUSIONS: Complete stone clearance along with short hospital stay, possibly even as a day case, a minimal surgical scar and the possibility of a totally tubeless procedure constitute the main advantages of ultra mini PCNL. The procedure appears to be efficient and safe for appropriately selected patients. Further studies are required in order to establish the procedure as standard for renal stones.

Source of Funding: None
METHODS: From September 2007 until December 2012, 4 female patients underwent RARC with anterior pelvic exenteration. The patient positioning and port placement was similar to that used in RARC for males with the advantage of the wider pelvis giving ample space for trocar placement. Intraoperatively, a stay suture lifts the uterus. After the division of the suspensory ligament of the ovary and the supporting ligaments of the uterus, the ureters are identified and dissected free. An extended lymph node dissection is then performed. The space of Douglas is incised giving access to the plane between the posterior wall of the vagina and the rectum. Lateral dissection of the bladder is performed until the pubic bone and endopelvic fascia are visualized. Both pedicles of the bladder are dissected, clipped and divided. The bladder is detached from the anterior abdominal wall and the endopelvic fascia is opened. The posterior and lateral wall of the vagina are incised and an endoscopic bag is used to extract the specimen through the vagina. An intracorporeal ileal conduit urinary diversion was offered to all patients.

RESULTS: Mean age was 64 years and mean ASA score was 3. Mean estimated blood loss was 250 mL, mean console time was 280 minutes and mean number of lymph node removed was 12. Convalescence was uneventful. The drain was removed on the first or second postoperative day, while the double J stents were removed 12 days after surgery. The average hospital stay was 8 days. A fast track protocol was followed in order to regain rapid bowel function. The pathology report revealed pT2 transitional cell carcinoma in all patients, with negative surgical margins.

CONCLUSIONS: RARC in males is well established in centers of excellence. The growing experience in female pelvic procedures provides the opportunity to implement RARC also in female patients with TCC of the bladder. A good knowledge of the female pelvic anatomy and the adoption of the principles of open surgery are the key factors to optimize the outcomes of this technique.

Source of Funding: none

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**V11-03 ROBOTIC RADICAL CYSTECTOMY, TIPS AND TRICKS IN PELVIC LYMPHADENECTOMY AND NEUROVASCULAR BUNDLES PRESERVATION**

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INTRODUCTION AND OBJECTIVES: Bladder cancer is the fourth most common tumor in men in the United States and in Europe it represents 8.7% of the total cancers and 5.9% of total deaths for cancer. Robot-assisted procedures are increasingly being performed as minimally invasive surgical approaches. We report some tips and tricks in of robot assisted radical cystoprostatectomy with focus on pelvic lymphadenectomy and neurovascular bundle preservation.

METHODS: Between 2001 to 2012, there were 218 radical cystectomies performed at Institut Montsours. Since 2009, 90% has been done by minimally invasive approach. Neurovascular bundles preservation technique was performed in 57 cases. The present study is a combination of (1) a literature review, (2) presentation of a robotic assisted radical cystoprostatectomy, in which some tricks were made to solve some difficult steps of the procedure.

RESULTS: We show strategies to get complete lymph node packages, including solution of challenging situation that can occur during lymphadenectomy. We also present the key principles of our nerve sparing technique together with our anatomical approach to the neurovascular bundles. Results obtained with the application of these lessons have led to continuous improvement of peri- and postoperative outcomes.

CONCLUSIONS: Pelvic Lymphadenectomy dissection is an essential part of the surgical treatment of bladder cancer for its staging, curative, and prognostic role. To date, robot-assisted Pelvic Lymphadenectomy dissection can produce comparable results to open surgery. This feasibility technique of a robot-assisted, nerve-sparing radical cystoprostatectomy shows that the procedure combines the oncological concepts of open surgery with the technical benefits of robotic surgery.

Source of Funding: none

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**V11-04 EXPLORING THE MARCILLE TRIANGLE DURING ROBOT-ASSISTED PELVIC LYMPHADENECTOMY FOR BLADDER CANCER: REPLICATING THE OPEN SURGICAL TECHNIQUE**

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INTRODUCTION AND OBJECTIVES: Facing the challenges of open pelvic lymphadenectomy for bladder cancer, we report some technical thoughts and tricks that we use during pelvic lymphadenectomy using a delayed exposure of the para-aortic lymph nodes during robot-assisted anterior pelvic exenteration.

METHODS: The study is a combination of (1) a literature review, (2) presentation of a robotic assisted anterior pelvic exenteration, in which some tricks were made to solve some difficult steps of the procedure.

RESULTS: The median follow-up of 34 months persistent POP was observed in 4 cases (4.2%). One mesh erosion occurred and required robot-assisted removal of the mesh. Ten (10.5%) patients complained of de novo urgency after RASC. No significant de novo bowel or sexual symptoms were reported.

CONCLUSIONS: RASC is a safe and effective technique for treatment of POP for all three pelvic compartments. The robotic platform facilitates intracorporeal suturing while limiting complications due to the limited dissection needed for precise and accurate placement of the meshes. Good long-term results and short operative time can be easily achieved with experience.

Source of Funding: none

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**V11-02 ROBOT-ASSISTED SACROCLOPOPEXY FOR PELVIC ORGAN PROLAPSE (POP). THE O.L.V. TECHNIQUE**

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INTRODUCTION AND OBJECTIVES: Pelvic organ prolapse (POP) represents a common female pelvic floor disorder that has a serious impact on quality of life. Various surgical approaches have been proposed and the optimal management is still in debate. Robot-assisted sacrocolpopexy (RASC) has been implemented in our institution since 2006. We describe our contemporary surgical technique and assess the outcomes of RASC in our high-volume center.

METHODS: From April 2006 to December 2011, 95 consecutive patients underwent RASC for POP at our centre. The median age was 67 (IQR:63–73). The indications for RASC were primary or recurrent POP, including deficiency of anterior compartment (cystocele N = 42), middle compartment (vaginal vault prolapse N = 0, enterocoele N = 1), posterior compartment (rectocele N = 3), or a combination of them (N = 49).

RESULTS: Median operative time was 101 minutes. No conversion to open surgery was needed. One vaginal and two bladder injuries occurred and were repaired intraoperatively. Only one Clavien grade III postoperative complication was observed (bowel obstruction treated laparoscopically). At a median follow-up of 34 months persistent POP was observed in 4 cases (4.2%). One mesh erosion occurred and required robot-assisted removal of the mesh. Ten (10.5%) patients complained of de novo urgency after RASC. No significant de novo bowel or sexual symptoms were reported.

CONCLUSIONS: RASC is a safe and effective technique for treatment of POP for all three pelvic compartments. The robotic platform facilitates intracorporeal suturing while limiting complications due to the limited dissection needed for precise and accurate placement of the meshes. Good long-term results and short operative time can be easily achieved with experience.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Adequate lymphadenectomy in the setting of radical cystectomy has been proven to be an independent predictor for disease-free survival in patients with muscle-invasive bladder cancer. Robot-assisted radical cystectomy has evolved to become an accepted alternative to the standard open technique. We describe our refinement of the technique of robot-assisted pelvic lymphadenectomy for bladder cancer.

METHODS: After completion of cystectomy and removal of the bladder specimen. Pelvic lymphadenectomy is started by dissecting the triangle of Marcille. The Marcille triangle is bounded laterally by the medial border of the Psoas and the Genitofemoral nerve, medially by the iliac vessels, the floor is formed by the iliolumbar and lumbosacral ligaments. Dissection of the Marcille triangle allows for mobilization of the iliac vessels together with the lymphatic package away from the lateral pelvic wall. The lymphatic sheath over the artery is then incised and rolled over the ilac vein. The external iliac vein is subsequently skeletonized using split and roll technique. The lymphatic package is then freed easily from the obturator nerves and vessels and the obturator fossa is completely cleared.

RESULTS: This approach facilitates the mobilization of the iliac vessels and lymphatic package away from the pelvic wall, through an avascular plane that gives access to the obturator fossa is completely cleared.

CONCLUSIONS: Dissection of the Marcille triangle during robot-assisted pelvic lymphadenectomy for bladder cancer facilitates, through an avascular plane, the access to the obturator nerve and the endopelvic lymph nodes. This allows for safe clearance of the lymphatic tissue from the endopelvic region and removal of lymphatic package en-bloc.

Source of Funding: None

V11-05 ROBOTICALLY ASSISTED BILATERAL VASOVASOSTOMY, AFTER A SUCCESSFUL BILATERAL VASECTOMY

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INTRODUCTION AND OBJECTIVES: Vasectomy is an effective method of permanent male surgical sterilisation. Proximal vas obstruction after vasectomy requires microsurgical vasectomy reversal. Vasovasostomy is also required in other cases of proximal vasal obstructions (e.g., iatrogenic, post-traumatic, or post-inflammatory). Published success rates reach 90%, depending on the time between vasectomy and re-fertilisation, type of vasectomy, type of reversal, and whether reversal was unilateral or bilateral. We present a case of robotically assisted bilateral vasovasostomy, in a 36 year-old man, that underwent successful bilateral vasectomy 13 years ago.

METHODS: The preoperative ultrasound was unremarkable. Initially, a 3 cm long incision in the former incision area was performed. The Dartos fascia was incised and the right testicle was freed from its attachments inside the scrotum. The isolated by palpation vas deferens was prepared and undermined with a vessel loop. A 2 cm long stenosis was recognized just distally to the vasectomy location. Resection and removal of the stenotic part was then performed. The remaining edges were spatulated and a vessel canula was inserted into the lumen. The distal end was washed with NaCl saline. Then, the DaVinci Robot was connected and docked. A successful robotically assisted end-to-end anastomosis of the vas deferens, in two layers (Musculo-mucosa, Adventia), and using a PDS 7/0 suture was then performed. After meticulous coagulation, the testicle was placed back into the scrotum and the Dartos fascia, as well as the scrotal skin, was sutured with a Safi 1x0 suture. The same procedure is performed to the contralateral site.

RESULTS: The patient was discharged the next day with a scrotal supporter. The postoperative period was uneventful. He returned to work in the 3rd postoperative day. A semen analysis was performed 2 months postoperatively, showing oligozoospermia (11 million/mL), but adequate spermatogenesis mobility (40%) and no teratozoospermia.

CONCLUSIONS: The above described method can be an effective technique of vasectomy reversal, offering improved vision and movement precision during the vas deferens anastomosis.

Source of Funding: None

V11-06 ROBOT-ASSISTED LAPAROSCOPIC REPAIR OF RECTO-VESICAL FISTULA FOLLOWING OPEN RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: Recto-vesical is a rare but devastating complication of radical prostatectomy. Repair of this complex fistula is usually performed with open surgery. In this video we present robot-assisted laparoscopic repair of a recto-vesical fistula which occurred following open radical prostatectomy.

METHODS: A 59 year-old-male patient was diagnosed to have rectovesical fistula following open radical prostatectomy done elsewhere. His disease stage was T3bN1 and serum PSA at presentation was 0.06 ng/mL. He had undergone sigmoid loop colostomy in another hospital. Cystoscopy showed a 2 cm diameter fistulous communication between bladder trigone and rectum. Biopsy taken from fistula margin was negative for malignancy. Before starting the procedure ureteric catheters were placed in both ureters and Foley catheter was left in bladder. Standard five ports were used. Because of previous surgery there were adherences which were released and robot was docked. Dissection was started in the rectovesical space and fistula site was identified. Rectum was opened at fistula site and both bladder and rectum were separated. Rectum was closed with barbed 2-0 suture in two layers under direct vision. Closure of rectum was checked by injecting air through rectum. Then bladder was closed with barbed 2-0 suture. After that bladder closure was checked by injecting saline. At the end a pelvic drain was kept in pelvic cavity and two pigtail catheters with 14 Fr Foley catheter were left in situ for three weeks.

RESULTS: The operating time was 110 minutes. Estimated blood loss was 150 ml. Cystogram at 3 weeks showed no evidence of leak. After 3 months, sigmoid colostomy was closed. At one month follow-up the patient is continent with no leak per rectum.

CONCLUSIONS: Robot-assisted laparoscopic repair of rectovesical fistula is safe and feasible. This complex procedure could be comfortably performed in the depths of pelvis with robotic assistance.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: Robotic approach provides better dexterity and visibility for radical cystectomy. The aim of study is to evaluate technique and outcome of robotic approach for nerve sparing in radical cystectomy.

METHODS: In early 2013 we performed nerve sparing robotic radical cystectomy in 2 male patients. First patient had trigonal urothelial carcinoma in situ and second patient had muscle invasive urothelial carcinoma at the dome of the bladder. Initially using 6 port approach with da Vinci Si surgical system (Intuitive Surgical, Sunnyvale, CA, USA) radical cystectomy with bilateral pelvic lymph node dissection was done with preservation of neurovascular bundles. Lymph node dissection was standard in first and extended in second patient. Both patients underwent robotic assisted urinary diversion, first as ileal conduit and second as Studer’s neobladder. Patient demographics, operative parameters, postoperative outcome, pathological findings and complications were evaluated.

RESULTS: Age of first patient was 54 years and second patient was 43 years. The American society of Anaesthesiologist score was 1 in both the patients. Preoperatively the International index for erectile function (IIEF) was 24 in first patient and 23 in second patient. The IIEF at 12 wks postoperatively was 19 in first and 17 in second patient. The operative time was 330 minutes in first and 390 minutes in second patient. The haemoglobin drop was 1.1 grams in first and 2.4 grams in second patient. The stay in high dependency unit was 12 hours in first and 17 hours in second patient. Hospital stay was 8 days in both patients. The histopathological findings was pT2bN0 in first patient with lymph node yield of 20. It was pT1bG3 in second patient with lymph node yield of 58. Clavien Dindo complication grade was 1 in both the patients. The patient with Studer neobladder was completely continent after catheter removal.

CONCLUSIONS: Bilateral neurovascular bundle preserving radical cystectomy is a procedure with acceptable morbidity, good early postoperative surgical, functional and oncological outcome. Studies with more number of patients and longer follow up are necessary.

Source of Funding: None

V11-08 ROBOTIC ASSISTED TOTALLY INTRACORPOREAL STAPLED ILEAL NEOBLADDER IN FEMALE

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INTRODUCTION AND OBJECTIVES: The incidence of stone formation in our open series of open “Padua Ileal Neobladder” performed with stapler was 8%. The video shows surgical steps of robotic assisted totally intracorporeal stapled “Padua Ileal Neobladder” in a female patient using a motorized stapler.

METHODS: Surgical steps were as follows: fixation of ileum to urethra, detubularization of ileum and its double folding, neobladder neck configuration and closure of posterior aspect of the neobladder with motorized stapler. Urethro-neovesical anastomosis, ureteral reimplantations and closure of the anterior neobladder wall with running suture.

RESULTS: Operative time for neobladder was 110 minutes, patient was discharged on 5th postoperative day. Double-J stents and neobladder catheter were removed after 3 weeks.

CONCLUSIONS: Robotic assisted totally intracorporeal stapled neobladder is easy to perform. The use of a motorized stapler significantly reduces operative time.

Source of Funding: None

V11-10 ROBOTIC INTRACORPOREAL STUDER POUCH CONSTRUCTION

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INTRODUCTION AND OBJECTIVES: To define our technique of robotic intracorporeal Studer pouch construction and especially punctuate our suturing and stenting techniques which we report for the first time.

METHODS: Identifying the ileocecal junction, stay sutures are placed on the antimesenteric border of the ileum 20 cm apart.
Most dependent region of the ileal segment to be used for the pouch approximately 40 cm from the ileoceleal junction is determined by bringing the ileal wall down to the membranous urethra. A 2 cm opening at this site is made and membranous urethra is sutured to the ileum at this opening. Intestinal staplers are applied at 20 cm and 50–55 cm from the ileoceleal junction across ileal wall including adjacent meso. Sparing the most proximal 10–15 cm of ileum as afferent loop, remaining segregated ileal segment is opened at its antimesenteric border without disturbing the urethral anastomosis. Posterior wall of the pouch is brought together with interrupted sutures placed 5 cm apart and a running suture between the edges of the ileal segment. Running suturing is performed by passing 4–5 throws from the adjacent intestinal walls forming loose loops before pulling it up and tightening the suture line. A 30 cm long silk tie is threaded through the opening of the Foley catheter for future handling of the nelaton tube and maneuvers. Anterior wall of the pouch is folded downwards from its mid and a transvers anastomosis is accomplished using a running 3/0 monocril. A Wallace type ureteroureterostomy is done between the spatulated ends of the ureters. Silk tie is pulled up bringing the nelatone tube through the opening at the level of ureterointestinal anastomosis. Two DJS (double J stent) are introduced into the nelatone outside the body and guided to both ureters. Additionally another guide wire is sent and the nelatone tube is removed. Finally a 20 F Foley catheter with a slit at its tip is inserted into the pouch over this guide wire after distal ends of the DJS are tied together and to the Foley catheter outside.

RESULTS: Tightening the suture line after passing 4–5 throws so that string makes big loops prevents using laparoscopic hooks and shortens the procedure. Internalizing DJSs prevents bridging of the intestinal elements around them intraabdominally outside the pouch. It may also reduce infectious complications and decrease the amount of mucus clogs due to the diversion of produced urine into the pouch which result in low pressure continuous irrigation with patients own urine.

CONCLUSIONS: Our suturing and stenting techniques are useful adjunct to a complicated robotic surgical procedure which we believe decrease peri and postoperative complication rates.

Source of Funding: none

V11-11 RE-DO ROBOTIC-ASSISTED RADICAL PROSTATECTOMY AT 48 HOURS: SUCCESSFUL RE-RESECTION FOR POSITIVE MARGINS

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INTRODUCTION AND OBJECTIVES: Management of positive margins following radical prostatectomy usually involves PSA observation or adjutant treatment with external beam radiotherapy and/or hormonal therapy. We describe a case of a positive margin identified early and managed with a return to theatre within 48 hours for robot-assisted re-resection of the bladder neck on New Year’s Day 2010. METHODS: 41 year old male. PSA 3.64g/L Gleason 3+3 low volume (Right peripheral zone) on Transperineal biopsy. MRI showed organ confined disease. The patient elected for robot assisted radical prostatectomy with bilateral nerve sparing.

A firm nodule at the resection margin at the junction of the prostate and bladder was identified when the specimen was reviewed on the back bench.

An overnight pathology review of the nodule showed high volume 4+4 disease involving the bladder neck. A decision was made to return to theatre for re-resection of the bladder neck.

RESULTS: Gentle irrigation cleared the surgical field and enabled easy exploration and dissection of the anastomosis. Re-resection of the involved bladder margin without damaging the ureteric orifices facilitated with robotic dissection.

Histology: Gleason 4+4 on prostate side of bladder neck re-resection only, additional base biopsies clear.

• Operative time: 60 mins
• Blood loss: minimal
• Post op recovery: 3 days

Long term outcome:

• Continent of urine by 6 weeks
• PSA undetectable at 24 months.
• Unassisted intercourse 1 year

CONCLUSIONS: The importance of macroscopic inspection of the specimen is highlighted by this case. If involved margins are suspected, rapid pathological assessment may facilitate surgical intervention. Re-operation did not affect the initial bilateral nerve spare.

Source of Funding: none

V11-12 TECHNICAL MODIFICATIONS TO ROBOTIC-ASSISTED LAPAROSCOPIC PROSTATECTOMY FOR PATIENTS WITH HIGH-RISK PROSTATE CANCER AS DEFINED BY NATIONAL COMPREHENSIVE CANCER NETWORK CRITERIA


INTRODUCTION AND OBJECTIVES: Men with high-risk prostate cancer (HRPC) according to National Comprehensive Cancer Network (NCCN) criteria are at significant risk for metastases and death from disease. Robotic-assisted laparoscopic prostatectomy (RALP) with bilateral pelvic lymph node dissection (bPLND) can be an effective treatment option for such high-risk patients but only when properly performed. This video highlights important surgical modifications in treating patients with HRPC.

METHODS: The surgical modifications are illustrated: establishing a plane of dissection below Denovilliers’ fascia, performing the appropriate degree of nerve sparing, keeping the anterior periprostatic fat in place, widely resecting the bladder neck, transecting the dorsal vascular complex before ligation, and thoroughly removing the iliac, obturator, and hypogastric nodes.

RESULTS: We performed RALP with bPLND on 119 patients with HRPC between October 2008 and May 2012. Characteristics for this cohort included a median age of 62 years (interquartile range [IQR] 57, 62), a median prostate-specific antigen (PSA) of 6.98 (IQR 5, 13), with 71% of patients having Gleason Score 8–10, 37% having ≥ T3a prostate cancer, and 17% having PSA >20. Final pathologic features included non-organ-confined disease in 79% of patients, positive surgical margins in 25%, and positive lymph nodes in 29%, with a mean number of 18 (12–25) lymph nodes removed.

CONCLUSIONS: Adherence to strict oncologic principles with complete resection of the primary tumor and a thorough bPLND is necessary for HRPC. We recommend the technical modifications outlined in this video as means to improve the pathologic outcomes for patients with high-risk prostate cancer as defined by NCCN criteria.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Teratomas do not respond well to chemotherapy and hence the preferred treatment option for a stage I tumors remains RPLND especially in patients with risk factors or poor follow-up. Laparoscopic RPLND is technically demanding. It often requires change in patient position and the entire armamentarium from one side to other to ensure completeness. Complete removal of the templates also happens to be the major criticism against laparoscopic RPLND. We present a single case video of laparoscopic right sided template RPLND, which was done to its completeness without change in position of the patient.

METHODS: A 32 years man, father of two boys presented with right testicular mass. Pre-orchidectomy tumor markers were elevated to Sl range which normalized after orchidectomy. CECT abdomen showed no retroperitoneal lymphadenopathy. Histopathology revealed immature teratoma, with tumor size of 6 cm, with no embryonal elements and lymphovascular invasion. The patient was explained about treatment options and he opted for RPLND.

RESULTS: Laparoscopic right template RPLND was done. The position of the patient was supine with body properly strapped at abdomen. The table was tilted to right up for 40° and entire procedure could be completed with four midline ports without change in position to other side.

CONCLUSIONS: L-RPLND is feasible and a good option for carcinoma testis patients. Our video shows that it can be completed safely without change in position and compromise of oncologically described templates.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: Retroperitoneal laparoscopic adrenalectomy is a safe and feasible procedure in the treatment of adrenal pathology.

Source of Funding: none

INTRODUCTION AND OBJECTIVES: Retroperitoneal paragangliomas are often located adjacent to the renal hilum and the aorta or the inferior vena cava (IVC), and some of them might have very short but bold draining veins (DVs) directly to the IVC or renal vein (RV). Laparoscopic surgery under the magnified view is recently more often selected than open surgery with big incision for removal of such tumors to perform delicate dissection procedure to avoid unnecessary bleeding. We present the procedure of laparoscopic removal of a functional paraganglioma surrounded with the IVC, RV and renal artery (RA) at the right renal hilum (figure).

METHODS: The patient was a 68-year-old man with a retroperitoneal functional paraganglioma with 4.5 cm in diameter. It was suspected that there were several DVs from the tumor into the IVC and/or RV. We were afraid of accidental injury of the DVs which might result in concomitant nephrectomy with the tumor removal. The RA, which run posteriorly to the tumor, must be freed from the tumor first to expose and divide the DVs between the tumor and the IVC/RV safely. By this reason we have selected retroperitoneal approach.

RESULTS: The patient was placed in the left lateral decubitus position on the flat operating table. The right retroperitoneal space was created by balloon dissection and 4 trocars were placed. First, the right RA was dissected from the tumor and moved toward the caudal side of it. Then the caudal portion of tumor was moved to the posterior side of the RA by dissecting it from the IVC. A branch of the RA (figure) was sacrificed at this step accidently. Dissecting the tumor from the IVC toward the cranial side, three DVs between the tumor and the IVC/RV were exposed and divided, respectively, and then the tumor was freed from the adjacent structures safely. The operative time was 237 min. and blood loss was 135 g.

CONCLUSIONS: We successfully performed the laparoscopic removal of the functional paraganglioma surrounded with the
ICV, RV and RA at the right renal hilum. We believe that laparo-
scopic surgery via retroperitoneal approach was the best approach 
in this case.

Source of Funding: none

V12-04 POST CHEMOTHERAPY BILATERAL RO-
BOTIC RETROPERITONEAL LYMPH NODE DISSECTION 
(PC-RRPLND) FOR TESTICULAR MIXED GERM CELL TU-
MOR (MGCT): THREE ARMS APPROACH

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INTRODUCTION AND OBJECTIVES: There is little literature on the use of the da Vinci® (Intuitive Surgical, Sunnyvale CA) robotic system in RRPLND for testicular MGCT. These reports usually describe a four arms robotic approach and a modified template dissection. This led to a technical difficulty with collision of the arms during the procedure and reduces the number of lymph nodes removed. In this video we describe a technique for performing bilateral RRPLND using a three arms approach and without changing patient position.

METHODS: Thirty two years old male presented with large right testicular mass and elevated testicular tumor markers (AFP and BHCG). Right radical orchietomy revealed MGCT. Preoperative CT scan revealed extensive retroperitoneal lymph node involvement. The patient received 3 cycles of BEP chemotherapy. Tumor markers dropped to normal levels and follow up CT scan showed residual retroperitoneal LN > 1 cm. The patient was scheduled for PC- RRPLND using 3 arms approach.

Ports placement: The patient is placed in the right flank position. A camera port is placed at the level of the umbilicus. Two working robotic ports are placed at the level of the lateral border of rectus abdominus 10 cms cephalic and caudal to camera port. Two 12 mm assistant ports are placed at midline 10 cms cephalic and caudal to camera port.

RESULTS: Bilateral RRPLND was accomplished without difficulty. Twenty lymph nodes were removed and histology showed teratoma and necrosis. Console time was 150 minutes and blood loss was 120 ml.

CONCLUSIONS: Post chemotherapy robotic retroperitoneal lymph node dissection may be feasible in selected patients and the 3 robotic arm approach allows dissection in the retroperitoneal space with less collisions.

Source of Funding: None

V12-06 NOVEL LAPAROSCOPIC APPROACH TO PE-
NILE PROSTHESIS RESERVOIR ABSCESS

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INTRODUCTION AND OBJECTIVES: The patient was a 58 year old morbidly obese male who presented to the emergency room with suprapubic pain and purulent drainage emanating from an erythematous area in the fold of his pannus. His medical history was significant for morbid obesity, prior abdominal surgeries, and diabetes. He also had undergone inflatable penile prosthesis (IPP) placement and removal for infection many years prior, with subsequent secondary placement, and later removal for mechanical failure. A computerized tomography scan was obtained which demonstrated a 17 centimeter fluid collection in the pelvis surrounding a circular foreign body, consistent with an IPP reservoir and abscess, given the patient’s history and clinical exam findings. Discussion was held with the patient regarding treatment options, and the patient elected to proceed with minimally invasive laparoscopic abscess drainage and foreign body removal.

METHODS: The patient was placed in supine position. A 12 millimeter (mm) port was placed at the umbilicus. Two five mm ports were placed in the right abdomen, at the midaxillary and midclavicular lines. The abscess was clearly visualized in the pelvis. Presence of the abscess was confirmed with placement of a spinal needle through the abdominal wall into the abscess under laparoscopic visualization and aspiration of purulent fluid. Electrocautery was then used to make a small opening in the abscess wall and the fluid was evacuated with a suction device. The reservoir was visualized in the abscess cavity and retrieved with a grasper. It was placed in an endocatch bag and withdrawn through the 12 mm port. The abscess cavity was copiously irrigated. A foley catheter was manipulated through a five mm port site into the abscess cavity. The foley balloon was inflated, effectually isolating and draining any remaining abscess contents. The catheter was sutured to the skin and connected to a drainage bag. The port sites were closed using vicryl suture.

RESULTS: The patient was ambulating with minimal pain on postoperative day (POD) one. He was discharged home on POD
five. The drain remained in place until one week postoperatively. The patient healed well and had no further complications.

CONCLUSIONS: This is the first known report of laparoscopic removal of a retained IPP reservoir. A minimally invasive approach was advantageous in this obese patient with multiple prior abdominal surgeries. He was spared the high morbidity of an open procedure, and the potential associated wound complications. He was also able to return home and to work quickly, and avoided the increased pain and recovery time of a large abdominal incision.

Source of Funding: none

V12-07 TECHNIQUE OF PRECISE NEEDLE PLACEMENT FOR RENAL BIOPSY AND THERMAL ABLATION USING THE SIEMENS ARTIS ZEGGO MULTI-AXIS SYSTEM WITH iGUIDE TECHNOLOGY

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INTRODUCTION AND OBJECTIVES: Thermal ablation for management of renal masses is commonly performed under CT guidance or laparoscopically. The Siemens Artis ZeeGo system is a multi-axis scanner, which provides large volume CT-like coverage in a fast, 6 second sweep. It allows unrestricted access to the patient and is equipped with iGuide technology offering live and integrated needle guidance thus increasing the accuracy of needle procedures.

In this video we present the technique of renal biopsy and thermal ablation using this system.

METHODS: Our patient was a 79-year-old male who presented with incidentally diagnosed bilateral renal masses. He was scheduled for a staged left sided RFA of a 2 cm endophytic renal mass, to be followed by right-sided open nephrectomy at a later time. The procedure was performed under general anesthesia to facilitate control over breathing and minimize patient movement, enhancing needle placement accuracy. The patient was placed in a prone position. The Artis ZeeGo system was used to acquire CT-like imaging enhanced by IV contrast (Siemens, Malvern, PA). Post acquisition workstation planning was used to create a precise skin-to-tumor needle trajectory using the iGuide application. This trajectory was projected live onto the patient and used to guide precise renal biopsy and ablation probe placement. The tumor was ablated using a single cycle of Radiofrequency ablation (CoolTip®, Covidien, Boulder, CO).

RESULTS: There were no perioperative complications. The patient tolerated the procedure well and was discharged home the same day. We have used this system to perform 10 ablations to date (February-May 2013). Intermediate term data with respect to efficacy of the ablation is not yet available.

CONCLUSIONS: The Siemens Artis ZeeGo system with iGuide technology is an innovative safe, precise and convenient modality for preforming renal biopsy and thermal ablation. It may offer some advantages compared to traditional cross sectional CT guided needle placement and likely will play an increasing role in the further development of precise surgical targeted biopsies and thermal ablative techniques.

Source of Funding: None

V12-08 ENDOCOSCOPE: BRIDGING ENDOSCOPY WITH MOBILE TECHNOLOGY

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INTRODUCTION AND OBJECTIVES: Advances in mobile technology, increased accessibility and ubiquity of smartphones have ushered in a new wave of advancements in telemedicine. Herein, we present our experience with the second generation Endoscope (Orange, CA), a novel docking system with an incorporated LED light source that optimizes the coupling of a smartphone (iPhone 4S, Cupertino, CA) with modern fiber-optic endoscopes and also eliminating the need for a standard light system.

METHODS: The docking system was assembled using a commercially available lens system, a coupling that was machined for an interference fit to the eyepiece and a LED flashlight with a flexible neck to couple to the fiber-optic cone. Cost comparisons were made between the Endoscope and standard HD system (using an average of two company’s listed prices). Additional costs for a secondary monitor for the Endoscope system included the cost of an AppleTV and a commercially available high quality monitor. Weights were analyzed comparing the Endoscope with mobile platform and a standard Storz HD system. We also tested the additional wireless capabilities provided by the Apple platform using the Endoscope and iPhone 4S.

RESULTS: The total cost of the Endoscope system was $1,198. The total cost of the standard HD system with light source was $64,378. The total weight was 15.3 lbs for the Endoscope and mobile platform system and 167 lbs for the Storz HD system (Table 1). Furthermore, the iPhone 4S allows the user to utilize FacetimeTM, video and image capture, and directly share intra-operative data via email or SMS to the patient/families/colleagues.

CONCLUSIONS: The second generation Endoscope is significantly cheaper and lighter than the standard endoscopic systems. Its low cost and weight makes it an attractive tool for philanthropic pursuits in third-world countries. Additional functions are available with the Endoscope that are not provided in current endoscopy systems, at no additional cost or equipment.

Source of Funding: None
V12-09  THE FIRST ASSISTANT SPARING TECHNIQUE (F.A.S.T) OF ROBOTIC PARTIAL NEPHRECTOMY USING IMMUNOFLUORESCENCE AIDED SELECTIVE ARTERIAL CLAMPING

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INTRODUCTION AND OBJECTIVES: Despite the inherent benefits of robotics in minimally invasive procedures, the common criticism of robotic partial nephrectomy is the reliance on the bedside assistant for key steps of the surgery. We report our standardized approach to using intracorporeal preparation (ICP) that minimizes the reliance on the first assistant during partial nephrectomy, in conjunction with the use of immunofluorescence aided selective arterial clamping.

METHODS: A prospective evaluation of 10 consecutive patients undergoing robotic partial nephrectomy with the F.A.S.T. technique were offered immunfluorescent selective arterial clamping. The ICP approach involves pre-placement of prepared sutures along the abdominal sidewall adjacent to the kidney in preparation for hemostasis and renorrhaphy before arterial clamping, the use of robotic controlled bulldog clamps preplaced near the hilum of the kidney, and robotic controlled ultrasound imaging. Near infrared imaging is used with indocyanine green intravenous injection to identify blood flow to kidney after selective arterial clamping.

RESULTS: The mean warm ischemia time was 15 min (11–21) with an average estimated blood loss of 70 ml (25–200). There were no conversions to radical or open surgery. No patient needed a post-operative transfusion. Ninety percent of patients had a diagnosis of renal cell carcinoma, with one patient having a diagnosis of angiomylipoma. No positive margins were identified in this series.

CONCLUSIONS: We establish the introduction of a new technique that removes the majority of key steps from the hands of the first assistant and utilizes current immunofluorescence technology to allow for safe selective arterial clamping for amenable tumors.

Source of Funding: none

V12-10  FLEXIBLE CO2 LASER FOR ROBOTIC TARGETED MICROSURGICAL DENERVATION OF THE SPERMATIC CORD

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INTRODUCTION AND OBJECTIVES: Robotic microsurgical denervation of the spermatic cord (RMDSC) is a treatment option for patients with chronic orchialgia. The procedure requires precise tissue dissection to ensure ablation of small diameter nerve fibers while preserving surrounding structures. Due to inherent precision and minimal energy scatter, laser ablation provides targeted dissection while limiting collateral peripheral tissue injury. This video illustrates our RMDSC video technique with a flexible fiber-optic CO2 laser and also presents our preliminary results accompanied by cadaver study outcomes.

METHODS: A flexible fiber-optic CO2 laser system (OmniGuide, Cambridge, MA, set at 14 watts) was utilized to perform RMDSC on one side, while contralateral dissection was performed with standard monopolar cautery (ERBE Inc., Atlanta, GA, set at 80 watts) on a cadaveric model. Following completion of the procedure, corresponding histologic sections were obtained of several regions of the spermatic cord bilaterally and evaluated by a pathologist blinded to dissection technique. We then used the same CO2 laser assisted technique on 38 RMDSC procedures between Nov’12 and Feb’13. Pain evaluation was performed pre-opm 1 month and 3 months post-op utilizing a validated pain assessment tool PIQ-6 (QualityMetric Inc., Lincoln, RI).

RESULTS: Nine histologic spermatic cord sections were obtained bilaterally. Pathologic analysis demonstrated significantly decreased peripheral thermal injury sustained with the CO2 laser (mean 0.17 mm, range 0.15–0.25 mm) compared to monopolar cautery (0.72 mm [0.60–0.75 mm]) (p < 0.001). No injuries to spermatic vasculature or vasa deferentia were identified with either technique. On the 38 standard RMDSC procedures there was 91% significant pain improvement (60% complete resolution of pain and 31% ≥50% reduction in pain score) partial response) with no complication.

CONCLUSIONS: Cadaver study demonstrated that RMDSC using a CO2 laser significantly decreased collateral thermal injury compared to standard monopolar electrocautery. Preliminary results suggest that using CO2 laser during RMDSC procedures is a safe and feasible technique. Further comparative studies are needed to assess its clinical potential.

Source of Funding: none

V12-11  DEVELOPMENT OF DEDICATED STONE DETECTION PROTOCOLS USING A RESEARCH-BASED ULTRASOUND IMAGER

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INTRODUCTION AND OBJECTIVES: CT remains the gold standard for the detection of kidney stones but there are concerns regarding radiation risk. Ultrasound does not generate ionizing radiation, but is less sensitive and specific than CT. Existing ultrasound systems are optimized for characterizing soft tissue inhomogeneities and blood flow, but not hard structures such as stones. No dedicated stone detection algorithms are commercially available. Using a research ultrasound engine, unique signal processing algorithms can be implemented to generate alternative displays of the ultrasound image. The goal of this study was to evaluate the performance characteristics of a research-based ultrasound imager and to develop algorithms to improve kidney stone detection.

METHODS: Patients referred for the evaluation of kidney stones with a recent CT (within 60 days) were recruited to undergo a renal ultrasound study with the Verasonics ultrasound imager. The Verasonics device has a research-based platform and allows the raw ultrasound signal to be captured, processed, and optimized. Blinded reviewers of the CT and ultrasound images separately recorded the location of each stone within the upper, middle, lower poles, and the renal pelvis/UPJ. Performance characteristics were calculated based on whether a stone or stones were seen (yes/no) in each of the four regions. The raw data from selected true positive and false positive stones were analyzed and processed using new algorithms. The first new algorithm rescaled B mode data and added green color to the image on bright echoes apparent on stones. The second algorithm used Doppler mode and processing similar to that which produces twinkling artifact.

RESULTS: In 9 patients with 17 renal units, there were 27 stones with mean size 4.4 ± 3.3 mm. Compared to CT, the research ultrasound imager had a sensitivity of 80%, specificity 90%, PPV 76%, and NPV 92% with B mode alone. With the first algorithm, false positive stones showed fewer color pixels than with true stones. With the second algorithm, little or no color appeared on the stone image on false positives, but was present on true stones.
Thus, the second algorithm may help avoid identifying false positive stones.

CONCLUSIONS: The performance characteristics of the Verasonics research ultrasound imager compares favorably to commercially available ultrasound machines. The raw signal data captured by the ultrasound machine can be used to develop algorithms dedicated to stone detection. Efforts are underway to validate these protocols clinically to determine if they improve the accuracy of stone detection.

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V12-12 ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION FOR STAGE 1 TESTICULAR CANCER USING THREE ROBOTIC ARMS

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INTRODUCTION AND OBJECTIVES: We describe our technique of doing Robotic Retroperitoneal Lymphnode Dissection (RRPLND) for stage 1 testicular cancer. We demonstrate the feasibility of completing the procedure using 3 robotic arms rather than the traditional 4 arms approach.

METHODS: Thirty four years old male patient had right radical orchiectomy showing Teratoma with poorly differentiated adenocarcinoma and a focus of neuroendocrine differentiation. Preoperative metastatic work-up was negative and tumor markers were normal. The patient was staged T1N0M0 noneinminomatoses germ cell tumor of the right testicle. Ports placement: The patient is placed in the right flank position. A camera port is placed at the level of the umbilicus. Two working robotic ports are placed at the level of the lateral border of rectus abdominus 10 cms cephalic and caudal to camera port. Two 12 mm assistant ports are placed at midline 10 cms cephalic and caudal to camera port.

RESULTS: Robotic retroperitoneal lymph node dissection was accomplished without difficulty. Twenty three lymph nodes were removed and histology was negative for viable cancer cells or teratoma. Blood loss was 400 mls and no intraoperative or postoperative complications were encountered. The patient was discharged on postoperative day 4.

CONCLUSIONS: The three robotic arms approach for RRPLND allows for completion of the RRPLND with less collision of the robotic arms and with no added difficulty.

Source of Funding: none

MP21 ROBOTICS/LAPAROSCOPY: UPPER TRACT IV

MP21-01 ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY: A META-ANALYSIS OF SURGICAL OUTCOMES

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INTRODUCTION AND OBJECTIVES: Robot assisted adrenalectomy (RAA) has been proposed as an alternative minimally invasive option in the surgical management of adrenal diseases. Aim of this study was to undertake a systematic review and meta-analysis to evaluate the surgical outcomes of RAA versus those of standard laparoscopic adrenalectomy (LA).

METHODS: An electronic literature search was performed using PubMed. Article selection proceeded according to the search strategy based on Preferred Reporting Items for Systematic Reviews and Meta-analyses criteria. Only studies comparing RAA versus LA were included. We utilized weighted mean difference (WMD) to measure continuous variables (ie operative time, EBL, length of hospital stay) and odds ratio (OR) and risk difference (RD) to measure categorical ones (ie conversion and complication rates).

RESULTS: We identified nine publications that strictly met our eligibility criteria, published from 2004 to 2013, only being a RCT. Overall, 257 RAA cases and 290 LA cases were included. Meta-analysis of extractable data showed that LA was associated with a shorter operative time (WMD: 11.86 min; 95% CI: 0.68-23.03; p = 0.04) without significant differences in terms of conversion rate (OR 0.79; 95% CI: 0.29-2.17; p = 0.65) and EBL (WMD: -3.02 ml; 95% CI: -22.71-16.68; p = 0.76). There was a trend favoring robotics for perioperative complications (OR 0.59; 95% CI: 0.27-1.27; p = 0.18). Hospital stay was significantly shorter for RAA (WMD: -0.26 days; 95% CI: -0.46-0.06; p = 0.01).

CONCLUSIONS: RAA and LA are both safe and effective minimally invasive procedures for the management of adrenal masses. They show comparable surgical outcomes, but the use of robotics seems to provide a minimal advantage in terms of perioperative morbidity and hospital stay. Further comparative assessment is required to verify these findings.

Source of Funding: None

MP21-02 MEDIUM TERM RESULTS OF MINI LAPAROSCOPIC PYELOPLASTY USING THE SMALL-INCISION ACCESS RETROPERITONEOSCOPIC TECHNIQUE IN ADULTS

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INTRODUCTION AND OBJECTIVES: With the revolution of minimal invasive surgery instrumentation and the era of less scar or scarless surgery, mini-laparoscopy (ML) has been initiated over the last 4 years in urologic surgery. The objective of this study is to present our experience and mid-term results with retroperitoneal mini laparoscopic pyeloplasty (mLP) performed by small-incision access retroperitoneoscopie technique (SMART) in adults.

METHODS: From August 2010 to October 2012, 23 adult patients underwent retroperitoneal SMART pyeloplasties (SMARTp). A
MP21 ROBOTICS/LAPAROSCOPY: UPPER TRACT IV

6-mm homemade balloon trocar were used to create the retroperitoneal space. All the procedures were performed with 6-mm optic trocar and two or three (3-mm) working trocars. All patients underwent a ureteral (Double-J) stent placement preoperatively. Our inclusion criteria were: age > 16 years, body mass index < 30, primary ureteropelvic junction obstruction (UPJO), no previous history of major abdominal or pelvic surgery and no concomitant urolithiasis. Postoperative pain was evaluated by the visual analogue scale. Cosmetic outcome was assessed at three months postoperatively by the Patient and Observer Scar Assessment Scale (POSAS). Functional outcome was evaluated by renal scintigraphy, intravenous urography (IVU) and/or renal colour-duplex ultrasonography.

RESULTS: Eighteen patients (78.3%) underwent Y-V plasty and 5 (21.7%) Anderson-Hynes pyeloplasty. All procedures were performed using 3 trocars except 4 cases (17.4%). Mean operative time was 118 minutes. There was only minimal blood loss, no need for conversion to standard laparoscopic or open pyeloplasty, no intraoperative complications and only two postoperative complications were recorded: retroperitoneal Haemorrhage and Pyelonephritis and both were treated conservatively. One recurrent case was recorded. The cosmetic outcomes according to POSAS were very good.

CONCLUSIONS: SMARTtp is proved as an efficacious and tolerable procedure with good cosmetic results and can be used for the treatment of UPJO in suited patients. We feel that this technique is likely to become an established procedure.

Source of Funding: None

MP21-03 SURGICAL TEAM ASSESSMENT OF THE OF THE 3D VIDEO SYSTEM AS USED IN LAPAROSCOPIC PARTIAL NEPHRECTOMY

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INTRODUCTION AND OBJECTIVES: Laparoscopic partial nephrectomy is, according to the actual guidelines the alternative of choice whenever a part of healthy parenchyma can be spared. The laparoscopic approach must follow the same principles as the open approach. Primary control of the renal pedicle, tumor excision, renal sutures - all require good orientation in the surgical field and high skills in instrument handling. By improving on the intracorporeal vision and offering an extra dimension during surgery, 3d video systems aim to increase comfort and safety during laparoscopy. Our aim was to evaluate the 3d video system in laparoscopic renal surgery from the viewpoint of the main operator, the assistants, with mentions regarding the cost-benefit ratio.

METHODS: We assessed the system by asking the surgeons to fill questionnaires that assess the difficulty of the operative steps, ergonomics of the system and the synchronization between the surgeon and the assistants in comparison to the classic 2D former experience. We also compared the operation time.

RESULTS: The time of the warm ischemia shortened significantly 12 vs 21 min (0.0031) using the 3D system. Some steps of the operation became much more easier such as: preparation of the renal hilum, excision and the renoraphy. The excision of the lesion is much easier so we can postulate a better control of the surgical margins.

CONCLUSIONS: Using the 3D vision some major steps in the partial nephrectomy such as excision of the specimen and the renoraphy can be performed faster which result in shortening the warm ischemia.

Besides the system can provide a better orientation for the first assistant shortening the learning curve and improving the performance of the surgical team.

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MP21-04 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR PT1B AND ABOVE LESIONS

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INTRODUCTION AND OBJECTIVES: Partial nephrectomy is a standard therapy in managing T1a renal masses. Long-term outcomes regarding laparoscopic partial nephrectomy for non-T1a lesions remains limited in the urologic literature. Here we present our experience in managing pathologically confirmed T1b and above lesions.

METHODS: We retrospectively reviewed 226 consecutive cases of retroperitoneal laparoscopic partial nephrectomy between February 2002 and February 2012. Only patients with pT1b and above lesions were included in our analysis. Clinical, demographic, Charlson Comorbidity Index (CCI), operative, peri-operative, and oncologic outcomes were assessed with long term follow up.

RESULTS: Eighteen patients (8.0%) met inclusion criteria. Mean age was 63.68 years. Mean CCI was 2.3. Mean operative and warm ischemia times were 252 (170–372) minutes and 33 (0–60) minutes, respectively. Mean EBL was 333.5 ml (20–700). Pre-operative and postoperative renal function were determined using the Cockcroft-Gault equation and were 109.1 mg/dL and 84.1 mg/dL. A total of 20 tumors were removed. Mean tumor size was 3.7 cm (0.8–8.0). All tumors had negative surgical margins at time of resection. Pathologic tumor staging revealed pT1b (45%), pT2a (5%), pT3a (50%). Eleven tumors (55%) represented classical clear cell renal carcinoma, 5 tumors (25%) represented papillary renal carcinoma, and 4 tumors (20%) represented chromophobe renal carcinoma. Mean follow-up after treatment was 38.4 months (0.5–96.5) and cancer specific survival was 100%.

CONCLUSIONS: By maintaining adequate negative surgical margins and removing all peri-renal fat around tumors, laparoscopic partial nephrectomy can provide good long term oncologic outcomes for T1b and above lesions.

Source of Funding: none

MP21-05 REVIEW OF COMPLICATIONS FOR OPEN VERSUS ROBOTIC PARTIAL NEPHRECTOMY

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INTRODUCTION AND OBJECTIVES: Robotic partial nephrectomy has become a popular modality for removal of small solid tumors. In the past there has been a higher complication rate for laparoscopic partial nephrectomy when compared to open. This study reviews complications of robotic partial nephrectomy to open.

METHODS: We retrospectively reviewed 190 pts from 2010 to 2012 at a single institution with 82 robotic and 108 open partial nephrectomies. We reviewed all postoperative complications from operative, progress, radiological, and discharge records. Data analysis was completed using SPSS Statistics.

RESULTS: The data for the open vs robotic groups were as follows: average age was (59.2, 59.10, p < 0.916), tumor size was (4.07, 2.85, p < 0.12), BMI (30.95, 31.06, p < 0.955), and operative
time duration (178.4, 220.5, p < 0.001). Open partial nephrectomies had a total of 11 complications (10.2%); Clavien 3 and 4 vs robotic group of 1 complication (1.2%); Clavien 3. There were no Clavien 5 complications. The Clavien 4 (5 total) in the open group were for ICU transfers of multiple etiologies and open group Clavien 3 (6 total) included 4 urine leaks that required post-operative stent placement. There were no urine leaks in robotic group and a total of 6 urine leaks in open group. The Clavien 3 complication for the robotic group included an arterial venous fistula that required IR embolization. The Clavien 1 and 2 complications for both groups included post operative transfusion, 6 in open (5.6%) vs 2 (2.4%) in robotic group.

CONCLUSIONS: There is no increase in complications rate following the robotic approach to partial nephrectomy when compared to the open approach.

Source of Funding: none

MP21-06 DOES THE AMOUNT OF PERI-RENAL FAT AFFECT TOTAL OPERATIVE TIME DURING ROBOTIC PARTIAL NEPHRECTOMY?

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INTRODUCTION AND OBJECTIVES: RENAL Nephrometry scores have been used to correlate preoperative tumor complexity with warm ischemia time. However, it cannot be used to predict renal dissection or overall operative time as a surrogate of surgical difficulty. We sought to determine whether peri-renal or abdominal wall fat measurements predict operative time points during robotic partial nephrectomy.

METHODS: Our IRB approved Urologic Oncology Database was reviewed for patients undergoing robotic partial nephrectomy between 2009 and 2012. All fat plane measurements were done using preoperative axial imaging at the level of the renal vein entering the hilum. Peri-renal fat was the sum of the anterior (distance from the anterior renal capsule to Gerota’s fascia or closest overlying bowel), posterior (from posterior renal capsule to closest posterior abdominal wall) and lateral (from inferior spleen tip/liver edge to kidney) fat. The three abdominal fat measurements included: anterior (distance from linea alba to skin), posterior (from tip of spinous process to skin), and lateral (external oblique or serratus anterior fascia to skin). Spearman’s analyses were used to correlate fat measurements with overall operative times.

RESULTS: A total of 56 patients with complete data were included. The mean age of patients was 58.9 years (range 26–83). Renal lesions had an average Nephrometry score of 7.0 (range 4–11). Mean time from skin incision to renal artery clamping was 89 minutes and total operative time was 181.0 minutes, and average warm ischemia time was 18.0 minutes (range 5–28). Mean BMI was 28.8. Mean peri-renal fat measurements anteriorly, laterally, and posteriorly were 1.1 cm, 1.7 cm, and 1.5 cm, respectively. Mean abdominal wall fat measurements anteriorly, laterally, and posteriorly were 2.4 cm, 2.8 cm, and 2.1 cm, respectively. There was no correlation between peri-renal and abdominal wall fat measurements, or Nephrometry score with operative times. Nephrometry score was significantly associated with warm ischemia time ($\rho = 0.41$, p = 0.002). BMI was significantly associated with time from incision to clamp application ($\rho = 0.46$, p = 0.0005) and overall operative time ($\rho = 0.27$, p = 0.049).

CONCLUSIONS: Increased peri-renal fat is not correlated with operative complexity as a function of operative time during robotic partial nephrectomy. Overall BMI is associated with increased dissection to clamp application time and overall operative time. The robotic platform may obviate the difficulty associated with fat dissection during traditional laparoscopy.

Source of Funding: none

MP21-07 OUTCOMES OF AN AGED AND COMPLEXITY MATCHED COMPARISON BETWEEN OPEN AND ROBOTIC-ASSISTED PARTIAL NEPHRECTOMY


INTRODUCTION AND OBJECTIVES: Since commencing robotic partial nephrectomy (RPN) in 2010, we compared initial results with an established open partial nephrectomy practice (OPN) (2004–2012). All cases were performed for elective indications.

METHODS: The peri-operative, oncological, and functional outcomes of 80 RPNs were compared with 60 OPN cases in matched cohorts using a prospective database.

RESULTS: Mean age was 54.9 years (RPN) and 59.0 years (OPN). The mean tumour size was 2.96 cm for RPN and 3.91 cm for OPN (NS) and mean PADUA score was 7.39 (RPN) and 7.93 (OPN). Operative times were longer for RPN (182 vs 142 minutes, p < 0.01), although estimated blood loss was greater for OPN (245 vs 159 mls, p < 0.05) and warm ischaemic times were lower for RPN (18.2 vs 21.0 mins, p < 0.05). The hospital stay was shorter for RPN (3.49 vs 5.62 days, P < 0.001).

There were 2 positive margins in each group but no radiological recurrences at 14 and 36 months respectively. There was one conversion to radical nephrectomy in each group. There were 2 Clavien grade II and 1 IIIb (ureteric stent) complication in RPN and 5 grade II, 2 IIIb (emobilisation, caval filter) and one transfusion in OPN. Serum creatinine rose by 7.6 mol/l (RPN) and 10.6 mmol/l (OPN) (NS) whilst haemoglobin drop was greater for OPN (2.40 vs 1.56 g/dl p < 0.001). 47/60 OPNs and 60/80 RPNs were performed for malignancy.

CONCLUSIONS: In the elective setting RPN can be performed with equivalent oncological and functional results with some potential reduction in complications, hospital stay and blood loss.

Source of Funding: None

MP21-08 SINGLE-CENTER EXPERIENCE OF RETROPERITONEOSCOPIC ADRENALECTOMY FOR ADRENAL TUMORS LARGER THAN 6 CM

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INTRODUCTION AND OBJECTIVES: Whether large adrenal tumors ≥ 6 cm could be removed with a retroperitoneoscopic approach is controversial because of its limited exposure and anticipated technical difficulty. We report and evaluate retroperitoneoscopic adrenalectomy in patients with adrenal tumors ≥ 6 cm.

METHODS: 382 patients with adrenal tomurs underwent retroperitoneoscopic adrenalectomy at our institution between March 2002 and December 2012. 18 case of them underwent retroperitoneoscopic adrenalectomy for tumors larger than 6 cm. 4 technical tricks were recommended. Firstly, three relatively bloodless planes were dissected strictly in order to locate the adrenal gland: first plane was between the perirenal fat and anterior Gerota’s fascia on the superomedial side of kidney;
following plane could be located between posterior Gerota's fascia and lateral aspect of perirenal fat and finally the last plane could be identified on the parenchymal surface of upper renal pole. Secondly, the kidney should be mobilized as inferiorly as possible to expand the working space for excision of adrenal tumors. Thirdly, the dorsal, gastric and superior aspects of adrenal tumor should be mobilized firstly, and then the inferior and inner aspects, because there were branches from renal vessels inferiorly and branches of aorta and vena cava inferiorly. The veins with diameter ≤ 2 mm could be coagulated and transected with harmonic shears, and veins with diameter ≥ 2 mm and all the arteries could be controlled by Hem-o-Lok. Last, the specimens should be retrieved through the first incision located below the 12th rib which could be enlarged longitudinally inferiorly for 2 cm between the psoas and abdominal muscles.

RESULTS: 18 patients with adrenal tumors ≥ 6 cm underwent retroperitoneoscopic adrenalectomy successfully. Median diameters of tumors that were ≥ 6 cm were 8.9 cm (range, 6.0 to 15.6 cm). No open conversion occurred. There have been no local or regional recurrences except one patient with adrenocortical carcinoma developed pulmonary metastases and two patients with metastatic lung cancer. The median operative time was 175.3 min, operative blood loss 88.1 mL, and postoperative hospital stay 5.6 days. Pathology revealed that 5 cases of adrenal myelolipomas, 4 cases of pheochromocytomas, 3 cases of adrenocortical carcinomas and 6 of metastatic carcinomas.

CONCLUSIONS: Our retroperitoneoscopic adrenalectomy could be performed for adrenal tumors ≥ 6 cm with good safety and efficacy. The size of an adrenal malignant tumor should not be a contradiction for retroperitoneoscopic adrenalectomy.

Source of Funding: none

MP21-09 COMPARISON OF ROBOTIC VERSUS LAPAROSCOPIC RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY: A SINGLE INSTITUTION EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Minimally invasive retroperitoneal partial nephrectomy replicates many advantages of open partial nephrectomy without a flank incision. We compared our initial robotic-assisted retroperitoneoscopic partial nephrectomy (RAPRN) experience with standard retroperitoneoscopic partial nephrectomy (SRPN) to evaluate relative advantages of the two approaches.

METHODS: Demographic, tumor, and peri-operative information was abstracted on patients undergoing RAPRN (n = 48) or SRPN (n = 35) from 2/2008 to 10/2012 from our institutional review board approved small renal mass database. Differences in continuous variables were assessed using a t-test with categorical variables compared using a chi-square test or Fisher’s exact test. Multivariate analysis was then performed.

RESULTS: No difference was identified between demographic variables or mean tumor size between groups (2.3 v. 2.3 cm, p = 0.66). Low complexity masses (Nephrometry scores 1-4) were more common for SRPN than RAPRN (51.4% v. 25%, p = 0.01). Hilar clamping was performed less in SRPN than RAPRN (63% v. 100%, p < 0.01) but ischemia time was longer with SRPN when hilar clamping was utilized (27 v. 23 min, p = 0.04). Operative time was shorter with SRPN (mean, 133 v. 182 min, p < 0.01). No difference was seen in median EBL (50 v. 100 cc, p = 0.36), intraoperative (p = 0.63), or postoperative complications as measured by low (1–2, p = 0.2) or high (3-4, p = 0.25) Clavien score. On multivariate analysis, RAPRN remained associated with increased operative time, even when controlling for nephrometry score and BMI. Despite 3 positive margins (2 focal) in the SRPN group and none with RAPRN (p = 0.07), there was no statistical difference in pathology (Fuhrman grade p = 0.17, stage p = 1.00). Follow-up was longer with SRPN (15 v. 9 mo, p = 0.02) with no evidence of recurrence and minimal change in renal function in both groups.

CONCLUSIONS: In our institutional series, RAPRN compared to SRPN was applied to more complex small renal masses, but even when controlling for this was associated with increased operative time. Some differences between groups may represent institutional practice patterns. Excellent peri-operative outcomes suggest that both SRPN and RAPRN represent good options for managing posteriorly based renal masses.

Source of Funding: none

MP21-10 RETROPERITONEAL LAPAROSCOPIC RADICAL NEPHRECTOMY WITH 3 FORMS OF BLADDER CUFF CONTROL

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INTRODUCTION AND OBJECTIVES: The management of the distal ureter and ipsilateral bladder cuff remains controversial and challenging in retroperitoneal radical nephroureterectomy. We compare recurrence and survival outcomes following retroperitoneal laparoscopic radical nephroureterectomy for upper tract urothelial carcinoma using 3 forms of bladder cuff control.

METHODS: 256 patients with upper tract urothelial carcinoma underwent retroperitoneal laparoscopic nephroureterectomy between December 2002 and December 2012. The recorded data included sex, age, mode of diagnosis, smoking, history of bladder cancer, type of surgery, complications, tumor site, tumor size, tumor stage, tumor grade, length of hospital stay, recurrence, and progression. We also determined the recurrence and survival rates. Each kidney was retroperitoneoscopically dissected en bloc, together with the perirenal fatty tissue, lymph nodes, and/or adrenal gland, without transecting the ureter. The lower ureter was resected with the bladder cuff transected using 3 methods. Group A (n = 85): open iliac dissection with specimen retrieval from this original incision; Group B (n = 73): transurethral resection of bladder cuff with retrieval from the iliac incision and Group C (n = 98): transurethral resection of bladder cuff with retrieval from the lumbar incision.

RESULTS: Patient age ranged from 31 to 87 years (mean 65.5). Median followup was 49 months (4–96). Three groups were comparable in terms of demographics, risk factors, peroperative characteristics except operative time, pathological characteristics. Median survival time of Group A - C was 48, 42 and 45 months, respectively, while there was no difference between these three groups. Overall survival was associated with bladder recurrence (p = 0.03), upper tract urothelial carcinoma stage (p = 0.01) and lymph node involvement (p = 0.04). But overall survival was not associated with bladder cuff excision method (p = 0.09).

CONCLUSIONS: These data suggest that our approach of retroperitoneal laparoscopic radical nephroureterectomy was efficient and safe for managing upper tract urothelial carcinoma with aggressive nature according the survival outcomes. With enough experience, either open dissection or transurethral resection of distal ureter and bladder cuff is good alternative for urologists.

Source of Funding: none
MP21-11 NEW TECHNOLOGIES OF IDENTIFICATION OF RENAL ARTERY IN RETROPERITONEAL LAPAROSCOPIC RENAL SURGERY

Yichang Hao*, Lulin Ma, Beijing, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: The objective of this study was to evaluate the feasibility of a new method to identify renal vessels during retroperitoneal laparoscopic nephrectomy.

METHODS: A total of 90 patients underwent transperitoneal radical laparoscopic nephrectomies from January 2010 to August 2012. In the first consecutive 30 patients (Group 1) we located renal artery with the standard technique; in the last consecutive 60 patients (Group 2) the medial arcuate ligament (MAL)-psoas muscle fat complex was used as an anatomic landmark to identify renal vessels. Comparative analysis was carried out between the two groups, including mean hilar exposure time, mean blood loss, duration of hospital stay, conversion rate and complication rate.

RESULTS: No differences were noted in gender, age, mean body mass index, tumor side and size of the lesions in the two groups (P > 0.05). Mean hilar exposure times were 10.3 ± 3.1 minutes in Group 1 versus 6.1 ± 1.7 minutes in Group 2 (P < 0.001). Mean blood loss was 153.3 ± 39.8 ml in Group 1 versus 110.8 ± 28.1 ml in Group 2 (P < 0.001). No significant differences were detected regarding duration of hospital stay, complication rate and conversion rate between the two groups (P > 0.05). No complications and no recurrence of disease at CT evaluation were recorded neither in Group 1 nor in Group 2.

CONCLUSIONS: Radical laparoscopic nephrectomy in use of the MAL-psoas muscle fat complex as an anatomic landmark is technically feasible and safe. In conclusion, the MAL-psoas muscle fat complex can serve as an objective and belt-and-braces anatomic landmark for the identification of the renal vessels in retroperitoneal laparoscopies. Source of Funding: none

MP21-12 OUTCOMES OF LAPAROSCOPIC PARTIAL NEPHRECTOMY IN PATIENTS WITH CHRONIC RENAL DISEASE

Ahmed Alasker, Steve Williams*, Reza Ghavamian, Bronx, NY

INTRODUCTION AND OBJECTIVES: To evaluate the effect of baseline chronic renal disease on global renal function at intermediate term (≥3 months) after laparoscopic partial nephrectomy.

METHODS: Patients who had Laparoscopic or Robotic Partial Nephrectomy performed by single surgeon (RG) for small renal masses and had chronic renal disease (CRD) stage 3 or more (GFR < 60 mL/min/1.73 m2) were analysed (n = 29). The selected group was compared to patients who had normal renal function (n = 93). Significant Renal failure after LPN was defined as a decrease in glomerular filtration rate (GFR) of > 25% (RIFLE criteria). The GFR before and after LPN was estimated using the Modification of Diet in Renal Disease study group equation (MDRD). Chi-square and T-test were used to compare the means between the two groups in term of the change in creatinine and GFR before and after the surgery. In addition, univariable and multivariable logistic regression models were used to assess a decrease of > 25% in GFR from the preoperative level. Candidate predictor variables were age, gender, DM, HTN, preoperative GFR, tumour size, perioperative blood loss, surgery duration and warm ischemia time.

RESULTS: In patients with baseline chronic renal disease, who underwent laparoscopic partial nephrectomy the mean decrease of creatinine was 31 % compared to 16% in patients with normal baseline renal function (p = 0.06). However, and the mean drop of GFR was 16 % for CRD group compared to 10% normal renal function group (p = 0.29). Patient with Chronic renal disease were older (p < 0.05) and had a tendency to have more hypertension compared to patients with normal renal function (p = 0.09). Multivariable analysis showed that age (OR = 1.064; 0.47) and warm ischemia (OR 1.139; P = 0.002) were the only independent predictors of renal function loss of 25%. Neither chronic renal impairment nor preoperative GFR were predictors of renal loss at intermediate term in our series.

CONCLUSIONS: Laparoscopic partial nephrectomy in patients with chronic renal disease is feasible and offers good treatment option. Warm ischemia time remains the most important predictor of renal function loss at intermediate term.

Source of Funding: None

MP21-13 SUPER SELECTIVE RENAL ARTERIAL CLAMPING WITHOUT INTRA-OPERATIVE IMAGING IN ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY USING PREOPERATIVE CT ANGIOGRAPHY AND INTRAOPERATIVE PERFUSION VISUALIZATION

Shadi Al Ekish, Michael Maddox*, Andrew Leone, Gyan Pareek, Dragan Golijanin, Providence, RI

INTRODUCTION AND OBJECTIVES: Robot-assisted laparoscopic partial nephrectomy (RALPN) has become the gold standard surgical treatment of small renal masses (SRMs). Intraoperative imaging with ultrasound or near infra-red fluorescence is often used to aid in assessment of perfusion and tumor excision. We describe the feasibility and safety of super selective renal arterial clamping during RALPN for SRMs using preoperative imaging and simple intraoperative perfusion assessment after clamping.

METHODS: A retrospective review was performed on 72 consecutive patients undergoing RALPN between November 2011 and May 2013. Of those, 18 patients underwent super selective renal arterial clamping without the use of intraoperative imaging. All patients had a normal preoperative creatinine and a radiographically normal appearing contralateral kidney.

RESULTS: Of the 18 patients, 7 were males and 11 females. Mean age was 59 years (22–84), and median body mass index was...
The technique’s standardization: ureteral catheter implantation, lumboascopical access, trocar placement, identification and ureter dissection, ureter incision and extraction of the lithiasis, ureteral suture and retroperitoneal drainage placement. We described all the issues that make easier to develop and reproduce the surgical technique.

The registered data was analyzed using SPSS 17.0.

RESULTS: In this investigation we identified and divided the technique in 8 steps. This ensures its workability and makes easier the intervention. We propose a reproducible algorithm due to the obtained results.

The average surgical time was about 121 minutes, a stone-free rate of 98, 7%, and the average hospitalization time was of 2.6 days and the major complications rate was 2.5%.

CONCLUSIONS: We confirm that the used surgical procedure can be reproduced. Given its high possibilities in solution and feasibility, this technique can be considered as a therapeutic option for the lumbar ureter lithiasis with the described characteristics. The proposed work algorithm gives the directions for the pre-operatory evaluation of the patients, the technique indications and the evaluation and follow-up in the post-operatory stage.

Source of Funding: none

MP21-15 ASSOCIATION OF R.E.N.A.L. SCORE, PADUA SCORE AND CENTRALITY INDEX SCORE WITH PERIOPERATIVE OUTCOMES AND POSTOPERATIVE RENAL FUNCTION

Katsunori Tatsugami*, Junichi Inokuchi, Takumi Adachi, Seiji Naito, Fukuoka, Japan

INTRODUCTION AND OBJECTIVES: To determine the cause of decreased renal function after laparoscopic partial nephrectomy (LPN) for renal tumor, we analyzed the relations of postoperative renal function, perioperative outcomes and pre-operative aspects used for PADUA score, R.E.N.A.L.-Nephrometry Scoring System (RENAL score) and centrality index scores (C-index).

METHODS: From February 2008 to February 2013, the pre- and postoperative affected renal function was evaluated by 99mTc-mercaptoacetyltriglycine (MAG3) clearance in 69 patients treated with LPN. LPN were achieved via retroperitoneal (RPLPN; n = 55) or transperitoneal (TPLPN; n = 14) routes. Affected renal function was evaluated according to the ratio of affected to contralateral renal MAG3 clearance. The relations between change in affected renal function and tumor size, operative time, ischemic time, blood loss and each variable of scoring system were examined.

RESULTS: Median tumor size, median operative time, median ischemic time and median blood loss were 2.3 cm (1–4.8), 178 min (91–323), 33 minutes (14–64), 45 ml (10–1103). The percent change was evaluated according to the ratio of affected to contralateral renal MAG3 clearance. The relations between change in affected renal function and tumor size, operative time, ischemic time, blood loss and each variable of scoring system were examined.

MP21-14 LUMBOSCOPIC SURGERY FOR THE LITHIASIS OF LUMBAR URETER

Tania González, María Elena Suárez, Mayuri Machado, David Perdomo*, Havana, Cuba

INTRODUCTION AND OBJECTIVES: In Cuba, the prevalence of the urinary lithiasis is approximately 8% and 40% of them are recurrent. In circumstances such as big, impacted ureteral lithiasis, the failed treatment with SWL or ureteroscopy motivated us to develop a technique for lumboscopical ureterolithotomy (LUL), as another therapeutic option in order to substitute the indication for open surgery in this kind of patients.

METHODS: A prospective investigation of technological development was performed in 157 patients using as surgical procedure the lumboascopical ureterolithotomy for the lithiasis located in the lumbar ureter. The investigation was divided in three important moments: the technique’s description, results evaluation and the presentation of our algorithm.

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27 kg/m² (21–42). Median tumor diameter was 2.3 cm (1.2–15) and median R.E.N.A.L. nephrometry score was 5 (4–7). Complete patient and tumor characteristics are shown in Table 1. Median time of super selective clamping was 19 minutes (13–26), and median blood loss was 100 ml (50–400). Average console time was 144 minutes (106–220). Intraoperative imaging was not utilized in any of our patients. Collecting system repair was performed in 3 patients (17%). Pathology revealed clear cell carcinoma (n = 9), papillary (n = 3), chromophobe (n = 3) and oncocytoma (n = 3). Surgical margins were negative in all patients. One patient required ureteral stenting for a persistent urine leak. Clavien 3–5 complications were encountered in one patient (5.5%). Early kidney function results at 1, 2 and 90 days postoperatively showed no significant changes in serum creatinine or clearance. Average hospital stay was 2.5 days (2–4 days).

CONCLUSIONS: Super selective clamping of renal arterial branches without the use of intraoperative imaging is feasible, safe and efficacious when performing RALPN for SRMs. Intraoperative observation of perfusion- ischemia delineation in renal cortex is a simple technique for resection of SRMs when other types of intraoperative imaging are not available.

Source of Funding: none
MP21-16 RETROPERITONEAL LAPAROSCOPIC NEPHRECTOMY FOR NONFUNCTIONING TUBERCULOUS KIDNEY: A SINGLE-CENTER EXPERIENCE WITHOUT LARGE VOLUME OF PATIENTS

Bi Hai*, Hou Xiao-fei, Ma Lu-lin, Beijing, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the clinical efficacy of retroperitoneal laparoscopic nephrectomy for nonfunctioning tuberculous kidneys based on a single-center experience.

METHODS: Twenty-one patients with nonfunctioning tuberculous kidneys underwent retroperitoneal laparoscopic nephrectomy at our institution from October 2003 to November 2009. The control group consisted of 15 patients who underwent open nephrectomy for nonfunctioning tuberculous kidneys. Two groups were compared in terms of demography, operative time, blood loss, analgesic requirements, postoperative hospital stay, and complications.

RESULTS: All retroperitoneal laparoscopic nephrectomies were carried out successfully, except for two that were converted to open surgeries. Open nephrectomy was performed successfully in the 15 control patients. The demographics of the two groups were comparable. Mean time of postoperative recovery of intestinal function was significantly shorter in the retroperitoneal laparoscopic group (2.10 days) compared with the open group (2.79 days) (p = 0.019). Mean analgesic requirements were slightly lower in the retroperitoneal laparoscopic group (0.71 doses) compared with the open group (1.87 doses) (p = 0.043). No significant difference was observed between the two groups in terms of complications.

CONCLUSIONS: Retroperitoneal laparoscopic nephrectomy for nonfunctioning tuberculous kidneys is feasible and safe, with the advantages of minimal invasion and rapid recovery, which is worthy of popularization.

Source of Funding: none

MP21-17 SELECTIVE RENAL PARENCHYMAL CLAMMING IN LAPAROSCOPIC PARTIAL NPHRECTOMY

Noriaki Utsunomiya*, Yuka Kono, Daisaku Nishihara, Keiyu Matsumoto, Takashi Matsuoka, Toshifumi Yano, Hiroyuki Tsunemori, Takuya Okada, Takehiko Segawa, Koei Muguruma, Mutsushi Kawakita, Kobe, Japan

INTRODUCTION AND OBJECTIVES: We describe our experience using a laparoscopic clamp to induce selective regional ischemia during laparoscopic partial nephrectomy (LPN) without hilar occlusion.

METHODS: After transperitoneal or retroperitoneal renal mobilization and delineation of the renal tumor margin using laparoscopic ultrasound, the laparoscopic Simon Renal Pole Clamp® (Aesculap AG, Tuttinglen, Germany) is placed across the renal parenchyma 1–2 cm proximal to the resection line. After tumor excision, the jaw pressure is temporarily reduced to better visualize arterial bleeding sites, which are then cauterized. In cases with collecting system entry, collecting system closure and parenchymal sutures are needed.

RESULTS: In 15 patients who were treated for elective indications, 11 cases were transperitoneal approach and 4 cases were retroperitoneal approach. Parenchymal clamping failed in 2 cases with retroperitoneal approach and 1 case with transperitoneal approach due to insufficient renal ischemia. All 3 cases converted to central hilar clamping before excision. Successful renal ischemia was obtained in 12 patients with a mean age of 66.9 ± 7.6 years, mean tumor diameter of 25.1 ± 10.4 mm, and median R.E.N.A.L. nephrectomy score of 4 (range 4–6). Mean selective clamp time was 23 ± 10.4 minutes and mean estimated blood loss was 72.5 ml (10–300 ml). In a mean follow-up of 8.5 ± 6.7 months, mean % decrease in estimated glomerular filtration rate (eGFR) was 11.1%, 11.6% and 9.7% after operation at 1, 3, and 6 months, respectively. Claven grade IIIa complication of abdominal abscess caused by bowel injury during trocar placement was occurred in 1 case. Final pathology determination revealed renal cell carcinoma in 11 cases with 1 positive margins.

CONCLUSIONS: In our experience, regional ischemia using a laparoscopic parenchymal clamp is feasible during LPN for hemostasis. Retroperitoneal approach may not be suitable for creating renal ischemia.

Source of Funding: none

MP21-18 A MATCHED COMPARISON OF PERIOPERATIVE OUTCOMES OF A SINGLE LAPAROSCOPIC SURGEON VERSUS A MULTISURGEON ROBOT-ASSISTED COHORT FOR PARTIAL NEPHRECTOMY

Ivar Vidal-Mora, Octavio Castillo, Daniel Revello*, Matias Poblete, Santiago, Chile

INTRODUCTION AND OBJECTIVES: We present a matched pair analysis of a heterogeneous group of surgeons who performed robot-assisted partial nephrectomy and a single experienced laparoscopic surgeon who performed conventional laparoscopic partial nephrectomy. Perioperative outcomes and complications were compared.

METHODS: 48 conventional laparoscopic and robot-assisted partial nephrectomy cases from January 2007 to March 2013 were reviewed from our prospectively maintained institutional database. Groups were matched 1:1 (24 matched pairs) by R.E.N.A.L. (radius, exophytic/endophytic properties, nearness of tumor to collecting system or sinus, anterior/posterior, location relative to polar lines) nephrometry score, patient age and hilar nature of the tumor. Statistical analysis was done to compare operative outcomes and complications.

RESULTS: Matched analysis revealed that nephrometry score, age, gender, tumor side and American Society of Anesthesia physical status classification were similar. Operative time favored conventional laparoscopic partial nephrectomy. During the study period robot-assisted partial nephrectomy showed significant improvements in estimated blood loss and warm ischemia time compared to those of the experienced conventional laparoscopic group. Postoperative complication rates, and complication distributions by Clavien classification and type were similar for conventional laparoscopic and robot-assisted partial nephrectomy (41.7% and 35.0%, respectively).

CONCLUSIONS: Robot-assisted partial nephrectomy has a noticeable but rapid learning curve. After it is overcome the robotic procedure results in perioperative outcomes similar to those achieved with conventional laparoscopic partial nephrectomy done by an experienced surgeon. Robot-assisted partial nephrectomy likely improves surgeon and patient accessibility to minimally invasive nephron sparing surgery.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Renal cryoablation offers a minimally invasive, safe and feasible modality for treatment of small renal masses. To our knowledge, there have only been two cases of metachronous cryoablation of bilateral renal masses. We present the perioperative outcomes of the third such case.

METHODS: A 52-year-old African American male with sarcoidosis, hypertension, diabetes mellitus, hyperlipidemia and chronic obstructive pulmonary disease was referred to the Urology clinic for microhematuria evaluation. CT of the abdomen and pelvis with intravenous contrast demonstrated bilateral enhancing renal masses (exophytic right mass – 1.4 cm, exophytic left mass – 0.9 cm). The patient elected for surveillance and repeat imaging six months later demonstrated growth of both masses (right – 3.1 cm, left 2.4 cm). His preoperative creatinine (Cr) was 1.08 mg/dL.

RESULTS: The patient elected for right laparoscopic renal cryoablation. After mobilization of the kidney and biopsy of the mass, three cryoablation probes were inserted into the mass and two freeze-thaw cycles were performed. Final pathology demonstrated papillary renal cell carcinoma (RCC), Fuhrman nuclear grade 3. The patient’s post-operative Cr was 0.99 mg/dL and his 3-month post-operative CT scan demonstrated no enhancement of the previously ablated right mass and interval growth of the left mass to 3.3 cm. The patient subsequently underwent left renal cryoablation 5 months after his initial procedure. Final pathology demonstrated papillary RCC, Fuhrman nuclear grade I and his post-operative Cr was 1.04 mg/dL. For both procedures he was discharged on post-operative day one.

CONCLUSIONS: Metachronous renal cryoablation for bilateral renal masses offers a minimally invasive and safe treatment modality for appropriately selected patients. Oncologic efficacy and preservation of renal function are achievable.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: To carry out hand-assisted retroperitoneoscopic nephroureterectomy (HARN) and open bladder cuff excision using a homemade hand-assist device.

METHODS: Sixty consecutive patients with upper tract transitional cell carcinoma (TCC) received HARN and open bladder cuff excisions. The procedures were carried out using a homemade hand-assist device comprising a medium sized Alexis wound retractor and surgical gloves. The Alexis wound retractor was positioned through a 7½V8 cm Gibson incision ready for use. The surgeon inserted his double-gloved, non-dominant hand into the retroperitoneal space via the wound retractor. During the procedure, the cuff of the surgeon’s outer surgical glove was turned outside-in, and snapped onto the external ring of the Alexis wound retractor to prevent carbon-dioxide gas leakage. We successfully created pneumoretroperitoneum by insufflating with carbon dioxide at 15 mm Hg. The procedure was carried out through a 7½V8 cm Gibson incision, and two additional laparoscopic ports.

RESULTS: All procedures were performed without complication. The mean estimated blood loss was 81 mL. The mean operation time was 103 minutes. Morphine (mean 17.6 mg) was administered for pain relief for 1½V3 days following surgery. The mean time for recommencing oral intake was 1.5 days, and to ambulation was 2.0 days. There were no wound complications related to the homemade hand device.

CONCLUSIONS: Preliminary results show that carrying out HARN using a homemade hand-assist device is safe and feasible. Our homemade hand-assist device offers a cost reduction for the HARN procedure over using commercially available devices.

Source of Funding: none

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MP21-23 SIMPLE, EASY AND EFFECTIVE TECHNIQUE FOR RENORRHAPHY DURING LAPAROSCOPIC PARTIAL NEPHRECTOMY: EXTRACORPOREAL SLIDING KNOT SUTURE

Joon Woo Kim*, Yoon Hyoung Lee, Joon Beom Kwon, Daegu, Korea, Republic of, Kang Soo Sim, Andong, Korea, Republic of, Jae Soo Kim, Daegu, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Efficient closure of the renal parenchyma in laparoscopic partial nephrectomy is important to minimize warm ischemia time and bleeding. We report our technique of renorrhaphy, extracorporeal sliding knot suture.

METHODS: From March 2010 to December 2012, 24 consecutive patients with renal mass underwent laparoscopic partial nephrectomy by a single surgeon in a single institution. Extracorporeal sliding knot technique follows. After deep suture of both sides of renal defect, we pulled the both ends of thread out of trocar. We made sliding knot and push it down through the trocar until appropriate tension was achieved. If needed, we applied additional simple knot. Any foreign materials such as bolsters and clips, was not used.

RESULTS: All renorrhaphy was successfully performed without open conversion. The mean tumor size was 2.8 cm (1.1–4.0), the mean warm ischemic time was 26.4 minutes (18–35) and the mean estimated blood loss was 183.8 ml (50–650). There were 16 cases of renal cell carcinoma, 6 cases of angiomyolipoma and 2 cases of oncocytoma. All cases that were confirmed as renal cell carcinoma were negative surgical margin. There were no uncontrollable intraoperative bleeding and no case of early postoperative bleeding.

CONCLUSIONS: This technique is simple, inexpensive and safe. It makes the approximation of renal parenchyma much easier to perform. Any foreign material is not needed. Extracorporeal

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MP21-22 RETROPERITONEOSCOPIC HAND-ASSISTED NEPHROURETERECTOMY USING A HOMEMADE DEVICE

Chien-Hui Ou*, Wen-Horng Yang, Tainan, Taiwan

surgeon to overcome the learning curve even with small case numbers

Source of Funding: none
sliding knot suture is a useful and more effective technique than other technique of renorrhaphy.

Source of Funding: None

MP21-24 RETROPERITONEAL LAPAROSCOPIC LIVING-DONOR NEPHRECTOMY AND RECIPIENT OUTCOME

Jhih Cheng Wang*, Yu-Feng Tian, Steven K. Huan, Ling-Hsien Lee, Tainan City, Taiwan, Allen W. Chiu, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: Living-donor nephrectomy is performed via a standard flank approach during open surgery in contrast to laparoscopy where kidneys are procured transperitoneally.

Being more familiar with retroperitoneal laparoscopic for the surgery of the upper urinary tract, we investigated the feasibility of living donor nephrectomy by this approach.

METHODS: We perform laparoscopic retroperitoneal nephrectomy in 8 living donors. The patients were placed in flank position. The retroperitoneal space was developed with blunt finger dissection, through a 2-cm mini-lumbotomy above anterior superior ileal crest in the posterior axillary line. After primary access to the renal artery and vein, these were dissected to their junctions with great vessels, before freeing the kidney of its perinephric attachments. The kidney was delivered manually, through Gibbons¡’s incision or Pfannenstiel incision.

RESULTS: The average duration of surgery was 193 ± 48 (120 ~ 240) min; warm ischemia time less than 5 min (4.9 ± 2.0). Most of donors present grade ≤1 postoperative morbidity according to modified Clavien grading system. All 8 kidneys harvested laparoscopically had immediate function with urine production after revascularization and mean post operation day 1 serum creatinine level was 4.9 ± 2.6 mg/dL. Most patients’s serum creatinine levels returned to normal within 1 week. Two patients had Clavien grade 1 and two patients with grade 3 complications.

CONCLUSIONS: Our data suggest that retroperitoneal laparoscopic donor nephrectomy may represent a reasonable option in centers in which more extensive experience has been accumulated with retroperitoneal than with transperitoneal laparoscopy for the surgery of the upper urinary tract.

Source of Funding: none

MP21-25 ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR SMALL RENAL TUMOR: ONE SURGEON’S INITIAL EXPERIENCE

Kazunori Namiki*, Yobei Sawada, Hidenori Okubo, Ryo Iseki, Takeshi Hashimoto, Naoya Satake, Yoshihiro Nakagami, Yutaka Horiguchi, Kunihiko Yoshioka, Masaaki Tachibana, Tokyo, Japan

INTRODUCTION AND OBJECTIVES: Nephron-sparing surgery (NSS) is now the gold standard for the treatment of small renal tumor. Robotic assisted partial nephrectomy (RAPN) is a minimally invasive option of NSS. We review the outcomes of our initial five RAPN cases.

METHODS: From March 2012, after obtaining the permission of research ethics committee of our institute, one surgeon who had experienced robotic assisted radical prostatectomy and laparoscopic renal surgery, performed RAPN using the da Vinci surgical system for 5 renal tumors. The approach (transperitoneal:1, retroperitoneal:4) was selected by the tumor location. The renorrhaphy was done in two layers with barbed suture. Selective renal parenchymal clamping was done in one case.

RESULTS: The median age, Body Mass Index, tumor size, the RENAL nephrometry scores, the console time, and estimated blood loss of the cases was 58, 22.7, 27 mm, 7, 135 minutes, and 10 mL, respectively. The warm ischemia time (WIT) was 52, 47, 43, 18, 23 minutes in order from the first case (Figure 1). All cases were completed by robotic surgery without conversion to open surgery. There were no severe complications. Final pathology revealed renal cell carcinoma and negative margins in all cases. The decreased % eGFR was within 10% at 3 month after operation. There were no metastasis and recurrences.

CONCLUSIONS: RAPN is a safe and effective approach for NSS in our initial experience. Early oncological and functional outcomes of our experience appear to be acceptable. Continued efforts are required to decrease WIT for preserving better renal function.

Source of Funding: none

<table>
<thead>
<tr>
<th>TABLE. OUTCOME OF DONOR SURGERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean operation time ± SD (min)</td>
</tr>
<tr>
<td>Mean warm ischemic time ± SD (min)</td>
</tr>
<tr>
<td>Median estimated blood loss (ml)</td>
</tr>
<tr>
<td>Mean hospital stay ± SD (days)</td>
</tr>
<tr>
<td>Preoperation Cr level (mg/dl)</td>
</tr>
<tr>
<td>Postoperative Cr level (mg/dl)</td>
</tr>
<tr>
<td>Mean Opioid dosage ± SD (mg)</td>
</tr>
<tr>
<td>Mean flatus passage time ± SD (days)</td>
</tr>
<tr>
<td>Mean ambulatory time ± SD (days)</td>
</tr>
<tr>
<td>Conversion to open nephrectomy</td>
</tr>
</tbody>
</table>

Source of Funding: None


**MP21-26**  THE EXPERIENCE OF RETROPERITONEAL LAPAROSCOPIC RENAL CAPSULECTOMY FOR PATIENTS WITH IDIOPATHIC RENAL SUBCAPSULAR FLUID COLLECTION

Dapeng Wu*, Guodong Zhu, Wenbin Song, Linlin Zhang, Zhishang Yang, Dalin He, Xi’an, China, People’s Republic of China

**INTRODUCTION AND OBJECTIVES:** Idiopathic renal subcapsular fluid collection may occur as a rare presentation of nephritic syndrome, and distension of the renal capsule and Gerota’s fascia due to massive fluid accumulation may cause pain. In addition, arterial hypertension secondary to renal ischemia and activation of renin-angiotensin-aldosterone system may occur. The objective of this study is to evaluate the surgical outcome of retroperitoneal laparoscopic renal capsulectomy for patients with idiopathic renal subcapsular fluid collection.

**METHODS:** Retrospectively analyzed the diagnosis and treatment of 10 patients with idiopathic renal subcapsular fluid collection. All the patients were female with flank pain for unknown reasons, and were diagnosed as renal subcapsular fluid collection with B ultrasound and enhanced CT scan. All the patients were undergone retroperitoneal laparoscopic renal capsulectomy. The volume of the renal subcapsular fluid for each patient was documented, the fluid was examined by routine biochemical tests, and the excisional renal capsules were followed by pathological examination. The time period for drainage after the operation for each patient was documented, and the follow-up was taken after 1, 3, 6, 12 months, and 2 year after the operation.

**RESULTS:** The retroperitoneal laparoscopic renal capsulectomy were successfully performed in all the patients with no major complications. The average volume of the renal subcapsular fluid was 355 ± 5 ml (115–1025 ml), the fluid was in light yellow color, and its concentration of creatinine and urea nitrogen was quite similar to that of serum. The pathological findings indicated that the renal capsule became fibrous dysplasia with chronic infiltration of inflammation cells. The average time for drainage after the operation was 5 days (3–10 days). All the patients were recovered after the 1 month of the operation and no recurrence was found with the mean follow up period of 12 months (6–18 months).

**CONCLUSIONS:** The reason for idiopathic renal subcapsular fluid collection is unknown, and the aim of treatment is mainly to alleviate the symptoms. Based on our experience, we believe that retroperitoneal laparoscopic renal capsulectomy is an effective surgical treatment with no observed recurrence.

**Source of Funding:** None.

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**MP22 PERCUTANEOUS NEPHROLITHOTOMY II**

**MP22-01** DOES BODY MASS INDEX IMPACT THE OUTCOMES OF TUBELESS PERCUTANEOUS NEPHROLITHOTOMY?

Nicholas J Kuntz, Andreas Neisius, Durham, NC, Gastón M Astroza, Santiago, Chile, Matvey Tsivian, Richard H Shin*, Muhammad W Iqbal, Ramy Youssef, Michael N Ferrandino, Glenn M Preminger, Michael E Lipkin, Durham, NC

**INTRODUCTION AND OBJECTIVES:** Tubeless percutaneous nephrolithotomy (tPNL) has become a widely accepted practice, having been shown to be safe and efficacious for the treatment of renal calculi with high stone-free and low complication rates. We sought to evaluate whether body mass index (BMI) has an impact on the outcomes of tPNL.

**METHODS:** We retrospectively reviewed demographic and clinical characteristics of patients who underwent tPNL at our institution from 2006–2011. Specifically, stone-free rates (no residual fragments at 3 month imaging) complications (Clavien-Dindo classification) and hospital length of stay (LOS) were assessed. Patients were divided into 4 groups based on BMI: normal <25, overweight 25–29.9, obese 30–34.9 and morbidly obese ≥ 35. Baseline characteristics and outcomes were compared between BMI groups. Multivariable logistic regression models were used to evaluate the independent contribution of BMI as predictor of the outcomes.

**RESULTS:** Overall, 268 patients were identified who fulfilled study requirements. Obese or morbidly obese patients comprised 50% of the study population (BMI >30). The overall stone free and complication rates were 52.5% and 19.0%, respectively. Minor (1–2) and severe (3–4) complication comprised 10.4% and 8.6%, respectively. Univariate and multivariable analyses revealed no association between BMI and stone-free or complication rates. However, patients with a normal BMI had significantly higher transfusion rates (p = 0.005), and were significantly more likely to have a prolonged hospital stay (≥ 2 days), when compared to an overweight BMI (p = 0.032).

**CONCLUSIONS:** In this study, BMI did not impact the stone-free rates, or overall and severe complication rates of tPNL. The relatively low stone free rate may reflect the use of a strict radiographic criteria, stone complexity and absence of routine secondary procedures. Normal BMI was found to be a risk factor for complications.

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**Table 1. Stone-Free and Complication Rates of tPNL Stratified BMI**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Overall</th>
<th>BMI &lt; 25</th>
<th>BMI 25–29.9</th>
<th>BMI 30–34.9</th>
<th>BMI ≥ 35</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone free</td>
<td>135 (52.5%)</td>
<td>25 (53.2%)</td>
<td>27 (50.0%)</td>
<td>33 (56.9%)</td>
<td>30 (50.0%)</td>
<td>0.864</td>
</tr>
<tr>
<td>Complications, overall</td>
<td>51 (19.0%)</td>
<td>10 (18.2%)</td>
<td>18 (21.6%)</td>
<td>13 (19.7%)</td>
<td>12 (16.7%)</td>
<td>0.890</td>
</tr>
<tr>
<td>Clavien grade 1-2</td>
<td>28 (10.4%)</td>
<td>7 (12.7%)</td>
<td>7 (9.5%)</td>
<td>7 (10.4%)</td>
<td>7 (9.7%)</td>
<td>0.937</td>
</tr>
<tr>
<td>Clavien grade 3-4</td>
<td>23 (8.6%)</td>
<td>4 (7.3%)</td>
<td>8 (10.6%)</td>
<td>5 (7.5%)</td>
<td>6 (8.3%)</td>
<td>0.605</td>
</tr>
<tr>
<td>Urosepsis</td>
<td>15 (5.6%)</td>
<td>3 (5.4%)</td>
<td>5 (6.7%)</td>
<td>5 (7.5%)</td>
<td>2 (2.8%)</td>
<td>0.638</td>
</tr>
<tr>
<td>Transfusion</td>
<td>9 (3.4%)</td>
<td>6 (10.9%)</td>
<td>0 (0.0%)</td>
<td>1 (1.5%)</td>
<td>2 (2.8%)</td>
<td>0.005</td>
</tr>
<tr>
<td>Length of stay, days</td>
<td>9 (3.4%)</td>
<td>6 (10.9%)</td>
<td>0 (0.0%)</td>
<td>1 (1.5%)</td>
<td>2 (2.8%)</td>
<td>0.229</td>
</tr>
</tbody>
</table>

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**Source of Funding:** None.
for prolonged hospital stay, which may be due to an increase in clinically significant bleeding in this patient population. Tubeless PNL appears to be a safe and effective procedure for the treatment of renal calculi, independent of BMI.

Source of Funding: none

**MP22-02** THE EFFECT OF OBESITY ON THE OUTCOMES OF THE PATIENTS UNDERGOING PERCUTANEOUS NEPHROLITHOTOMY

Alper Otuctemur, Emin Ozbek*, Huseyin Besiroolu, Murat Dursun, Suleyman Sahin, Ismail Koklu, Mustafa Erkoc, Eyyup Danis, Muammer Bozkurt, Galip Dedekarginoglu, Istanbul, Turkey

**INTRODUCTION AND OBJECTIVES:** We evaluated the effect of obesity on perioperative and in the patients undergoing percutaneous nephrolithotomy between 2003–2013.

**METHODS:** 976 patients undergoing percutaneous nephrolithotomy in our clinic between 2003 and 2013 were included in the study. Patients were divided into three groups according to their BMI. They were categorized as Group 1 normal (< 25 kg/m²), Group 2 overweight (25–29.9 kg/m²), and Group 3 obese (≥ 30 kg/m²). The impact of BMI was evaluated on perioperative findings (Access localization, operation time, fluoroscopy time, bleeding); postoperative outcomes (analgésic requirement, duration of nephrostomy, length of hospital stay), stone-free rates after surgery and complication rates. The outcomes of 976 patients were compared statistically.

**RESULTS:** 568 male and 408 female totally 976 patients with the mean age of 47.6 ± 10 (17–76) underwent PCNL. The procedure was performed to the rightside of kidney for 536 patients and left side for 440. 420 (%43) of the patients were normal-weight, 342 (%35) of them were over-weighted and 214 (%22) of them were obese. There was no significant difference in the rates of supracostal access requirement, the average operation time, mean fluoroscopy time and decline in blood count (p > 0.05). Average analgésic requirements, duration of hospital and nephrostomy stay were similar among all groups (p > 0.05). There was no significantly difference in stone-free and complication rates between two groups (p > 0.05).

**CONCLUSIONS:** As seen in our large series study, PNL is an high effective and safety procedure that can be applied to the obese patients.

Source of Funding: NONE

**MP22-03** OUR EXPERIENCES OF PERCUTANEOUS NEPHROLITHOTOMY FOR TEN YEARS

Alper Otuctemur, Emin Ozbek*, Huseyin Besiroolu, Murat Dursun, Suleyman Sahin, Ismail Koklu, Mustafa Erkoc, Eyyup Danis, Muammer Bozkurt, Galip Dedekarginoglu, Istanbul, Turkey

**INTRODUCTION AND OBJECTIVES:** The evaluation of the commonly used procedure PCNL on 976 patients with stone disease.

**METHODS:** 976 patients (568 men/408 women) underwent percutaneous nephrolithotomy operation between July 2003 and May 2013. Giving the patient prone position percutaneous intervention was performed under C-arm fluoroscopy. 30 F Amplatz sheath was placed after enlargement the entrance way with Amplatz dilatation. 26 F rigid nephroscope and pneumatic lithotriptor were used to disintegrate and cleanse the stones. 18 F nephrostomy tube was placed at the end of the operation. The results were compared with 976 cases.

**RESULTS:** The mean age of 47.6 ± 10 (17–76) of 568 men and 408 women totally 976 patients were performed PNL. PNL was applied to 536 right, 440 left unit. The stone burden was found to be 8,1 ± 4,21 cm² (2–30 cm²). The average operation duration was 72,1 ± 29,7 minutes (30–80 minutes). The stone free rate was calculated as 849/976 (%87). 46 patients (%4,8) were applied blood transfusion during postoperative period. Complicated urinary tract infection developed in 16 patients. The average duration of nephrostomy was 2,6 days and the average lenght of hospital stay was 3,4 days.

**CONCLUSIONS:** As can be seen in our study with larger series, percutaneous nephrolithotomy is a safe highly effective method in stone diseases

Source of Funding: NONE

**MP22-04** TUBELESS PERCUTANEOUS NEPHROLITHOTOMY WITHOUT TRACT SEALANT: FEASIBILITY AND OUTCOMES

Gautam Jayram*, Jason Michaud, Brian Matlaga, Baltimore, MD

**INTRODUCTION AND OBJECTIVES:** Tubeless percutaneous nephrolithotomy (PCNL) has gained popularity in the treatment of high-volume renal stone disease. Many reports utilize a tract sealant to decrease tract complications. We studied our tubeless technique without tract manipulation to determine perioperative outcomes and safety.

**METHODS:** A retrospective review of all patients undergoing PCNL at our center was performed. All patients had large-volume renal or proximal ureteric calculi. Patients were left tubeless if good hemostasis and minimal upper urinary tract trauma were achieved. Tubeless cases were left with an internal double-J stent without nephrostomy tract sealant or fulguration. Patients with multiple access tracts, with stones in transplanted or ectopic kidneys, or with urinary diversion were excluded. Demographics, hospital course, and perioperative laboratory values were reviewed. A postoperative CT scan was performed immediately after the procedure and was reviewed to determine the extent of residual stone.

**RESULTS:** 77 tubeless cases were identified. Median age was 54 and 53% were male. Median preoperative stone size based on imaging was 2.3 cm. The mean drop in hematocrit was 2.3%, and there was no median change in serum creatinine throughout the study group. 91% of the cohort was discharged on postoperative day 1 after an uneventful hospital course. Overall complication rate was 7%, with 3 patients requiring re-admission for pyelonephritis. 1 patient had a significant drop in hematocrit, and a CT demonstrated a peri-renal hematoma that was managed conservatively. One additional patient required anticoagulation for a pulmonary embolism. This patient experienced significant hematuria and renal colic and required a nephrostomy tube to decompress his kidney. 45.4% of the group was stone free based on postoperative CT scan, and 72.7% had a stone burden 4 mm or less following PCNL. 20.8% (16/74) patients with residual stones) of all tubeless patients underwent a secondary stone procedure, which were all ureteroscopic stone retrieval.

**CONCLUSIONS:** Tubeless PCNL is safe and reliable in patients undergoing percutaneous surgery. Renal decompression is rarely required postoperatively and the vast majority of patients are fit for discharge the following day. Tract complications are infrequent even without tract sealant or fulguration. An indwelling
ureteral stent facilitates a secondary ureteroscopic stone extraction if necessary. In experienced hands, this procedure appears to provide satisfactory stone outcomes with little risk of major complications or added hospital resources.

Source of Funding: none

MP22-05 MICROPERC: MULJIBHAI PATEL UROLOGICAL HOSPITAL EXPERIENCE

Ravindra Sabnis*, Raguram Ganesamoni, Arvind Ganpule, Shashikant Mishra, Jigish Vyas, Jitendra Jagtap, Amit Bhattu, Mahesh Desai, Nadiad, India

INTRODUCTION AND OBJECTIVES: The micro-percutaneous nephrolithotomy (‘micro-PCNL’ or ‘microperc’) is a minimally invasive PCNL technique in percutaneous renal access and laser lithotripsy are achieved using a 4.85 Fr needle, with the aim to diminish the morbidity associated with the standard PCNL. The objective of this study is to describe the technique of the microperc and to analyze the results of this treatment in our patients.

METHODS: All patients undergoing microperc in our institute were prospectively enrolled in this study. Patient demographics, stone characteristics, operative details, complications, analgesic requirement, hemoglobin drop, hospital stay and stone clearance rate were analyzed.

RESULTS: We performed 85 micropercs from June 2010 to April 2013. Mean patient age was 39 ± 17 years. There were 61 males and 24 females. Mean stone size was 11.7 ± 3.4 mm. The number of stones was single in 76 patients and multiple in 9 patients. The sites of stones were as follows: pelvis in 37, upper calyx in 4, middle calyx in 9, lower calyx in 42 and upper ureter in 3 patients. Mean operative time was 62.9 ± 30.3 minutes. The procedure was done using 4.85 Fr microperc needle in 50 patients and 8 Fr minimicroperc sheath in 35 patients. Seven patients needed conversion to miniperc and one patient was converted to standard PCNL. Intraoperative complications were minor bleeding in four patients (Clavien grade 1) and minor pelvic perforation in two patients (Clavien grade 1). Postoperative complications included bleeding in two patients (Clavien grade 3A), fever in 10 patients (Clavien grade 1 in 6 patients, grade 2 in 3 patients and 3A in 1 patient), perinephric collection in one patients (Clavien grade 1). Auxiliary procedures included double-J ureteric stenting in three patients and retrograde intra-renal surgery in one patient. The analgesic requirement was 88 ± 53 mg of tramadol. The mean hemoglobin drop was 0.98 ± 0.54 g/dl. The mean hospital stay was 69 ± 44 hours. Complete stone clearance was achieved in 94.1% of patients.

CONCLUSIONS: Microperc is a safe, effective and less morbid alternative to the standard PCNL for small renal calculi.

Source of Funding: None

MP22-06 PERCUTANEOUS STONE EXTRACTION FOR CALYCEAL DIVERTICULAR STONES: HOW DOES IT COMPARE?

Sammy Elsamra*, Hector Motato, Zhamshid Okhunov, Arvin George, Nikhil Waingankar, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: While few reports on percutaneous stone extraction for stones located within calyceal diverticula (CD) demonstrate feasibility and good success in symptom resolution, few have compared this technically more challenging anatomy with PCNL performed for standard stones.

METHODS: Retrospective review of all patients who underwent percutaneous stone extraction from July 2006 to Sept 2012 was performed. Pre, intra, and postoperative parameters were tabulated. Those with CD were identified and their parameters were compared to all other PCNLs performed.

RESULTS: Data for 288 PCNLs performed in this period was available. 28 were identified to be for CD. Mean age was 54 vs 37 for standard and CD, respectively (p = 0.00). ASA was significantly less in the CD cohort (2.29 vs 1.21, p = 0.00). Largest stone diameter was 19.8 mm for standard and 15.7 mm for CD cohorts (p = 0.01). Estimated blood loss (EBL) was greater in the CD cohort (500 vs 240 ml, p = 0.03). This was also reflected by similar difference in delta hematocrit (2 vs 5.7 for standard and CD PCNL, respectively). Transfusion rates, however, were similar 17% and 14% (p = 1.00). Flouroscopic time was also similar 766 vs 790 sec (p = 0.91). Overall complication rate was 19% vs 39% for PCNL done for non-CD and CD cohorts respectively (p = 0.03). Major complications (both 14%) and sepsis rates (4% for CD and 8% for non-CD), however, were similar (p = 1.00 and 0.70, respectively). Length of stay (LOS) was significantly greater for non-CD cohort (3.75 vs 2.52 days, p = 0.00). Stone free rates (SFR), as determined by CT or US done 2–3 months post procedure were 75% vs 96% for PCNL done for non-CD vs CD, respectively (p = 0.03).

CONCLUSIONS: Our experience identified those with CD to be younger, with less comorbidity, and with smaller stones. Despite this, blood loss was greater in the CD cohort as measured by EBL and change in hematocrit though this did not translate to greater transfusion rates. Further, while major complication and sepsis rates were similar, overall complications were greater in those with CD. Regardless, those with CD enjoyed a shorter LOS and greater SFR.

Source of Funding: none

MP22-07 PERCUTANEOUS NEPHROLITHOTOMY IN THE EXTREMELY OBESE (BMI > 40), IS IT STILL SAFE?

Benjamin Larson*, Shubha De, Fabio Torricelli, Manoj Monga, Mark Noble, Cleveland, OH

<table>
<thead>
<tr>
<th></th>
<th>Standard (non-CD)</th>
<th>Calyceal Diverticular Stones</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>260</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>64</td>
<td>37</td>
<td>0.00</td>
</tr>
<tr>
<td>ASA</td>
<td>2.29</td>
<td>1.21</td>
<td>0.00</td>
</tr>
<tr>
<td>Largest Stone Length</td>
<td>19.8 mm</td>
<td>15.7 mm</td>
<td>0.01</td>
</tr>
<tr>
<td>EBL</td>
<td>204 ml</td>
<td>500 ml</td>
<td>0.03</td>
</tr>
<tr>
<td>Change in Hct</td>
<td>3.0</td>
<td>5.7</td>
<td>0.00</td>
</tr>
<tr>
<td>Transfusion rate</td>
<td>44 (17%)</td>
<td>4 (14%)</td>
<td>3.00</td>
</tr>
<tr>
<td>Fluoroscopic Time</td>
<td>766 sec</td>
<td>790 sec</td>
<td>0.91</td>
</tr>
<tr>
<td>Overall Complication Rate</td>
<td>19% (51 of 262)</td>
<td>39% (11 of 28)</td>
<td>0.03</td>
</tr>
<tr>
<td>Major Complication Rate</td>
<td>14% (36 of 260)</td>
<td>14% (4 of 28)</td>
<td>3.00</td>
</tr>
<tr>
<td>Rate of Sepsis</td>
<td>8% (22 of 260)</td>
<td>4% (1 of 28)</td>
<td>0.70</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>3.75 days</td>
<td>2.52 days</td>
<td>0.00</td>
</tr>
<tr>
<td>Stone Free Rate</td>
<td>16 of 225 (75%)</td>
<td>21 of 23 (96%)</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Source of Funding: none
INTRODUCTION AND OBJECTIVES: Over one third of adults and almost 17% of children in the United States are obese. This is a continued increase in obesity rates in all age and gender categories. While success rates with percutaneous nephrolithotomy (PNL) have been shown to be unaffected by obesity, we hypothesize that there will be greater difficulty in the extremely obese patient (BMI >40) than in those who are overweight and obese (BMI 25–35).

METHODS: All patients who underwent a PNL for stone related disease from 2009 through 2012 at the Cleveland Clinic were assessed. Patients with a BMI ≥40 kg/m² were included in a cohort and compared to a control group of consecutive patients with a BMI of 25–35 kg/m². Preoperative, intraoperative, and perioperative characteristics were compared between the study cohort (BMI ≥40) and controls (BMI 25–35).

RESULTS: Eighty patients were identified with a BMI ≥40 (mean 44.2, range 40–64.4). Thirty five control patients were identified (median BMI 31.3, range 25.8–34.7). The mean age was 55 for both groups. There were more females in the extremely obese group (63%) than controls (40%). American Society of Anesthesiologist score was significantly higher for patients in the extremely obese group with 75% of the cohort scored either a 3 or 4 compared to only 45% of the control cohort, p = 0.004. Previous kidney stones were noted in the vast majority of both groups with 86% and 74% respectively. There was no significant difference in the number of percutaneous accesses required between groups. Operative times were comparable between groups with a mean of 144 minutes for both groups. The incidence of intraoperative blood transfusions was also similar at 5.2% and 5.9%, respectively. The length of stay was also similar at 3.1 days and 2.8 days. There were 28 perioperative complications recorded in the extremely obese group. Of these, 7% were Clavien scale 4, 18% were 3, 46% were 2, and 29% were 1. The control group had 11 perioperative complications recorded with a similar distribution and there was no significant difference noted on analysis.

CONCLUSIONS: The increasing BMI of the population will present new challenges to the urologic community. The great advantage of PNL for the treatment of large kidney stones continues to be that stone clearance can still be accomplished despite elevated BMI. We are able to show that with the assistance of specialized anesthesia colleagues, PNL can continue to be offered to patients who have a very high BMI at referral centers equipped to accommodate the super obese.

Source of Funding: None

MP22-08 COMPLIANCE WITH GUIDELINES FOR ANTIBIOTICS AFTER PERCUUTANEOUS NEPHROLITHOTOMY DOES NOT INCREASE INFECTIOUS COMPLICATIONS

Sameer Deshmukh*, Seth Bechis, Brian Eisner, Boston, MA

INTRODUCTION AND OBJECTIVES: The overuse of antibiotics is an important public health issue as it contributes to antibiotic resistance. The American Urological Association guidelines committee recommends ≤ 24 hours of antibiotics for percutaneous nephrolithotomy. The purpose of this study was to review the post-operative infectious complications in a series of patients for whom our practice was compliant with AUA guidelines.

METHODS: A retrospective review was performed of consecutive percutaneous nephrolithotomy procedures performed by a single surgeon. In our practice, patients without history of recurrent cystitis or struvite stones are treated according to AUA guidelines with antibiotics given when the patients enter the operating room and for less than 24 hours of total duration. All patients are seen within 14 days of their procedure for post-operative follow-up and incidence of infection was recorded. Inpatient and outpatient records were evaluated.

RESULTS: Fifty-two (52) patients met inclusion criteria. Five patients (9.6%) were treated with antibiotics for post-operative fever within 72 hours of PCNL. No patients (0%) were admitted to the intensive care unit for sepsis. No patients (0%) were treated for infection from post-operative days 3–14. Mean age was 51.9 years and 29% of patients were female. The most common intra-operative antibiotics used were cefazolin (37%), ampicillin + gentamicin (19%), and ceftriaxone (17%). Mean operative time was 107.4 minutes (SD 32.0) and 34 accesses (65.0%) were below the 12th rib. Stone size was > 2.0 cm in 79% of patients, and 23% of stones were staghorn calculi. Stone composition was pure or mixed calcium in 25 patients (46%), mixed calcium and uric acid in 10 patients (19%), pure uric acid in 3 (6%), struvite in 4 (8%), cystine in 2 (4%), and unknown in 8 (15%). Ureteral stent without nephrostomy was the drainage for 35% of procedures; the remainder had nephrostomy tube drainage for < 48 hours.

CONCLUSIONS: In this pilot series of 54 patients in whom our practice complied with AUA guidelines for PCNL, 9.6% were treated for post-operative cystitis with antibiotics. There was no sepsis or delayed infection. These results are encouraging and suggest that in properly selected patients, responsible use of antibiotics may not increase infectious complications. Further prospective and randomized studies would be helpful to confirm our findings.

Source of Funding: None

MP22-09 THE EFFECT OF PRONE-FLEXYED POSITIONING (PPF) ON AIRWAY PRESSURES DURING PERCUTANEOUS NEPHROLITHOTOMY (PCNL)

Kirsten Foell*, Michael Ordon, Andrea G. Lantz, Kenneth T. Pace, R. John D’A. Honey, Toronto, Canada

INTRODUCTION AND OBJECTIVES: The prone-flexed position involves 40–60° lumbar flexion and 15° knee flexion, in the prone position. The advantages over the prone position (PP) include increased distance between the tract and the spleen/liver, lowering of the kidneys relative to the ribs, and shortening of the skin-to-stone distance. However, urologists unfamiliar with the PPF have questioned the effect of the increased abdominal compression associated with the flexed position on airway pressures and ventilation. We aimed to quantify the effect of positioning on peak airway pressure (PAP), and the relationship between abdominal girth, body mass index (BMI) and PAP.

METHODS: Measurements from consecutive patients undergoing PPF PCNL were prospectively recorded from March to December, 2012. After intubation and muscle paralysis, the PAP and positive end-expiratory pressure (PEEP) were recorded in the supine position (SP), PP, and PPF. After subtracting PEEP, the PAPs across the 3 positions for each patient were compared with repeated measure ANOVA.

RESULTS: 63 patients (62% male) were recorded, and 1 was excluded due to inadequate recordings. All PAPs were below the threshold (40 cmH2O) that is considered critically high and could trigger a change in patient position. The mean PAP was higher in the PPF (20.3 ± 5.6 cmH2O) than PP (17.2 ± 5.0, p < 0.001), which was higher than the SP (15.4 ± 4.1, p < 0.001). The mean BMI was 29.2 ± 6.0 kg/m², and girth was 101 ± 12 cm. Obese (BMI >30, n = 22) and non-obese (n = 40) patients demonstrated similar mean PAP changes when repositioning from SP to PPF (p = 0.13). However, increased girth and higher BMI were predictive of elevated PAP in all three positions (p < 0.05,
on linear regression). No patients required conversion out of the PFP for any reason.

CONCLUSIONS: Airway pressures were highest in the PFP, particularly in those with larger body habitus. However, this elevation is not clinically significant, as all airway pressures remained < 40 cmH2O and no patients required conversion to an alternate position. Given the anatomical and surgical advantages, the prone-flexed position remains our preference for PCNL and should be considered by surgeons performing PCNL, particularly in the prone position.

Source of Funding: None

MP22-10 INFECTIOUS OUTCOMES IN NEPHROSTOMY DRAINAGE PRIOR TO PERCUTANEOUS NEPHROLITHOTOMY COMPARED TO CONCURRENT ACCESS

Aaron Benson*, Trisha Juliano, Ryan Pickens, Nicole Miller, Nashville, TN

INTRODUCTION AND OBJECTIVES: We hypothesized that establishing percutaneous nephrostomy drainage and treating with renal pelvic urine culture-specific antibiotics leads to decreased sepsis rates for patients with increased infection risk. Renal calculi and pelvic urine cultures have been shown to be better predictors of urosepsis than pre-operative bladder culture. Short-term pre-PCNL antibiotics reduce the risk of post-PCNL urosepsis. Our objective was to analyze a single surgeon's experience in PCNL after prior nephrostomy drainage compared to PCNL with concurrent percutaneous renal collecting system access.

METHODS: The charts of patients who underwent PCNL were reviewed. Data collected included patient age, gender, body mass index, pre-PCNL urine cultures, laterality/location, renal calculi burden size, pelvic urine/stone cultures, length of stay, and sepsis/complications. These data points for patients with pre-placed nephrostomy drainage were compared to patient outcomes regarding PCNL with concurrent access using student's t-test and chi-squared test.

RESULTS: Between September 2007 and June 2012, 219 patients underwent PCNL. Sixty-seven (30.6%) patients had pre-placed nephrostomy drainage (Group 1) for acute obstruction/infection, lower urinary tract reconstruction, or both, while 152 (69.4%) patients had concurrent percutaneous renal access (Group 2) obtained by the urologist. Group 1 pre-PCNL pelvic and lower urinary tract (LUT) urine cultures were positive in 53.5% and 58.6%, respectively, which was higher than Group 2 (23.1%) positive LUT urine cultures (p = 0.0001). Group 1 was treated with pre-operative antibiotics for 13.7 days vs. 6.9 days in Group 2 (p = 0.0001). Stone size was larger in Group 2 than Group 1 (4.1 cm vs. 3.4 cm; p = 0.022). Stone culture was positive more often in Group 1 than Group 2 (64.2% vs. 25.7%; p = 0.0001). The concordance rate of pre-PCNL pelvic urine culture results with stone culture results (30.6%) was higher than those for Group 1 or 2 LUT urine culture (21.4% or 7.3%). There were no sepsis episodes in Group 1 and a 6.6% sepsis rate in Group 2 (p = 0.034).

CONCLUSIONS: Pre-PCNL nephrostomy drainage with renal pelvic urine culture and culture-specific antibiotic treatment decreases sepsis rates in high risk patient populations. Stone culture is important to obtain as our data shows that a significant proportion of patients, particularly those with identifiable infection risk factors, have positive stone cultures, which would increase the risk of infectious complication.

Source of Funding: None

MP22-11 EFFECT OF ADJUVANT INTRACAVITARY THERAPY ON UPPER TRACT UROTHELIAL CARCINOMA

Amin Herati*, Sammy Elsamra, Hector Motato, Daniel Moreira, Arvin George, Manaf Alom, Arthur Smith, Zeph Okeke, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: As endoscopic management of upper tract urothelial carcinoma (UTUC) is gaining acceptance, there is a lack of data regarding the utility of adjuvant intracavitary therapy. Herein we seek to describe our experience with adjuvant intracavitary therapy after endoscopic treatment of UTUC.

METHODS: A retrospective review of all patients who underwent endoscopic management of UTUC (either ureteroscopically or percutaneously) from 2008 to 2012 was performed. Demographics, tumor pathology, adjuvant therapy used and method of delivery were reviewed. Correlation with recurrence rates, recurrence-free survival, metastasis-free survival was attempted.

RESULTS: 34 males and 17 females (51 total patients) with a mean age of 72 years, median ASA score 3, and a mean BMI of 27, underwent endoscopic treatment of UTUC since 2008 (73% are or were smokers). Mean follow up was 28 months. Mean creatinine at last follow-up was not significantly increased from pre-operative creatinine (p > 0.05). Tumors were right-sided in 30 patients (58%), low grade in 27 (58%), high-grade in 19 (41%), stage Ta and T1 in 34 (74%) and 9 (20%) patients, respectively. Tumors were most commonly located in the renal pelvis (33%). 13, 18, and 18 patients received intracavitary mitomycin C (MMC), BCG, or no therapy with recurrences occurring in 44%, 69%, and 67%, respectively (log-rank p > 0.05). Recurrence rates did not significantly differ (log-rank p > 0.05) by method of delivery (intravesical with indwelling stent-65% or percutaneous nephrostomy 42%). Mean time to recurrence was only 207 days and remained stable thereafter (figure 1). Six patients, 3 with low and 3 with high grade disease, were identified to progress to metastatic disease and only one of them received intracavitary therapy.

CONCLUSIONS: Endoscopic treatment of UTUC is feasible in appropriately selected patients. Adjuvant intracavitary therapy, regardless of type or method of delivery, does not seem to decrease recurrence rates or time to recurrence. We recommend prospective studies with larger populations to clearly delineate the potential benefit of adjuvant intracavitary therapy.

Source of Funding: none

MP22-12 COMPARISON OF RETROGRADE INTRARENAL SURGERY VERSUS SINGLE-TRACT PERCUTANEOUS NEPHROLITHOTOMY FOR LOWER STONES WITH A DIAMETER OF 10 TO 20 MM: A PROSPECTIVE SCORE-MATCHING STUDY

Sung Yong Cho, Jae Hyun Jung*, Min Soo Choo, Seoul, Korea, Republic of, Chang Wook Jeong, Seongnam, Korea, Republic of, Islah Munjih Ab Rashid, Kyung Tae Ko, Seung Bae Lee, Hwancheol Son, Hyeon Jeong, Hyeon Hoe Kim, Seung-june Oh, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: This study investigated stone free rates between PNL and RIRS groups for a main stone of 10 to 20 mm located in the lower pole calyx.

METHODS: A total of 650 consecutive patients who underwent PNL or RIRS were retrospectively reviewed. Patients with a main stone of 10 to 20 mm located in the lower pole calyx were
included. Age, gender, body mass index, creatinine, GFR, hemoglobin, stone size, volume, laterality, location, major composition, a previous history of treatment, perioperative parameters were evaluated. "Stone-free" status was defined as no evidence of residual stones on images at 1 month postoperatively. Each patient of the RIRS group was matched to one of PNL group based on the calculated propensity scores using multiple logistic-regression analysis including age, gender, body mass index, previous treatment history, stone site, maximal stone size and total stone volume. We calculated and compared perioperative parameters and surgical outcomes of stone free and complication rates between the unmatched and matched groups.

RESULTS: Mean age was 54.4 ± 7/4, 13.7 years. Perioperative hemoglobin drop were significantly higher in PNL than RIRS group. The hospital stay was longer in PNL than RIRS group. The operative time was significantly longer in RIRS than PNL group. RIRS showed higher stone free rates than PNL did. Complication rates were higher in PNL group than RIRS group; however, it showed no statistical significance. Logistic regression analyses showed higher body mass index, the presence of stone located in lower anterior minor calyx and the operation method were predictive factors of stone-free status. In PNL group, the presence of residual stones was higher in stones of lower anterior minor calyx than those of lower posterior minor calyx (OR = 16.0, 95% CI 1.69 &8211; 151.110, P value = 0.007). In RIRS groups, there were no significant differences in the presence of residual stones between lower anterior and posterior minor calyces.

CONCLUSIONS: RIRS showed better results than PNL for patients with a main stone of 10 to 20 mm located in the lower pole calyx.

Source of Funding: none

MP22-13 RANDOMIZED CONTROLLED TRIAL COMPARING TOTALLY TUBELESS, TUBELESS AND EARLY TUBE REMOVAL IN MINIPERC

Raguram Ganesamoni*, Ravindra Sabnis, Shashikant Mishra, Arvind Ganpule, Jigish Vyas, Jitendra Jagtap, Amit Bhattu, Mahesh Desai, Nadiad, India

INTRODUCTION AND OBJECTIVES: The optimal exit strategy following miniperc is still controversial. In this study we compared postoperative pain, analgesia requirement, urine leak, hospital stay, stone clearance rate and need for auxiliary procedure between three exit strategies following miniperc.

METHODS: After ethics committee approval and informed consent, ninety patients undergoing miniperc for renal calculi of size 1 to 2.5 cm were equally randomized to three groups: group A (totally tubeless) with only ureteric catheter which was removed on first postoperative day, group B (tubeless with double-J stent) with only double-J stent kept for two weeks and group C with only 14 Fr nephrostomy tube and ureteric catheter placement which were removed on first postoperative day. Parameters evaluated included patient demographics, stone characteristics, complications, hemoglobin drop, postoperative pain, analgesia requirement, urine leak, hospital stay, stone clearance rate and need for auxiliary procedure.

RESULTS: The patient demographics and stone characteristics were similar in all three groups (p > 0.121). The duration of surgery and complication rates were similar in all the groups (p > 0.322). The mean visual analog scale pain score at 24 hours postoperatively were 1.5 ± 0.9 in group A, 1.9 ± 0.6 in group B and 2.3 ± 1.4 in group C (p values; A vs B = 0.014, B vs C = 0.206, A vs C = 0.003). The mean analgesia requirement for group A (tramadol 17 ± 24 mg) was significantly lower when compared to group B (tramadol 52 ± 43 mg) and C (tramadol 59 ± 26 mg) (p values; A vs B < 0.001, B vs C = 0.424, A vs C < 0.001). The mean hemoglobin loss was similar in all the groups. The incidence of urinary leakage from the miniperc site was similar all the groups (group A - 10%, B - 10% and C - 16.7%; p > 0.44). The average postoperative hospital stay in group A (1.3 ± 0.7 days) was similar to group B (1.2 ± 0.6 days) but shorter than group C (2.0 ± 1.6, p = 0.025). In group B, 46.7% of patients had stent related symptoms at 2 weeks follow-up. The stone clearance rates and need for auxiliary procedures were similar in all the groups.

CONCLUSIONS: Both totally tubeless and tubeless miniperc with ureteric stent reduce postoperative pain, analgesia requirement and hospital stay. When compared to tubeless miniperc with ureteric stent, totally tubeless miniperc has the advantages of absence of stent related symptoms and lack of need for ureteric stent removal in follow-up.

Source of Funding: None

MP22-14 STANDARDIZATION OF SURGICAL OUTCOMES REPORTING IN PERCUTANEOUS NEPHROLITHOTOMY

Dedan Opondo, Amsterdam, Netherlands, Stavros Gravas*, Larissa, Greece, Adrian Joyce, Leeds, United Kingdom, Margaret Pearle, Dallas, TX, Tadashi Matsuda, Osaka, Japan, Ying Hao Sun, Shanghai, China, People’s Republic of, Dean Assimos, Birmingham, AL, John Denver, London, Canada, Jean de la Rosette, Amsterdam, Netherlands

INTRODUCTION AND OBJECTIVES: There exist no global standards for defining outcomes in minimally invasive treatment of renal stone.

METHODS: We performed a literature search in PubMed for all randomized controlled studies which investigated various aspects of percutaneous nephrolithotomy between 2002 and 2012. We analyzed the outcomes included in each study. Each article was examined to identify the definition of the outcomes that were reported. We presented the various definitions to a panel of experts in a Delphi process of three rounds. The experts were asked to select items that they believed would best describe each clinical outcome. Finally, we defined the most common outcomes based on the various definitions used in current literature.

RESULTS: Stone free rate (51.5%), overall complications rate (48.5%), operating time (34.0%) and pain score (34.0%) are the most frequently reported outcomes in randomized controlled studies involving PCNL. Eighty experts responded to a three-step Delphi survey. Postoperative CT scan was considered as the most appropriate imaging method for assessing stone free status (80.5%). Cut off sizes for defining stone free status were proposed as absolute stone clearance (87%), residual stones < 2 mm (6.5%), residual stone < 4 mm (5.2%) and residual stones < 3 mm (1.3%). A final list of definitions for the most commonly reported clinical outcomes in PCNL is presented in this paper.

CONCLUSIONS: Wide variations exist in the definition and reporting of outcomes in percutaneous nephrolithotomy. We propose outcome definitions based on a review of literature and expert opinion. Standardization of outcome definition and reporting will improve the quality of research in Endourology.

Source of Funding: None
**MP22-15 A COMPARISON OF PERIOPERATIVE ANTIMICROBIAL REGIMENS FOR PERCUTANEOUS NEPHROLITHOTOMY**

Matthew Ferroni*, Pittsburgh, PA, Julie Riley, Albuquerque, NM, Timothy Averch, Stephen Jackman, Michael Ost, Pittsburgh, PA

**INTRODUCTION AND OBJECTIVES:** Best practice guidelines recommend perioperative antibiotics for percutaneous nephrolithotomy (PCN) to reduce post-operative infection; however, there are inconsistencies among endourologists regarding appropriate regimens. We analyzed three distinct protocols within the confines of a single regional antibiogram to determine appropriate perioperative antibiotic therapy.

**METHODS:** A retrospective review of consecutive patients at a single institution treated by PCN was performed. Patients were categorized into three groups based on treatment by one of three experienced endourologists. All patients provided a preoperative urine culture, and if positive were treated with an appropriate course of antibiotics. In patients with a negative culture, the following antibiotic regimens were applied: group A received perioperative ampicillin or cefazolin plus gentamicin, group B received a 7 to 10-day course of preoperative sulfamethoxazole/trimethoprim (SMX/TMP) followed by perioperative ampicillin plus gentamicin, and group C received only perioperative cefazolin. All groups continued scheduled antibiotics post-operatively until hospital discharge. When appropriate, these regimens were adjusted to comply with patient antibiotic allergies or remote positive urine cultures. The primary outcome studied was incidence of infection defined as fever, culture positive infection, access site cellulitis, or intensive care unit (ICU) admission from surgery to the first outpatient follow-up between 2 and 6 weeks.

**RESULTS:** 185 patients underwent PCN over a 40 month period; 118 in group A, 47 in group B and 20 in group C. The prevalence of preoperative positive urine cultures was not significantly different between groups. There was no statistical difference in the rate of post-operative infection, with incidences of 10.2% (12 patients), 4.3% (2 patients), and 10.0% (2 patients) respectively. Overall, one patient (group A) required ICU admission due to hemodynamic instability. 167 patients (90.2%) had stone burden over 2 cm and 29 (range 19–49), respectively. Calculi size ranged from 9–40 mm (mean 22 mm) which included staghorn, calyceal, diverticular, pelvis and upper ureteric calculi. Lower pole calyx was utilised as access for 10 patients (group A) and 5 patients (group C). Simultaneous retrograde stone manipulation with flexible ureterorenoscopy. Stone clearance was assessed with non-contrast CT (CT-KUB).

**CONCLUSIONS:** s-PCNL is safe and effective. Upper pole puncture in s-PCNL is feasible with no increased risk of complications. It facilitates simultaneous flexible ureterorenoscopy and removes the need for a second percutaneous renal access for complex stones. We would advocate the extended lithotomy position in centers performing PCNL.

**Source of Funding:** None

**MP22-16 SUPINE PERCUTANEOUS NEPHROLITHOTOMY (sPCNL): UPPER POLE ACCESS IS POSSIBLE WITHOUT INCREASED RISK OF COMPLICATIONS**


**INTRODUCTION AND OBJECTIVES:** Percutaneous Nephrolithotomy (PCNL) is conventionally performed in the prone position. We reviewed our experience of performing supine percutaneous nephrolithotomy (sPCNL) in the management of large or complicated renal calculi.

**METHODS:** Data was prospectively collected on 102 consecutive cases of s-PCNL performed at our institution from June 2009 until June 2012. Patients with inaccessible stones underwent simultaneous retrograde stone manipulation with flexible ureterorenoscopy. Stone clearance was assessed with non-contrast CT (CT-KUB).

**RESULTS:** The mean age and BMI were 54 y (range 22–85 y) and 29 (range 19–49), respectively. Calculi size ranged from 9–40 mm (mean 22 mm) which included staghorn, calyceal, diverticular, pelvis and upper ureteric calculi. Lower pole calyx was utilised as the most frequent form of access (46%), followed by interpolar (30%) and upper pole (24%). Second renal access was required in 4 patients and one had failed access. Simultaneous retrograde ureterorenoscopy was performed in 17 patients. Median operative time and hospital stay were 84 min (range 30–240 min) and 3 days (range 2–15 days), respectively. The mean screening time was 11.5 minutes and the mean radiation dose was 201 mGy. Postoperative complications were encountered in 8 patients (Clavian-Dindo grade 1 in 4; grade 2 in 1; grade 3 in 3). Interval CT KUBs confirmed complete stone free status in 81% of patients.

**CONCLUSIONS:** s-PCNL is safe and effective. Upper pole puncture in s-PCNL is feasible with no increased risk of complications. It facilitates simultaneous flexible ureterorenoscopy and removes the need for a second percutaneous renal access for complex stones. We would advocate the extended lithotomy position in centers performing PCNL.

**Source of Funding:** None

**MP22-17 EFFECT OF STONE COMPOSITION ON OPERATIVE TIME AND SPEED OF STONE CLEARANCE DURING PERCUTANEOUS NEPHROLITHOTOMY**

Johann Ingimarsson*, Lebanon, NH, Seth Bechis, Brian Eisner, Boston, MA, Vernon Paus Jr., Lebanon, NH

**INTRODUCTION AND OBJECTIVES:** It is hypothesized that stone composition may determine efficiency of fragmentation during endourologic surgery. We examined the relationship between stone composition and operative time, stone clearance, stone-free rates for percutaneous nephrolithotomy (PCNL).

**METHODS:** A retrospective review was performed for patients who underwent PCNL at 2 academic medical centers from 2008–2012. Those with documented operative time, extracted stone weight, stone composition and a computed tomography or plain abdominal x-ray on post-operative day 1 were included. Those with stones that were without a dominant component (>50%) were excluded. Stone free status was defined as no residual fragment ≥2 mm on imaging on post-operative day 1. Rate of stone clearance was calculated as mg of stone extracted per minute of operation. Dominant stone composition was defined as >50% of total stone composition.

**RESULTS:** 242 patients met inclusion criteria. The distribution of dominant stone composition was: calcium oxalate 48%, calcium phosphate (CaP) 27%, uric acid 13%, struvite 5% and cystine 5%. Average stone weight was 2460 ± 5563 mg (median 1130 mg) and operative time 157 ± 72 min (median 144 min). Average stone free rates were 72% with no significant difference between stone compositions (range 66–76%). On multivariate analysis, stone weight, but not composition, was a significant predictor of stone-free status (OR:0.997 for each 10 mg increase, 95% CI:0.996-0.998). Struvite and CaP composition were associated with longer operative times on univariate analysis, but this did not remain significant on multivariate regression adjusted for confounding

**Source of Funding:** None
variables. Additionally, increasing stone size correlated with faster rate of stone clearance, such that for every 1000 mg increase in stone weight, rate increased by 3.1 mg/minute.

CONCLUSIONS: On multivariate analysis, stone composition did not appear to affect rate of stone clearance or operative times. These parameters appear to be driven by stone size alone. As such, presumed composition may not be an important factor when considering scheduled operative time.

Source of Funding: None

MP22-18 EXTERNAL VALIDITY OF TWO PREDICTOR SCORES FOR RENAL CALCIULI STONE FREE RATE AFTER PERCUTANEOUS NEPHROLITHOTOMY IN A TERTIARY REFERRAL CENTER IN MEXICO

Christian Villeda Sandoval*, Carlos Mendez Probst, Mexico City, Mexico

INTRODUCTION AND OBJECTIVES: Different scores have been proposed to predict stone free rate after percutaneous nephrolithotomy. The Guy’s stone score and the S.T.O.N.E. score have been described, but external validation is lacking. The objective of this study is to test the prediction capacity of these tools using the experience of a tertiary referral center in Mexico.

METHODS: The Guy’s stone score and the S.T.O.N.E score were retrospectively calculated for the patients registered in our prospectively maintained institutional database of percutaneous nephrolithotomy. Stone free status was assessed with CT scan in all the cases at 6 and 12 weeks, as described per each score respectively. A comparison with the original descriptions for both scores was done to prove their validity and areas under the curve respectively maintained institutional database of percutaneous nephrolithotomy. Stone free status was assessed with CT scan in all the cases at 6 and 12 weeks, as described per each score respectively. A comparison with the original descriptions for both scores was done to prove their validity and areas under the curve respectively.

RESULTS: Sixty three procedures were reviewed for the analysis. RESULTS: were calculated for both.

CONCLUSIONS: Both scores were useful, although Guy’s stone score was a superior method of classification. Further research is needed to create more accurate scores with more precise variables.

Source of Funding: None

MP22-19 PRONE POSITION OR COMPLETELY SUPINE POSITION IN PERCUTANEOUS NEPHROLITHOTOMY FOR STAGHORN STONES IN PATIENTS WITH SOLITARY KIDNEY

Chunping Li, Yanbo Wang, Fengming Jiang*, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the effectiveness and safety of percutaneous nephrolithotomy (PCNL) in the treatment of solitary kidney with staghorn stones in prone position or in completely supine position.

METHODS: We retrospectively reviewed the records of 18 patients with staghorn stones in a solitary kidney treated with PCNL. 12 patients underwent PCNL in prone position (group A). 6 patients underwent PCNL in completely supine position (group B). Demographic data, number of accesses, operating time, stone free rate, hemoglobin values, hospital stay and complications were studied. Serum creatinine, systolic and diastolic blood pressure, and new onset hypertension were determined preoperatively and postoperatively at 3 months.

RESULTS: No blood transfusions were required and no abdominal or thoracic organ injuries were reported in both groups. The mean operative time was 104 minutes (range: 72–145 minutes) and 128 minutes (range: 80–170 minutes), respectively. The stone free rate was 91.7% and 83.3%, respectively. There was no new onset hypertension by the end of follow-up in both groups. Both groups showed a similar fall in serum creatinine at 3 month follow-up period (P = 0.004 and 0.029, respectively). Systolic blood pressure showed a statistically significant improvement in group B (P = 0.034).

CONCLUSIONS: PCNL is safe and has an acceptably high stone free rate in patients with solitary kidneys in both prone and completely supine position. At short-term follow-up, systolic blood pressure had improved in PCNL in supine position.

Source of Funding: None

MP22-20 CLINICAL OUTCOMES OF 76 CASES OF PERCUTANEOUS NEPHROLITHOTOMY OVER A 10-YEAR PERIOD

Go Anan*, Yutaka Chiba, Ikuo Maehara, Sendai, Japan

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PNL) is a treatment option for removal of renal and upper ureteral calculi. The goal of this study was to review 76 cases of PNL for safety and outcomes.

Demographic and Clinical Preoperative Characteristics of Patients

<table>
<thead>
<tr>
<th>Age, year, range</th>
<th>52–7, 3–78</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, no (%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52 (68)</td>
</tr>
<tr>
<td>Female</td>
<td>24 (32)</td>
</tr>
<tr>
<td>Stone position, no (%)</td>
<td></td>
</tr>
<tr>
<td>Kidney</td>
<td>56 (74)</td>
</tr>
<tr>
<td>Ureter</td>
<td>20 (26)</td>
</tr>
<tr>
<td>Form of stone, no (%)</td>
<td></td>
</tr>
<tr>
<td>Complete staghorn</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Partial staghorn</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Stone side, no (%)</td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>38 (50)</td>
</tr>
<tr>
<td>Left</td>
<td>38 (50)</td>
</tr>
<tr>
<td>Stone diameter (mm), range (mm)</td>
<td>25, 6-95</td>
</tr>
<tr>
<td>Number of stones, range</td>
<td>1.6, 1.9</td>
</tr>
</tbody>
</table>
METHODS: We performed a retrospective analysis of 76 patients who underwent PNL between April 2002 and April 2012 at our hospital. Stones were classified into 56 renal calculi and 20 ureteral calculi. Stone removal was performed using 16.5-Fr rigid nephroscope and a flexible ureteroscope under continuous epidural anesthesia rather than general anesthesia. Stones were fragmented and cleared using an ultrasonic lithotripsy device and a holmium laser lithotripsy device.

RESULTS: 56 cases of PNL were performed at the same time as nephrostomy, and 18 cases of PNL were performed after nephrostomy. The average time of PNL was 61.7 minutes. The average number of PNLs was 1.7 (range, 1 to 7). PNL monotherapy was completed in 60 cases, while additional shock wave lithotripsy (SWL) was required in 8 cases, and additional transurethral lithotripsy (TUL) was required in 11 cases. The stone-free rate of patients undergoing PNL monotherapy was 73.7% (56 cases). The overall stone-free rate of patients undergoing PNL and additional treatment was 94.7% (72 cases). Indications for PNL therapy included large stone (diameter > 20 mm) (53 cases; 69.7%), failed history of SWL (13 cases; 17.1%), and failed history of TUL (four cases; 5.3%). Blood transfusion was not required for any case. The rate of intraoperative adverse events was 3.9% (three cases), which included major hemorrhage (two cases; 2.6%) and suspected urinary injury (one case; 1.3%). The rate of postoperative complications was 9.2% (seven cases), which included acute pyelonephritis (six cases; 7.9%) and ureteral perforation (one case; 1.3%). After treatment, there was no significant decrease in serum creatinine.

CONCLUSIONS: Despite the invasiveness, PNL remains the mainstay of surgical management in selected cases, since current surgical indication includes complex urolithiasis with failed history of SWL and TUL.

Source of Funding: none

Table: Operative Characteristics and Stone Composition of Patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative duration, range (min)</td>
<td>61.7-30-150</td>
</tr>
<tr>
<td>One stage PNL, no (%)</td>
<td>58 (78%)</td>
</tr>
<tr>
<td>Two stage PNL, no (%)</td>
<td>18 (24%)</td>
</tr>
<tr>
<td>Frequency of PNL treatment, no (%)</td>
<td>42 (55)</td>
</tr>
<tr>
<td>Twice</td>
<td>24 (32)</td>
</tr>
<tr>
<td>&gt;3 times</td>
<td>10 (13)</td>
</tr>
<tr>
<td>Nephrostomy removal time, range (days)</td>
<td>14.8-3-55</td>
</tr>
<tr>
<td>Combination of treatment, no (%)</td>
<td></td>
</tr>
<tr>
<td>Only PNL</td>
<td>60 (79)</td>
</tr>
<tr>
<td>PNL plus TUL</td>
<td>11 (14)</td>
</tr>
<tr>
<td>PNL plus SWL</td>
<td>8 (11)</td>
</tr>
<tr>
<td>Complications of operation, no (%)</td>
<td></td>
</tr>
<tr>
<td>Postoperative fever (≥38.0°C, ≥70%)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Urinary perforation</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Stone analysis, no (%)</td>
<td></td>
</tr>
<tr>
<td>Calcium oxalate</td>
<td>49 (64)</td>
</tr>
<tr>
<td>Calcium oxalate and phosphate</td>
<td>9 (12)</td>
</tr>
<tr>
<td>Cystine</td>
<td>4 (5)</td>
</tr>
</tbody>
</table>

CONCLUSIONS: It seems that PCNL may be a safe and effective procedure in high-risk patients.

Source of Funding: none

MP22-22 MINIPERC: MPUH EXPERIENCE

Amit Bhattu*, Nadiad, Gujarat, India, Raguram Ganeshamoni, Shashikant Mishra, Nadiad, India, Narendra Parekh, Nadiad, Gujarat, India, Lijendra Jagtap, Arvind Ganpule, Jigish Vyas, Ravindra Sabin, Mahesh Desai, Nadiad, India

INTRODUCTION AND OBJECTIVES: Miniperc is percutaneous nephrolithotomy (PCNL) with access sheath smaller or equal to 20 Fr. It was initially devised for the PCNL in children and later also used in adults for decreasing the morbidity of standard PCNL. The objective of this study is to analyze the outcomes of miniperc at our centre.

METHODS: It is prospective study in which all the patients who underwent miniperc at our centre from June 2009 to April 2013 were enrolled. Inclusion criteria was stones smaller than or equal to 2.5 centimeters. Exclusion criteria was patients with active bleeding disorders, active urinary tract infections & pregnant patients. Patient demographics, stone characteristics, procedural details, complications, analgesic requirement, included major hemorrhage (two cases; 2.6%) and suspected urinary injury (one case; 1.3%). The rate of postoperative complications was 9.2% (seven cases), which included acute pyelonephritis (six cases; 7.9%) and ureteral perforation (one case; 1.3%). After treatment, there was no significant decrease in serum creatinine.

CONCLUSIONS: Despite the invasiveness, PNL remains the mainstay of surgical management in selected cases, since current surgical indication includes complex urolithiasis with failed history of SWL and TUL.

Source of Funding: none

MP22-21 HIGH-RISK PATIENTS FOR PERCUTANEOUS NEPHROLITHOTOMY: A SINGLE-CENTER EXPERIENCE

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INTRODUCTION AND OBJECTIVES: To assess the surgical outcomes and safety following percutaneous nephrolithotomy (PCNL) in high- and low-risk patients according to the American Society of Anesthesiologists (ASA) score.

METHODS: We reviewed the patient records of 581 cases older than 18 years who had undergone PCNL in the 6 previous years in our department. The patients were divided into two groups: a low-risk group (ASA score 1, 2: 320 cases) and a high-risk group (ASA score 3, 4: 261 cases).

RESULTS: There were no significant difference between the two groups among gender ratio, location and size of the stone, surgical history, number and type of access, surgical approach, post-PCNL transfusion rate and decrease in glomerular filtration rate. What more, the stone-free rate was similar in both groups. Overall distribution of different grades of surgical complications (Clavien system) was similar between the two groups (p=0.203) although the hospital stay in the high-risk patients was significantly greater than in the low-risk cases.

CONCLUSIONS: Success rate and surgical complications of PCNL in high-risk patients were comparable to low-risk patients. It seems that PCNL may be a safe and effective procedure in high-risk patients.

Source of Funding: none

MP22-22 MINIPERC: MPUH EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Miniperc is percutaneous nephrolithotomy (PCNL) with access sheath smaller or equal to 20 Fr. It was initially devised for the PCNL in children and later also used in adults for decreasing the morbidity of standard PCNL. The objective of this study is to analyze the outcomes of miniperc at our centre.

METHODS: It is prospective study in which all the patients who underwent miniperc at our centre from June 2009 to April 2013 were enrolled. Inclusion criteria was stones smaller than or equal to 2.5 centimeters. Exclusion criteria was patients with active bleeding disorders, active urinary tract infections & pregnant patients. Patient demographics, stone characteristics, procedural details, complications, analgesic requirement,
hemoglobin drop, hospital stay, stone clearance rate were analyzed.

RESULTS: We performed 258 Minipers from June 2009 to April 2013. Mean patient age was 41.8 ± 17.9 years. Mean stone size was 14.3 ± 3.9 millimeter. Number of stones in pelvis, upper calyx, middle calyx and lower calyx were 154, 19, 37, and 127 respectively. Procedure was tubeless in 102 patients. Mean haemoglobin drop, mean operative time, mean analgesic requirement, and mean hospital stay was 1.03 ± 0.5 grams/deciliter, 56.4 ± 17.8 minutes, 42.6 ± 38.8 miligrams of tramadol and 2.9 ± 0.6 days respectively. Complication included pelvic perforation in 1 patient, bleeding in 4 patients, perinephric collection in 4 patients; post-operative transient fever in 8 patients. Complete clearance was achieved in 253 (98.06%) patients.

CONCLUSIONS: Miniper is a safe alternative to conventional PCNL in intermediate size stones with better morbidity profile.

Source of Funding: None

MP22-23 OUTCOMES OF PERCUTANEOUS NEPHROLITHOTOMY: COMPARISON OF ELDERLY AND YOUNGER PATIENTS.
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INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) in elderly patients is challenging from the high prevalence of comorbidity and single kidney. We compared the results and complications of patients who undergoing PCNL at the age of above and under 65 years old.

METHODS: A total 61 of patients aged more than 65 years old (group I) and 385 patients aged 65 years old and under (group II) were treated with PCNL. PCNL was performed by a standard technique under fluoroscopic guidance. The operative time, length of hospital stay, success rate, auxiliary treatment and complication of both groups were compared.

RESULTS: Patients older than 65 years old (group I) had more comorbidities especially of diabetes mellitus, hypertension and higher level of ASA classification (P < 0.001). The success rate were 85.24% and 86.24% of group I and II respectively. Four patients (6.56%) of group I and 55 patients (14.29%) of group II need auxiliary treatment (P = 0.098). Of the complication, only sepsis was significantly higher in group I (6.56% of group I and 1.3% of group II, P = 0.007). The operative time, success rate, hospital stay and complications except sepsis episode did not significantly different between the two groups.

CONCLUSIONS: Percutaneous nephrolithotomy is effective and safe in elderly patients even though more comorbidities. Only sepsis is more common following PCNL in elderly.

Source of Funding: none

MP22-24 A NOVEL 7F MINI-NEPHROSCOPE THROUGH A 10F SHEATH FOR A NOVEL TECHNIQUE OF SUPER-MINI-PERCUTANEOUS NEPHROLITHOTOMY (SMP): A PRELIMINARY REPORT
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INTRODUCTION AND OBJECTIVES: Our primary objective in this preliminary study was to present our novel modified technique of super-mini-percutanuous nephrolithotomy (SMP) using of a novel 7 F mini-nephroscope through a 10 Fr peel-away sheath to perform pneumatic or laser lithotripsy for the removal of moderate-size (10–25 mm) kidney stones.

METHODS: We performed a retrospective chart and database review of the initial 41 patients undergoing the SMP procedures. Data collected included patient demographics, operative parameters, stone-free rate and complications. Abdominal radiograph at hospital discharge and computed tomography (CT) scan at 3 months were used to determine stone-free status (no residual stone). Complications were recorded according to modified Clavien classification system.

RESULTS: Mean patient age was 47.4 years (11–57), mean body mass index was 22.63 kg/m² (17.1–28.1) and mean pre-operative stone size was 16.7 mm (12–24). Mean operative time was 59.8 (31–94) minutes and mean postoperative hospital stay was 1.3 (1–5) days. No case had to be converted to conventional method or abandoned. One patient needed a second-look procedure. The SMP established a stone-free status of 85.4% and 92.7% at hospital discharge and 3 months, respectively. Complications were noted in 5 (12.2%), including 4 (9.8%) of Clavien II and 1 (2.4%) of Clavien IIIa. No patients needed the blood transfusion.

CONCLUSIONS: SMP is technically feasible, safe and efficacious and an alternative for moderate-size renal stones disease with an advantages of high immediate and final stone free and low complication rates. However, due to the limits of longer operative time compared to mini-PCNL, SMP is therefore a procedure that supplements standard mini-PCNL and that can’t replace it.

Source of Funding: NONE

MP22-25 RETROGRADE INTRARENAL SURGERY VERSUS PERCUTANEOUS NEPHROLITHOTOMY FOR THE MANAGEMENT OF LARGER THAN 3 CM STONES IN SOLITARY KIDNEYS: A MATCHED CASE COMPARATIVE STUDY
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INTRODUCTION AND OBJECTIVES: The indications for retrograde intrarenal surgery (RIRS) have been extended and solitary kidneys are associated with increased risk of bleeding. To compare the outcomes of RIRS and percutaneous nephrolithotomy (PCNL) for treatment of larger than 3 cm stones in solitary kidneys.

METHODS: Between September 2007 and October 2012, a total of 63 patients with solitary kidneys and larger than 3 cm stones were treated with RIRS. These patients were compared with the patients who underwent PCNL using matched-pair analysis (1:1 scenario). Matching criteria were the size, number and location of the stones as well as solitary kidney, age, gender, body mass index, degree of hydronephrosis, presence of previous stone-related surgery. Both groups were compared for stone-free rate (SFR) and complications.

RESULTS: The SFR after one session was significantly lower for RIRS (41.2% vs. 74.6%, P < 0.001). Three failures of RIRS (4.8%) were treated with PCNL. The second RIRS procedure was performed for significant residual fragments in 34 patients after RIRS (54.0%) and 12 patients after PCNL (19.0%). Three patients in RIRS group (4.8%) need the third RIRS procedure, while two patients in PCNL group (3.2%) needed ESWL as an auxiliary
procedure. Finally, the SFR at the 3 month of the follow-up were 93.7% in the RIRS group and 95.2% in the PCNL group. Complications were more after PCNL (15.9% vs 7.9%), but the difference was not significant (P=0.169). Seven patients (11.1%) required blood transfusions in the PCNL group, and one of them needed vascular embolization to control the severe bleeding.

CONCLUSIONS: Satisfactory outcomes can be achieved with multi-session RIRS in the treatment of larger than 3 cm stones. Multi-session RIRS has a low complications and blood transfusion rate and can be used as a good alternative treatment for patients with solitary kidney and large stones.

Source of Funding: none

**MP23 BPH/LUTS II**


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**INTRODUCTION AND OBJECTIVES:** Photoselective vaporisation of the prostate (PVP) is an accepted modality for management of benign prostatic hypertrophy with obstruction, however there is little known about the role of high powered PVP in large prostates. This study aims to evaluate the safety and efficacy of PVP in prostates greater than or equal to 100 cc.

**METHODS:** A retrospective analysis of a prospectively maintained database (ethics approved) single surgeon, single centre series between November 2010 and February 2013 of males with a prostate volume greater than or equal to 100 cc who underwent PVP using the 180 W Lithium Triborate Laser (LBO). Perioperative and functional outcomes at baseline, 3 and 6 months were evaluated.

**RESULTS:** 35 males were identified, median age 70 (IQR 66–79) with prostates ≥ 100 cc (median 131, IQR 118–157). Preoperatively, 11 (31%) men were in urinary retention and 11 (31%) men were on anticoagulants. Perioperative outcomes showed median laser time 75 mins, operating time 103 mins and energy use of 750 KJ. The median post operative length of stay was 20 hours, length of catheterisation 12 hours and 30 men (86%) were discharged from hospital catheter free. A total of 11 adverse events in 11 (30%) men were recorded and 10 were Clavien Dindo Grade I or II complications. There was 1 Grade IIIa complication.

**CONCLUSIONS:** Early experience with PVP using the 180 W LBO laser in large prostates appears to be feasible and efficacious. It is also associated with short duration of catheterisation and post-operative length of stay and acceptable morbidity was recorded. Enormous energy utilisation was able to be delivered within acceptable operating times. Early results indicate excellent functional outcomes at 3 and 6 months following PVP.

Source of Funding: None

**MP23-02 THULIUM VAPOENUCLEATION OF THE PROSTATE: FOUR-YEAR OUTCOME**

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**INTRODUCTION AND OBJECTIVES:** A prospective study to assess the safety, efficacy, and long-term durability of Thulium VapoEnucleation of the prostate (ThuVEP) for the treatment of symptomatic benign prostatic obstruction (BPO).

**METHODS:** One-hundred twenty-four patients underwent ThuVEP between January 2007 and July 2008 at our institution. Patient demographics, perioperative complications, and long-term follow-up data were analyzed.

**RESULTS:** Median (interquartile range (IQR)) age was 71 (66–76.75) yrs. Median prostate volume was 58.5 (45–70.75) cc. Median operation time was 74 (60–100) and the enucleation time 32.5 (25.6–37.5) min, whilst resected tissue weighted 25 (15–49.8) gm. Median catheter time and hospital stay was 2 (2–2) and 5 (4–6) days, respectively. Nine (7.3%) patients required a second-look operation in the immediate postoperative course (failed morcelation n=2, clot retention n=3, residual tissue at the apex of the prostate n=4). Two patients developed blood transfusions (1.6%) postoperatively. At 12-month follow-up, international prostate symptom score (IPSS), quality of life (QoL), maximum urinary flow rate (Qmax), postvoid residual urine (PVR), and prostate-specific antigen (PSA) improved significantly in comparison to preoperative assessment (p<0.001) and continued to do so during subsequent follow-up. At four-years follow-up, median Qmax (7.6 vs. 20 ml/s), PVR (107.5 vs. 25 ml), IPSS (21 vs. 4) and PSA (5 vs. 1) improved significantly compared with baseline (p<0.001). Bladder-neck contractures and urethral strictures each developed in 1.6% and 0.8% of the patients. None of the patients were re-treated during follow-up for recurrent prostatic tissue.

**CONCLUSIONS:** ThuVEP is a safe, efficacious, and durable procedure for the treatment of symptomatic BPO. The incidence of late complications with ThuVEP was low.

Source of Funding: None
INTRODUCTION AND OBJECTIVES: Transurethral resection of the prostate (TURP) is the most common surgical treatment for benign prostatic hyperplasia (BPH) worldwide, but despite its minimally invasive nature, perioperative bleeding remains a common morbidity. Anticoagulant and antiplatelet drugs are increasingly common in this patient population and further contribute to the risk of bleeding and extended hospital stay. The purpose of this study is to report our experience for the treatment of these patients with Thulium Laser comparing the different Power (W) which they were treated.

METHODS: From May 2004 to May 2013 we treated 703 patients (pts) using Thulium. 345 pts (49%) with 70W (Group 1), 198 (28,2%) with 120 W (Group 2), 160 (22,8%) with 150W (Group 3). Of these, 83 pts (11,80%) were on anticoagulant and antiplatelet medication (warfarin and acetylsalicyclic acid) and were reviewed retrospectively for the purposes of the study. 21 pts (25,3%) belonged to Group 1 were treated with vaporization of the prostate (ThuVaP), 42 pts (50,7%) to Group 2 and 20 pts (24%) to Group 3 were treated with vaporesection or vapoenucleation (ThuVaRP-ThuVEP). Prostatic volume range: 30–120 gr. ThuVaRP is used to vaporize and resect prostate. For this procedure frontal as side fibers were used. For large gland (> 80 gr) ThuVEP was performed using also a Wolf Morcellator. No pts discontinued aspirin, instead warfarin was discontinued five days before surgery until two days later, but all pts were treated preoperatively and postoperatively with heparin (4000 U).

RESULTS: Mean operative time: 65 min with Group 1; 50 min with Group 2; 50 min with Group 3. No pts needed blood transfusion. Comparing pre and postoperative parameters (INR, CBC-hemogram) there was no difference in all three groups because intraoperative and postoperative bleeding was reduced in the Thulium Laser also at low Power. Catheter was removed 24 hours later and were discharged on the second postoperative day. No major complications were reported. At follow-up of 6–12–24 mo we had total resolution of obstruction and in any case it was necessary retreatment.

CONCLUSIONS: Significant bleeding after endoscopic prostatic surgery, although increasingly less common, is still a potentially life threatening complication. The use of Thulium for ThuVaP, ThuVaRP and ThuVEP of the prostate is safe and efficacy in patients receiving ongoing oral anticoagulation and antiplatelet. Nevertheless, results suggested that there aren’t difference in the use of 70–120–150 Power on coagulation, but is reduced the risk of blood loss.

Source of Funding: none

MP23-05 T1470 LASER FOR ENucleATION AND ABALATION OF PROSTATE AS OUTPATIENT SURGERY

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INTRODUCTION AND OBJECTIVES: Since January of 2012 T 1470 laser by convergent was used in 80 patients as an out patient under MAC Anaesthesia, median age of patients were 67 (55 to 91), all these patients failed medical treatments for over 6 months with alpha blocker and Avodart, median size of prostate 45 cc (30 to 80 cc), All patient went through full urology Evaluation prior to laser surgery like Aua symptoms score, HAnd P, PSA, Uro flow, ultrasound exam, flexible cystoscopy, voiding cmg in selected patients and Trus biopsy in selected patients/

METHODS: 20 patients had median lobe with lateral lobe obstruction had Median lobe enucleation and lateral lobe Abalation, 20 patients had total enucleation and 40 pts had Laser Abalation with Side fiber, Enucleation was done with End firing fiber with excellent hemostasis 600 micron fibers were used, all patients were followed for 18 months.

RESULTS: Post op follow up in 2 weeks, 3 months, 6 months follow up with Uro flow, Aua symptom score, post void ultra sound Exam were done. Two patients were admitted to hospital with complications after Total Enucleation, left uretral obtb required left Per cutaneous nephrostomy for 4 weeks, second pt had extravasation with undermining of Trigone with huge median lobe
and post op ileus with ARF treated conservatively with foley cath and renal function improved. Median lobe enucleation was done without Marcellator. Without any complications, Patients had less irritative symptoms after enucleation or laser Ablation, no urinary incontinence or sexual dysfunction except dry ejaculation was observed. Second laser surgery due to residual obstructing or recurrence of LUTS were done in 10 patients after Laser Ablation, none seen in Total Enucleation or median lobe Enucleation.

CONCLUSIONS: Laser Ablation or vaporization Alone has high failure Rate With Repeat surgery Rate which increases cost of BPH management. Total Enucleation is difficult with steep learning curve and should be done with Expert and with Morcellator. In Hospital Setting, Median lobe Enucleation (MLEP) is easy to learn and can be done without Marcellator with lateral lobe Enucleation as an out patient with good success, Median lobe obstruction was found in 20% of BPH and LUTS. T1470 laser by Convergent has end fiber and Side fiber which works very well for Hemostasis and less post op irritative symptoms, it takes longer to do Laser Ablation of prostate with T1470, side firing fiber which needs improvement.

Source of Funding: None

MP23-06 HOMIUM LASER ENUCLEATION OF THE PROSTATE (HoLEP) AND PERIOPERATIVE DIAGNOSIS OF PROSTATE CANCER: PREDICTORS OF HIGH RISK DISEASE

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INTRODUCTION AND OBJECTIVES: The diagnosis and treatment of prostate cancer after surgical intervention for benign prostatic hyperplasia (BPH) can be problematic. We assessed outcomes of patients diagnosed with prostate cancer after HoLEP.

METHODS: From July 2009 to August 2012, 450 patients underwent HoLEP at our institution. Preoperatively, all underwent prostate specific antigen (PSA) screening, digital rectal exam and transrectal needle biopsy if indicated. Prostate cancer was diagnosed in 46 (10.2%) of these patients: 43 (93.5%) in the operative specimen and 3 (6.5%) during follow-up. Analysis of variance was performed to determine statistical difference (p < 0.05).

RESULTS: Baseline clinical characteristics were similar between patients diagnosed intraoperatively and those diagnosed in the postoperative period. In the intraoperative diagnosis group, 2 (5%) patients had their Gleason score upgraded at follow-up biopsy: one from 7 to 8 and the other from 7 to 10. Of the 43 patients, 39 (91%) elected for active surveillance and 4 (9%) elected for active treatment: 2 combined external beam radiation (XRT) and androgen deprivation (ADT), 1 XRT alone, and 1 robotic radical prostatectomy. All patients were continent at most recent follow-up, mean 12 months (3-36). In those developing cancer post-HoLEP, mean Gleason score was 7.3 (6-9) as compared to 6.2 (5-9) in the operative group (p = 0.01). Mean time to cancer diagnosis was 16 months (9-29). Of these 3 patients, 1 underwent combination XRT and ADT, 1 received ADT alone, and 1 chose active surveillance. None have demonstrated disease progression. When compared to men with Gleason 7, men with Gleason 8 had significantly elevated postoperative PSA (p = 0.01), and percent change in PSA (p = 0.01).

CONCLUSIONS: A finding of persistently elevated post-HoLEP PSA or low percent change PSA should raise suspicion for high-risk prostate cancer. HoLEP does not preclude definitive therapy or active surveillance in prostate cancer patients when appropriate.

Source of Funding: None

MP23-07 THE UNDERSTANDING OF THE ANTEROPOSTERIOR DISSECTION HoLEP CAN HELP TO BE AN INDEPENDENT SURGEON WITH SHORTER LEARNING CURVE

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INTRODUCTION AND OBJECTIVES: Although Holmium laser enucleation of the prostate (HoLEP) is highly effective and minimally invasive therapy for large benign prostatic hyperplasia, one of the problems of HoLEP is the difficulty of the acquisition of techniques with long learning curve. We have reported “the anteroposterior dissection HoLEP (AP-HoLEP)” technique (Urology, 2010) and this provides the simple and systematic approach to HoLEP. To evaluate the effectiveness of the concept of AP-HoLEP maneuver on the education, we analyzed a HoLEP naive surgeon by checking the time of the each step and how many cases were needed as an independent surgeon for HoLEP.

METHODS: From June 2012 to May 2013, consecutive 30 cases performed by one HoLEP naive surgeon (MS) (well-skilled surgeon for TURP and open prostatectomy) were analyzed. To prepare the surgery, video leaning of AP-HoLEP, reconfirmation of McNeal prostate anatomy and 10 cases observations of expert operations were performed. At least first 10 cases were performed under the instruction of an expert (FE) and checked the technique. The data such as enucleation time, hemostatic time, morcellation time and enucleated volume were prospectively collected. We analyzed the changes according to the experiences and how many cases were needed to complete HoLEP without the expert’s help.

RESULTS: The mean enucleated volume was 40.4 (range 11-85) grams. All surgeries were performed safely. The surgeon could have completed HoLEP from the first case; but he needed the expert help with the two cases (3rd and 4th cases) from the difficulty of manipulation. After these two cases, he had completed surgeries independently. In first ten cases, the enucleation time was correlated to the enucleated volume (R2 = 0.873), however, the time became constant with any enucleated volume (R2 = 0.463 and 0.222 in cases 11-20 and cases 21-30, respectively). In cases 21-30, the mean enucleation time was 47.8 min (range 37.3-61.2) with mean enucleated volume 43.6 grams (range 11-81). There were less relations among hemostatic time, morcellation time and enucleated volume were prospectively collected. We analyzed the changes according to the experiences and how many cases were needed to complete HoLEP without the expert’s help.

CONCLUSIONS: Although learning HoLEP is said to be needed with 20-50 experiences, we could have made a HoLEP naive surgeon as an independent surgeon with about 10 cases experiences by understanding the AP-HoLEP technique and the systematic education system. Educating other HoLEP naive surgeons, especially with less TUR experienced surgeons, would warrant these results.

Source of Funding: none

MP23-08 TREATMENT OF HIGH-RISK PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA BY 2-MICRON LASER VAPORESECTION

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INTRODUCTION AND OBJECTIVES: To evaluate the safety and efficacy of the RevoLix 120 W 2 micron continuous wave laser
vaporisation in the treatment of high-risk patients with benign prostate hyperplasia (BPH).

**METHODS:** We retrospectively analyzed 46 high-risk patients with BPH who underwent 2-1m continuous wave laser vaporisation in our hospital from May 2010 to Feb. 2012. High-risk patients were those who had a history of cardiac stent, had varying degrees of hypertension, diabetes, coronary heart disease, stroke and history of cerebral hemorrhage. Average age was 76 years (68 years to 95 years). The operative time, drop in hemoglobin, in-dwelling catheterization time, operative complications, international prostatic symptom scores (IPSS), quality of life (QoL), urinary flow rate (Qmax), and post voiding residual urine volume (PVR) were observed.

**RESULTS:** All 46 patients recovered without incident. The mean operative time was 78 ± 18.3 min. Occasional venous hemorrhage occurred during the operation, but no arterial hemorrhage was observed. Hemoglobin decreased from preoperative 14.8 g/dL to postoperative 14.2 g/dL. IPSS decreased from preoperative 23 ± 6.8 to postoperative 9 ± 3.5. QoL scores decreased from 5.2 ± 0.7 to 2.2 ± 0.6. Qmax increased from 8.5 ± 5.3 to 22.2 ± 11.6 mL/sec, PVR decreased from 91.3 ± 52.2 to 22.3 ± 6.8 mL. The parameters were significantly different between pre- and postoperative results.

**CONCLUSIONS:** The RevoLix 120 W 2-1m continuous wave laser vaporisation is safe and effective in the treatment of high-risk patients with BPH.

**Source of Funding:** none
TURP. All cases were evaluated preoperatively and at 1, 3 and 6 months after surgery by IPSS, Qmax, quality of life score (QoL) and post-voiding residual urinary volume (PVR).

RESULTS: The mean operation time was significantly shorter in C-BPVP cases by comparison to conventional plasma-button vaporization and to monopolar resection (31.5 versus 40.6 and 49.8 minutes). Consequently, a substantial 22.4% and respectively 39.1% difference in surgical length was emphasized in favor of C-BPVP when compared to S-BPVP and TURP. Significantly lower capsular perforation (1.7% and 1.7% versus 8.3%), and intraoperative bleeding (1.7% and 3.3% versus 11.7%) rates as well as mean hemoglobin drops (0.4 and 0.6 versus 1.4 g/dL) were emphasized in the C-BPVP and S-BPVP series when compared to TURP. Also, significantly reduced mean catheterization periods (24.1 and 23.8 versus 73.6 hours) and hospital stays (2.1 and 2.2 versus 4.5 days) were described for the C-BPVP and S-BPVP groups. The rate of re-catheterization imposed by acute urinary retention (1.7% and 1.7% versus 6.7%) was significantly higher among the monopolar resection cases. At 1, 3 and 6 months, statistically superior IPSS and Qmax measurements were determined in the two bipolar vaporization study arms.

CONCLUSIONS: The new technical improvement of the BPVP procedure was able to reduce the surgical time by an average proportion of 20%. The plasma-button vaporization approach emphasized superior perioperative safety and improved follow-up voiding and symptom scores’ parameters over conventional TURP.

Source of Funding: None

MP23-12 THE SAFETY AND FEASIBILITY OF CONCOMITANT SURGERY DURING HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP)

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INTRODUCTION AND OBJECTIVES: To determine the feasibility and outcomes associated with performing simultaneous surgical procedures during holmium laser enucleation of the prostate (HoLEP) in patients with benign prostatic hyperplasia and concomitant urologic conditions.

METHODS: A retrospective review of all patients that underwent a HoLEP at our institution was performed. Patients that underwent a concomitant procedure at time of HoLEP were selected and stratified based on the complexity of the secondary procedure (simple, intermediate, and complex). Each patient was matched based on age and prostate volume to patients who underwent a HoLEP alone. Statistical analysis and comparison of the outcomes of each group was performed based on pre-operative, operative, and functional outcomes.

RESULTS: A total of 372 HoLEP’s were performed between August 2007 and March 2012. Thirty-eight (10.2%) patients underwent concomitant procedures at time of HoLEP were selected and stratified based on the complexity of the secondary procedure (simple, intermediate, and complex). Each patient was matched based on age and prostate volume to patients who underwent a HoLEP without requiring a second procedure. Statistical analysis and comparison of the outcomes of each group was performed based on pre-operative, operative, and functional outcomes.

CONCLUSIONS: Obstructive voiding symptoms secondary to BPH are common in older patients, and may coincide with other concomitant lower urinary tract pathology that may require surgical intervention. Rather than staging surgical interventions it appears that definitive treatment of BPH with HoLEP is safe and efficacious in those patients that also require secondary procedures.

Source of Funding: None

MP23-13 TRANSURETHRAL HIGH ENERGY WATER VAPOR THERAPY FOR BPH: INITIAL CLINICAL RESULTS OF THE FIRST-IN-MAN AND REZUM 1 CLINICAL TRIALS USING THE REZUM SYSTEM

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INTRODUCTION AND OBJECTIVES: The Rezum SystemTM is a novel transurethral therapy based on phase-change, convective heat transfer using high energy water vapor (steam). It is being developed as a very rapid, outpatient or office-based treatment for clinical BPH.

The objective was to assess clinical outcomes using a range of energy in the First In Man trial (FIM) followed by a standardized energy dose for the Rezum 1 trial.
METHODS: IRB approval from 2 centers and informed consent was obtained in 30 men. (15 in the FIM trial and 15 in the Rezum 1 trial.) Both trials used the same, standard entry criteria. The FIM trial used energy ranging from 190 to 289 calories per injection whereas, the Rezum 1 trial used a standardized dose of 208 calories per injection. One to 3 injections per lobe were delivered, including the median lobe if present. Standard outcome measures including, IPSS, QOL, Qmax and PVR were used. Safety was assessed by serial MRI’s with 3D rendering and standard adverse event reporting.

RESULTS: Energy time per injection ranged from 7–10 seconds and procedure time was about 5 minutes.

- Mean baseline IPSS (n = 30) was 23 (range 15–35) improving to 19,13, 8.5 and 8.5 at one week (n = 30), one (n = 30), three (n = 24), and six months (n = 24) respectively.
- Mean baseline QOL (n = 30) was 4.3 improving to 2.9, 2.3, 1.4 and 1.5 at one week (n = 30), one (n = 30), three (n = 24), and six months (n = 24) respectively.
- Mean baseline Qmax (n = 30) was 8.4 cc/sec improving to 10 cc/sec, 12.8 cc/sec and 12.1 cc/sec at one (n = 29), three (n = 26), and six months (n = 24) respectively.
- Mean baseline PVR (n = 28) was 71 cc, remaining stable at 1 week (72 cc) and improving to 45 cc at six months (n = 24).

No treatment-related severe adverse events occurred. Transient retention, mild dysuria and hematuria were reported.

CONCLUSIONS: Due to the efficiency of heat transfer using phase-change convective heating with high energy water vapor, procedure times are only ~5 minutes. Rapid clinical improvement in all parameters at 6 months is promising and occurs with minimal, transient adverse effects. Further study using a multi-center clinical trial design is planned. One year data will be available for presentation.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: Holmium Laser Ablation of the Prostate (HoLAP) was introduced as an alternative to TURP, with shorter hospital stay and reduction in perioperative blood loss. However, it is associated with a prolonged phase of irritative voiding symptoms and is not suitable for larger glands. In Holmium Laser Enucleation of the Prostate (HOLEP), whole lobes of the prostate are enucleated and removed using a trans-urethral morcellator. We introduced HoLEAP (Holmium Laser Enucleation of Ablated Prostate), which is an amalgam of HoLAP and HOLEP. This technique circumvents the steep learning curve and additional instrumentation required for HoLEP while providing excellent results for moderate size glands.

METHODS: In HoLEAP, a 550 micron holmium sidelite fiber is used. The depth of the prostatic adenoma is ascertained as the superficial prostate gland is ablated, by ‘paint brush’ movements of the laser fiber, as in HoLAP. The ablated prostatic tissue is then enucleated, by ‘gentle saw like’ movements of the laser fiber, similar to HoLEP. Large chunks of prostate tissue, are then scooped to achieve a large “clean” cavity in an expeditious manner. The enucleated prostatic tissue does not require additional morcellation in the majority of cases as it is very friable and easily retrieved by the Ellick evacuator.

RESULTS: 110 patients underwent HOLEAP BPH over a 12 month period. The prostate size varied from 20 to 100 grams (average 60 grams). The mean operating time was 58 minutes. All patients had satisfactory improvement in uroflow parameters. Two patients had recurrent urinary retention. 8 patients had irritative voiding symptoms postoperatively which resolved spontaneously over 3–4 weeks. The overall patient satisfaction rate was 98 %.

CONCLUSIONS: Holmium Laser Enucleation of Ablated Prostate (HOLEAP) is a safe and efficacious method for the surgical treatment of BPH. The advantages of HoLAP (reduced blood loss) and HOLEP (ability to manage larger glands and avoidance of postoperative irritative voiding symptoms) are combined in this technique. The need for a morcellator with its attendant risk of bladder injury is avoided. Furthermore, the more robust 550 micron sidelite fiber is used instead of the end-fire fiber which is more flimsy and requires frequent stripping for larger glands.

HoLEAP is expeditious and circumvents the steep learning curve and additional instrumentation required for HoLEP. The results are comparable to HoLEP for moderate sized glands. HoLEAP is easier to adopt for moderate sized glands is an outpatient procedure and hospital stay is avoided.

Source of Funding: None

INTRODUCTION AND OBJECTIVES: Prostate enucleation is one of the most effective means of removing hyperplastic prostate tissue. To establish the relative merits of the low-powered (50 W) Holmium Laser compared to the High-powered (100 W) machine and Bipolar Plasmakinetic Enucleation (PKEEP), 3 prospective cohorts of patients were compared.

METHODS: Twenty patients were assigned to each treatment arm with both HoLEP techniques utilising soft tissue morcellation. Inclusion criteria included Prostate volume of <100 g; IPSS Score >10; QMax <15 ml/sec; Schaffer Grade >2; and a post void residual volume of <400 ml. Pre and postoperative measures included International Prostate Symptom Score (IPSS), trans-rectal ultrasound-assessed prostate volume (TRUS), uro-flowmetry, post-void residual urine volume (PVR), urodynamic evaluation and Prostate Specific Antigen (PSA) measurements. The intraoperative measures included procedure length, energy use, and specimen weight. All adverse events were recorded at each postoperative visit at 1, 3, 6, 12 months.

RESULTS: The three treatment arms were similar at baseline. The mean age in years was 67.4 yr (11.2) in the low power group, 68.9 (2.0) in the High power group and 67.0 (1.7) in the Bipolar group. The excised weight was 22.4 g, 21.7 g and 20.0 g respectively. Catheter times and hospital times were 17.5, 25.1, and 24.8 hrs and 26.6, 32.5 and 31.7 hrs respectively. There were no moderate or severe adverse events reported in any group.

There were no differences between groups for IPSS score or Qmax at 1, 3, 6 and 12 months post-op. All three had significant and sustained improvement in both parameters.

CONCLUSIONS: The use of High or Low powered Laser or Bipolar electrosurgery are similarly effective in the removal of benign prostate tissue with comparable tissue removal, recovery periods and adverse events.

Source of Funding: StarmedTec

MP23-14 HOLMIUM LASER ENUCLEATION OF THE ABLATED PROSTATE (HOLEAP): AN INNOVATIVE SURGICAL TECHNIQUE FOR BENIGN PROSTATIC HYPERPLASIA

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MP23-15 LOW-POWERED HOLEP FOR THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA

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INTRODUCTION AND OBJECTIVES: Photovaporisation of the prostate using 80 W Green Light laser was introduced in 2002 for the treatment of men with benign prostatic enlargement (BPE). This abstract provides baseline characteristics of patients who underwent Green Light laser treatment of BPE in the CROES Global Green Light Laser registry.

METHODS: Between April 2010 and April 2012, the Clinical Research Office of the Endourological Society (CROES) collected prospective data from consecutive patients in 25 centers globally who underwent laser treatment for BPE with Green Light laser. Seven hundred and thirteen (713) patients were included. Patients had a mean (sd) age of 69.4 (9.0) years. Patients were divided into 3 groups based on the laser energy: 80 W (n=247), 120 W (n=356) and 180 W (n=110). Baseline characteristics of the patients in the 3 groups were summarized and described.

RESULTS: Mean (sd) prostate volume was 61.5 (29.8) ml compared as follows: 80 W group: 58.6 (25.3) ml; 120 W group: 58.3 (26.8) ml and 180 W group: 78.6 (41.3) ml. Mean (sd) preoperative maximum flow was 8.2 (3.9) ml/sec. Median (range) post void residual volume was 80 (0–2000) ml, median IPPS score was 21 (3–35) and median quality of life score was 4 (0–6). Anticoagulation was used in 239 (33.7%) patients, while 370 (52.3%) patients had a history of cardiovascular disease. Diabetes mellitus was observed in 96 (13.5%) patients, and 177 (26.8%) suffered erectile dysfunction.

CONCLUSIONS: Laser energies of 80 W, 120 W and 180 W are currently used in clinical management of selected patients with BPE. 120 W laser was the most commonly used laser in the GL study cohort. 180 W laser was used in patients who had higher prostate volume compared to 80 W and 120 W. As expected, patients who underwent laser vaporization of the prostate had a high prevalence of anticoagulation use and cardiovascular disease.

Source of Funding: The Greenlight Laser Study was supported by American Medical Systems (AMS)

MP23-17 A PROSPECTIVE-RANDOMIZED COMPARISON OF A 1.9 MM AND 2 MM THULIUM: YTRIUM-ALUMINIUM-GARNET LASER DEVICE FOR THULIUM VAPOENCELLATION OF THE PROSTATE: FIRST RESULTS

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INTRODUCTION AND OBJECTIVES: Thulium VapoEnucleation of the prostate (ThuVEP) is a transurethral procedure that uses a thulium: yttrium-aluminium-garnet (Tm:YAG) laser device to dissect the whole prostatic lobes anatomically of the surgical pseudocapsule. We report the first prospective-randomized comparison of two commercially available Tm: YAG lasers for the treatment of benign prostatic obstruction (BPO).

METHODS: From January to April 2013, fifty-five consecutive patients were randomized for the ThuVEP procedure with a 1.9 µm (ReVoLix®, LISA Laser products, Katlenburg, Germany) (n=27) or 1.9 µm (vela® XL, starmedtec, Starnberg, Germany) (n=28) Tm: YAG laser device. Preoperative status, surgical details, and immediate outcome were recorded for each patient. The perioperative complications were classified according to the modified Clavien classification system.

RESULTS: Median age (69 vs. 72.5 yrs), prostate volume (50 vs 60 ml), PSA (3.77 vs. 4.97 ng/dl), operation (52.5 vs. 60 min), enucleation (41 vs. 43 min), and morcellation time (12 vs. 10 min), resected tissue (34 vs. 42 g), percentage of resected tissue (resected weight/preop prostate volume) (70 vs. 70%), catheter time (2 vs. 2 days), morcellation (2.8 vs. 3.2 g/min), enucleation (0.69 vs. 0.86 g/min), and overall operation efficiency (0.53 vs. 0.66 g/min) (p<0.05) differed not significantly between 1.9 µm and 2 µm ThuVEP. Median Hb loss was low (1.5 g/dl) and differed not significantly between the devices (p<0.05). At discharge, median maximum urinary flow rate (8.4 vs. 23.4 ml/s) and post-voiding residual urine (400 vs. 10 ml) changed significantly (p<0.001) without differences between the devices. A total of 16 (29.1%) complications occurred in 13 (23.6%) patients. Most of them were minor (Clavien 1: 20%; Clavien 2: 7.3%, Clavien 3b: 1.82%). No Clavien 3a, 4 or 5 complication occurred. Regarding the occurrence of complications, there were no differences between the Tm: YAG devices.

CONCLUSIONS: The 1.9 µm and the 2 µm Tm: YAG laser devices are both highly effective for the ThuVEP procedure for removing obstructing prostatic adenomas. Both laser devices give equivalent and satisfactory immediate micturition improvement with low perioperative morbidity.

Source of Funding: none

MP23-18 IS THERE A POTENTIAL ROLE FOR HOLMIUM LASER ENUCLEATION OF THE PROSTATE IN PATIENTS WITH PROSTATE CANCER, VERY LARGE PROSTATES, AND OBSTRUCTION?

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INTRODUCTION AND OBJECTIVES: A subset of patients with elevated prostate specific antigen (PSA) and obstructive LUTS who undergo prostate biopsy will be found to have a small focus of low grade prostate cancer (PCa) and a large gland. Some patients are poor candidates for radiation therapy due to a large prostate. Is PSA elevation due to malignancy or simply the presence of a large gland? Can the PCa be managed conservatively while relieving the obstruction through minimally invasive surgery? We present our experience using holmium laser enucleation of the prostate (HoLEP) for patients with obstruction and prostate cancer previously untreated.

METHODS: An Institutional Review Board approved prospective database has been maintained at our institution since January 1999 for all HoLEP procedures. The database was retrospectively reviewed for patients who underwent HoLEP for obstructive symptoms and who had previously been diagnosed with PCa.

RESULTS: From January 2000 to July 2010, we identified 13 patients with a diagnosis of PCa who subsequently underwent HoLEP for obstructive LUTS. Preop retention was present in 6 patients and 4 reported incontinence. Preop mean PSA was 13.63 ng/mL and mean AUA SI was 20.5. Mean enucleated tissue weight was 95.32 grams. Mean hospital stay was 26.1 hours and mean postop catheterization time was 14 hours. 12 (92%) patients were able to void after catheter removal. Pathology results revealed low-volume (range <2% to 20%) malignancy in 5 patients (7 patients with BPH, 1 with high grade PIN/suspicious cells, 4 with Gleason 3+3=6, 1 with Gleason 3+4=7). At 6 month follow up, mean AUA SI was...
3.25 and mean PSA was 2.21 ng/mL. During the follow up period, only one patient reported persistent incontinence (<1/3 of the time). No patient went on to receive additional treatment for PCa.

CONCLUSIONS: A subset of patients with elevated PSA and obstructive LUTS who undergo biopsy will be found to have a small focus of low grade PCa and a large volume gland. It is likely that the PSA elevation is due primarily to the size of the prostate. In many cases, the low volume, low grade PCa can be managed conservatively while relieving the obstruction using HoLEP. HoLEP offers a minimally invasive approach with excellent outcomes and low morbidity for large volume prostates. The tissue removed can provide additional pathologic information. Furthermore, patients interested in radiation therapy for PCa, who would not be ideal candidates due to gland size, may be considered for treatment after debulking has been performed.

Source of Funding: None

MP23-19 COMPLICATIONS FOLLOWING PROSTATE BIOPSY: A RETROSPECTIVE SINGLE-INSTITUTIONAL STUDY
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INTRODUCTION AND OBJECTIVES: Prostate biopsy (P-Bx) is a relatively safe examination. However, the authors infrequently encounter patients who visit the hospital due to complications (Cx) following P-Bx. Accordingly, this study was conducted to investigate risk factors of Cx following P-Bx.

METHODS: This study was retrospectively conducted on 1,083 patients who underwent P-Bx for the past 10 years via the review of electronic medical records and radiographs. The Cx following P-Bx and hospitalization rate were examined, and the correlation of Cx with intravenous (IV) ciprofloxacin, enema, P-Bx piece number, and the result of P-Bx were also examined.

RESULTS: Cx occurred in 69 patients (6.4%) of the 1,083 patients. Acute prostatitis (AP) was the most common complication, which occurred in 41 patients (3.76%). The subsequent hospitalization rate was as follows: AP 37/41 (90.2%), hematomata retention (HR) 4/4 (100%), vasovagal syncope (VS) 1/10 (10%), and non-hematoma retention (NHR) 11/14 (78.6%). Enema was conducted on the patients: Soline enema (SE) in 524 patients and glycerine enema (GE) in 134 patients. 425 patients belonged to the NE group. Cx occurred in 23 patients (4.39%) after SE, 8 patients (5.97%) after GE, and 38 patients (8.94%) of the NE group. The Cx rate was lower in the SE and GE groups than in the NE group, and the rates of AP, VS, and NHR were particularly lower in the SE and GE groups than in the NE group. Cx occurred in 64 patients (6.28%) after P-Bx 12 pieces, and 3 patients (7.32%) after 6 pieces, which showed no significant difference. The result of P-Bx showed no tumor (NT) 521 patients, adenocarcinoma (AC) 306 patients, nodular hyperplasia (NH) 166 patients, and chronic prostatitis (CP) 56 patients. Cx occurred in 30 patients (5.76%) of the NT group, 19 patients (6.21%) of the AC group, 13 patients (7.83%) of the NH group, and 6 patients (10.71%) of the CP group. The Cx rate was the highest in the CP group and the lowest in the AP group.

CONCLUSIONS: The rate of Cx following P-Bx was low, whereas the subsequent hospitalization rate was high. The Cx was correlated with IV ciprofloxacin injection, Enema conduct, and concurrent CP. Thus, precautions should be given before P-Bx.

Source of Funding: none

MP23-20 PREDICTING ACUTE URINARY RETENTION IN PATIENTS WITH ELEVATED POST VOID RESIDUALS
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INTRODUCTION AND OBJECTIVES: To perform a retrospective analysis in order to evaluate factors that may help predict which men with elevated post void residual urine determinations (PVR) that were at increased risk to develop acute urinary retention (AUR).

METHODS: We retrospectively analyzed the records of 44 male patients who had two consecutive PVR urine determinations greater than 100 cc over a 6-month period. Using regression analysis, we evaluated patient’s age, PVR volume, PSA and transrectal ultrasound (TRUS) prostate volume with respect to the development of AUR over a 24-month period.

RESULTS: Of the 44 patients analyzed, 4 developed AUR. When all four of the factors were considered, prostate volume was determined to be the only factor that was statistically significant (p = .003). A 1 standard deviation increase in prostate volume (12 cc) led to a 19.6% increase risk of developing AUR over the next 24 months. There was a strong correlation between PSA and prostate volume (0.787). A regression analysis was then repeated using age, PVR, and PSA (excluding prostate volume). PSA then became a statistically significant predictor of AUR (p = .007). A 1 standard deviation increase in PSA (1.377 ng/ml) increased the patients’ risk of developing AUR by 12.3%.

CONCLUSIONS: In men with an elevated PVR, increased TRUS prostate volume, or in its absence, PSA, may help predict which patients have a greater risk of developing AUR within the next 24 months. This information may help influence which patients may need early surgical intervention versus medical therapy.

Source of Funding: none

MP23-21 BIPOLAR PLASMA VAPORIZATION VERSUS STANDARD TUR IN CASES OF SECONDARY BLADDER NECK SCLEROSIS – A PROSPECTIVE, MEDIUM TERM, RANDOMIZED COMPARISON
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INTRODUCTION AND OBJECTIVES: This prospective, randomized, medium term trial aimed to assess the efficiency, safety and postoperative results of the bipolar plasma vaporization (BPV) by comparison to monopolar transurethral resection (TUR) in cases of secondary bladder neck sclerosis (BNS).

METHODS: A total of 70 patients with BNS secondary to TURP (46 cases), open prostatectomy for benign prostatic hyperplasia (BPH – 18 cases) and radical prostatectomy for prostate cancer (6 cases) were enrolled in the trial. The inclusion criteria consisted of maximum flow rate (Qmax) below 10 mL/s and International Prostate Symptom Score (IPSS) over 19. All patients were evaluated preoperatively as well as at 1, 3, 6, 12 and 18 months after surgery by IPSS, quality of life score (QoL), Qmax and postvoiding residual urinary volume (PVR).

RESULTS: The mean operation time (10.3 versus 14.9 minutes), catheterization period (0.75 versus 2.1 days) and hospital stay (1.1 versus 3.2 days) were significantly reduced in the BPV series. During the immediate postoperative follow-up, the recatheterization for acute urinary retention only occurred in the TUR group (5%). The medium term re-treatment requirements due to BNS recurrence were lower in the BPV study arm (2.8%
MP23-22 DIABETES AND BENIGN PROSTATE HYPERPLASIA: CLINICAL, BIOCHEMICAL AND RADIOLOGICAL EVALUATION

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INTRODUCTION AND OBJECTIVES: To examine the correlation between clinical parameters of benign prostate hyperplasia (BPH) and diabetes mellitus (DM) in men with BPH.

METHODS: Between 2008–2012, 100 diabetic and 200 non diabetic patients with benign prostate hyperplasia were enrolled in the study. The parameters evaluated for each patients including prostate volume, fasting blood glucose, hemoglobin A1c (HbA1c), total testosterone, total PSA (t-PSA), triglyceride, total cholesterol and body mass index (BMI). A questionnaire including international prostate symptom score (IPSS) and uroflow test measuring the peak urinary flow rate were performed to apppreciate the complaints of the patients objectively.

RESULTS: Diabetic patients are more likely to have larger prostate volume. The symptom score evaluated by IPSS and post micturional residual volume were also significantly higher in diabetic groups. The other parameter statistically meaningful between two groups and total testosterone in diabetic patients are tend to have lower levels. Diabetic counterparts were established to have higher BMI. No statistically significant differentiation was observed at triglyceride, total cholesterol levels and uroflow rates.

CONCLUSIONS: Our study suggests a positive correlation has been found between prostate volume and DM in the patients with BPH. We also observed positive correlation between two groups in symptom scores and post micturitional residual volume suggesting that the presence of diabetes is related both static and dynamic components of benign prostate hyperplasia. Additionally, testosterone levels were lower in diabetic patients. Further studies are needed to confirm this relationship with a larger population.

Source of Funding: None

MP23-23 THE EVALUATION OF THE EFFECTS OF OBTURATOR NERVE BLOCKAGE IN ENDOSCOPIC RESSECTION OF BLADDER TUMOR OPERATION IN PATIENTS WITH BLADDER SIDE WALL TUMOURS > 3 CM

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INTRODUCTION AND OBJECTIVES: Some potential complications, such as bladder perforation, can be seen in endoscopic resection of bladder tumor (TUR-B) as a result of reflex adductor contractions and obturator nerve blockage (ONB) is commonly used for avoiding these contractions and the possible complications. We analysed the results of TUR-B operation with ONB and without ONB in patients with bladder side wall tumours > 3 cm.

METHODS: The data of 78 patients with primary bladder side wall tumours > 3 cm and underwent TUR-B operation were retrospectively evaluated. The operation was performed by monopolar TUR-B system under spinal anesthesia. Some of the patients underwent ONB before the operation, and the sample divided in 2 groups according to the presence of ONB. Thus, the data of 2 groups were compared with the aim of finding the effects of ONB on the results of TUR-B operation in patients with primary bladder side wall tumours > 3 cm.

RESULTS: The mean age was 56.4 ± 8.9 years. All tumours were > 3 cm and located in the side wall. 37 patients were operated after the application of ONB (group 1) and the operation was performed without any ONB in 41 patients (group 2). In group 1, the mean operation time was 51.7 ± 5.8 minutes and the perforation occurred in %27 (10/37) of patients [%40 (4/10) superficial, %60 (6/10) full-thickness). Only 1 of 6 full-thickness perforation was managed by surgery. Other 5 of 6 perforations were conservatively treated. In group 2, the mean operation time was 53 ± 4.9 minutes. The perforation occurred in %19.5 (8/41) of patients [%62.5 (5/8) superficial, %37.5 (3/8) full-thickness). All perforations in group 2 were conservatively treated.

CONCLUSIONS: It was seen that the use of ONB during TUR-B operation provided no contribution to the operation time and the occurrence rate of perforation. However, full-thickness
perforation was more commonly occured in patients who underwent ONB before the operation.

Source of Funding: none

**MP23-24 NO EFFECT OF HOLMIUM LASER EN
cucleation of Prostate (HoLEP) ON SEXUAL FUNCTION
IN BENIGN PROSTATIC HYPERPLASIA PATIENTS:
A PROSPECTIVE SHORT-TERM STUDY USING MALE
SEXUAL HEALTH QUESTIONNAIRE

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**INTRODUCTION AND OBJECTIVES:** Many HoLEP reports on sexual function with International Index of Erectile Function (IIEF) questionnaires showed that HoLEP decreased sexual function postoperatively up to 76% including erection and ejaculation. However, the IIEF is limited in evaluating overall sexual function, especially in terms of retrograde ejaculation and its impact on quality of life. Therefore it is necessary to evaluate diverse and detailed aspects of overall sexual function including ejaculation and erection and the relationship with improving LUTS before and after operation. In this study, we analyzed the influence of HoLEP on sexual function using a Male Sexual Health Questionnaire (MSHQ) and also explored the relationship of sexual function with lower urinary tract symptoms (LUTS).

**METHODS:** From February 2010 to October 2011, 60 consecutive BPH patients with lower urinary tract symptoms (LUTS) were prospectively enrolled in the study. All patients filled out the Male Sexual Health Questionnaire (MSHQ) for their overall sexual function including erection, ejaculation, sexual satisfaction, anxiety and sexual desire, did not significantly change after HoLEP (p < 0.05), whereas the postoperative satisfaction scores decreased slightly due to retrograde ejaculation in 38 patients (63.3%). Sexual satisfaction with MSHQ improved significantly and related with the improvement of LUTS total symptom and quality of life in IPSS after surgery (Quality of life, RR = 0.293; Total Symptom, RR = 0.411; p < 0.05). The nocturia score was associated with the erectile function score (RR 0.318, p = 0.029). The change of ejaculatory scores had no significant association with IPSS scores (p > 0.05).

**CONCLUSIONS:** HoLEP does not influence the sexual function including erectile function. Sexual satisfaction improved proportionally to the improvement of lower urinary tract symptoms.

Source of Funding: none

**MP23-25 VISCERAL FAT AS A MARKER IN KIDNEY
AND TUMOR PHYSIOLOGY

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**INTRODUCTION AND OBJECTIVES:** It is well known that adipose tissue plays a key role in the metabolic syndrome. We investigated whether visceral fat (VFA) and or subcutaneous fat (SQFA) levels are associated with the tumor phenotype of small renal masses. Additionally, we sought to investigate the relation between VFA and baseline renal function as measured by GFR.

**METHODS:** From 2002 through 2011, 125 patients undergoing minimally invasive partial nephrectomy (single surgeon RG) were retrospectively reviewed by a radiologist for VFA and SQFA fat measurements, using standard software. A third parameter, visceral adipose tissue percent (VAT %), was also calculated: (VAT% = [VFA/VFA+SQFA]×100%). We used tertiles of VFA and SQFA content to compare demographic and clinical characteristics. We also looked at VFA as a continuous variable. Associations between co-variables were analyzed using multivariate logistic regression analysis and OR’s with 95% CI’s. The discrimination ability of the multifactorial models was measured by the area under the ROC curve.

**RESULTS:** 81 patients had renal cell carcinoma and 30 patients had non RCC pathology. On multi-variate analysis increasing VFA (p = 0.015), VAT (p = 0.028), and Charlson comorbidity score (p = 0.047) were significantly associated with worse pre-operative MDRD. In fact of the 26 patients with baseline CKD III, 81% were in the 2 and 3rd tertile. In a subset multi-variate analysis of the 81 patients with RCC, increasing VFA was statistically associated with worsening Furhman score. (p = 0.017) (Figure 2).

**CONCLUSIONS:** VFA may be linked to the pathophysiology of renal function in patients with kidney evaluated for renal masses. Additionally, VFA may be associated with worsening tumor grade in patients with small renal masses. Interestingly, SQFA did not play such a role. This small study proposes an interesting physiologic link between visceral fat and the biology of both kidney function and tumor histology. Larger studies are needed to corroborate our findings.

Source of Funding: None

**MP23-26 TOO THRILL FOR SURGERY? PROSPECTIVE
STUDY OF FRAILITY AS A PREDICTOR OF POST-OPERATIVE
COMPLICATIONS IN MINIMALLY INVASIVE SURGERY

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**FIG. 1.** Univariate and Multivariate analysis for independent predictors of worse pre-op MDRD in all kidney lesions N = 125.

**FIG. 2.** Univariate and Multivariate analysis for independent predictors of Furhman grade ≥ 3 in patients with RCC N = 81.
INTRODUCTION AND OBJECTIVES: Current surgical decision-making is overly subjective and often misjudges a patient’s physiologic state. Frailty potentially represents a measurable phenotype, which can quantify the risk of adverse surgical outcomes. As such, using a standardized protocol to measure frailty, we sought to investigate the relationship between preoperative markers of frailty and their ability to predict post-operative complications in patients undergoing minimally invasive surgery (MIS).

METHODS: Frailty as defined by the Fried criteria (shrinking, exhaustion, slow gait speed, low activity, and decreased grip strength) was prospectively measured in the urology clinic in patients being scheduled for laparoscopic or robotic surgery. Meeting 2–3 of the Fried criteria designated patients as “intermediately frail” and 4–5 as “frail”. Demographic data, comorbidities, and traditional risk assessments were collected as well. Our primary outcome measure was the incidence of 30-day post-operative complications classified by the Clavien-Dindo system. Statistical analysis was performed with JMP 10.

RESULTS: In our cohort of 63 patients, mean patient age was 59.7 years (range = 19–87), 37 (58.7%) and 39 (61.9%) patients were male and Caucasian. Procedures included 49 (77.8%), 12 (19.0%) and 2 (3.2%) laparoscopic or robotic renal/ureteral, prostate, and bladder surgeries, respectively. Thirteen (20.6%) patients were immediately frail or frail and the remaining 50 (79.4%) patients were deemed not frail. Five (38.5%) of the immediately frail/frail patients experienced a grade II or greater complication, including 3 grade II’s, 1 IIIa, and 1 IVb. Comparatively, only 5 (10.0%) of the not frail patients had a complication, including 3 grade II’s, 1 IIIa, and 1 IIIb. Univariate analysis showed frailty to be a significant predictor of any 30-day complication: OR = 5.625; 95% CI = 1.30–25.06; p = 0.021. A multivariate analysis with age, ASA, ECOG, and frailty in the same model demonstrated frailty carries an increased risk for any complication: OR = 16.07; 95% CI = 2.26–168.88; p = 0.005.

CONCLUSIONS: The advent of MIS has potentially lured surgeons into thinking older and co-morbid patients may be able to more easily tolerate this surgical approach as compared to traditional open techniques. However, our data suggests that “intermediately frail” or “frail” patients are at increased risk of experiencing a post-operative complication regardless of surgical approach, further validating the use of this pre-operative assessment tool in surgical populations.

Source of Funding: none

MP24 LESS/NOTES

MP24-01 SUPRAPUBIC-ASSISTED LAPAROENDOSCOPIC SINGLE-SITE SURGERY IN UROLOGY WITH REPORT OF 324 CASES

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INTRODUCTION AND OBJECTIVES: Recently, laparoendoscopic single-site surgery (LESS) has been developed for the purpose of further reducing incisional morbidity and improving cosmetic outcomes. This study aimed to describe our experience with suprapubic-assisted LESS (SA-LESS) in urology.

METHODS: Between July 2010 and March 2013, 324 patients, including 219 males and 105 females, with a median age of 48.8 (range 6 to 78) years, were subjected to SA-LESS in our center. One 5- and 10-mm (or two 5-mm) trocars were inserted at the medial margin of umbilicus. A 10-or 5-mm trocar was inserted into abdominal cavity below the ipsilateral pubic hairline. The technique for the SA-LESS is similar to that of the standard laparoscopy, with conventional instruments placed in the abdominal trocars, under direct vision achieved by a 10-mm conventional 30° or 5-mm flexible-tip 0° laparoscope placed through the trocar below the pubic hairline.

RESULTS: SA-LESS surgery was successfully completed in 317 patients, without the need for ancillary trocars or additional instruments. Six patients required conversion to standard laparoscopy because of intraoperative bleeding (n = 5), and failure to progress (n = 1). One patient underwent open conversion because of gradual bleeding during the dissection of dense adhesive renal pedicle due to infection and fibrosis. The various SA-LESS procedures performed included adrenalectomy (N = 22), renal cyst excision (N = 26), minephroureterectomy (N = 6), pyeloplasty (N = 26), nephroureterectomy (N = 8), nephron-sparing surgery (N = 4), hety (N = 10), ureterovesical reimplantation (N = 3), pyelo-lithotomy (N = 9), and ureterolithotomy (N = 119). The mean operative time was 84, 110, 113, 145, and 85 minutes, and estimated blood loss was 80, 210, 110, 70, and 50 ml for adrenalectomy, simple nephrectomy, radical nephrectomy, pyeloplasty, ureterolithotomy, respectively. The mean follow-up of 16.8 (range 1 to 32) months showed hidden umbilicus scar. The scar below the pubic hairline was not detectable because of the covering of the pubic hairs.

CONCLUSIONS: SA-LESS appears to be feasible, safe and effective. Compared with umbilical laparoendoscopic single-site surgery, the placement of trocar at umbilicus and below the pubic hairline not only can decrease the difficulty of operation but can also lead to little postoperative pain and good cosmetic results.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)
**MP24-02** A COMPARISON AMONG SUPRAPUBIC-ASSISTED LAPAROENDOSCOPIC SINGLE-SITE, UMBILICAL LAPAROENDOSCOPIC SINGLE-SITE AND RETROPERITONEAL LAPAROSCOPIC URETEROLITHOTOMY

Xiaofeng Zou*, Guoxi Zhang, Xiaoning Wang, Yuanhu Yuan, Rihai Xiao, Gengqing Wu, Yijun Xue, Dazhi Long, Min Liu, Hui Xu, Gang Xu, Ganzhou, China, People's Republic of

**INTRODUCTION AND OBJECTIVES:** There some different laparoscopies for ureterolithotomy. We compared suprapubic-assisted laparoscopic single-site (SLS), umbilical laparoscopic single-site (ULS) and retroperitoneal laparoscopic (RL) ureterolithotomy approaches, and determined whether one technique is superior to the other.

**METHODS:** We prospectively evaluated 60 consecutive laparoscopic ureterolithotomies performed by one urologist. There were 60 patients with proximal or mid ureteral stones undergoing SLS ureterolithotomy, ULS ureterolithotomy and RL ureterolithotomy. Groups 1, 2 and 3 consisted of 20 patients who underwent SLS ureterolithotomy, ULS ureterolithotomy and RL ureterolithotomy, respectively. In SLS, two 5- and 10-mm trocars were inserted at the medial margin of umbilicus. A 5-mm trocar was inserted into abdominal cavity below the pubic hairline under the direct vision from a 5-mm flexible-tip 0° laparoscope through the umbilical trocar. The operation was same as that of standard laparoscopy.

**RESULTS:** All the procedures were successfully performed without conversion to open surgery. The median operative time was 110 mins (range 100 to 180). The median blood loss was 160 mL (range 130 to 180). There was no major complication occurred. The patients resumed ambulation on postoperative day 1. The patients resumed nutrition on postoperative day 2. The abdominal drainage was removed on postoperative day 3 to 4. The patients were discharged on postoperative day 7. The follow-up of 2–18 months showed satisfactory short-term results, with hidden umbilical scar.

**CONCLUSIONS:** SA-LESS heminephrectomy appears to be a feasible and reproducible surgical technique. It would lead to less injury, rapid convalescence, and improved cosmetic results.

**Source of Funding:** This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

**MP24-04** DOUBLE-CROSSING TECHNIQUE FACILITATES EXPOSURE AND DISSECTION OF ADRENAL TUMORS AND/OR UPPER KIDNEYS DURING PURE LAPAROENDOSCOPIC SINGLE SITE SURGERY (LESS)

Shih-Chieh Chueh*, Cleveland, OH, Bashir Sankari, Abu Dhabi, United Arab Emirates, Anthony Avallone, Cleveland, OH

**INTRODUCTION AND OBJECTIVES:** Although there have been many papers to show the feasibility of various urological LESS surgery, articles focusing on ‘how-to-do-it’ were limited. For transperitoneal LESS adrenalectomy or dissection of renal upper pole, mainly on the right, the liver is often in the way and obscuring the target. An extra 2~5-mm instrument stabbing over ipsilateral subcostal area is needed to lift the liver or spleen (for left lesions) away. Herein we discuss our technical nuances of how-to-do-it through pure LESS approach by using a “double-crossing technique”.

**METHODS:** For LESS procedures via small incisions (≤4.5 cm), at least one instrument with a flexible tip is ergonomically valuable during the procedure. A ‘crossing-instrument technique’ is utilized: the left-hand articulating grasper goes to the right side of the target, holds some durable tissue to the right (thus moving the left-hand grasper handle more to the left outside the patient) to create the traction of the tissues. Then a straight or another articulating instrument in the right hand goes across the previous instrument inside patient’s peritoneal cavity, and reaches the target to proceed with the planned acts of dissection or cutting. In order to perform a purely surgery ©SA-LESS© heminephrectomy for duplex kidneys in children in our center, and evaluate its feasibility, safety and efficacy.

**METHODS:** Six consecutive patients with duplex kidneys, including 3 male and 3 females, were subjected to E-NOTES heminephrectomy in our center. The duplex kidneys were found on left side in 2 cases, on right side in 4. Under general anesthesia, the patients were positioned in lateral decubitus with affected side elevated. Two 5-mm trocars were inserted at the medial margin of umbilicus. A 10-mm trocar was inserted into abdominal cavity below the pubic hairline under the direct vision from a 5-mm flexible-tip 0° laparoscope through the umbilical trocar. The operation was same as that of standard laparoscopy.

**RESULTS:** All the 6 procedures were successfully performed without conversion to open surgery. The median operative time was 110 mins (range 100 to 180). The median blood loss was 160 mL (range 130 to 180). There was no major complication occurred. The patients resumed ambulation on postoperative day 1. The patients resumed nutrition on postoperative day 2. The abdominal drainage was removed on postoperative day 3 to 4. The patients were discharged on postoperative day 7. The follow-up of 2–18 months showed satisfactory short-term results, with hidden umbilical scar.

**CONCLUSIONS:** SA-LESS heminephrectomy appears to be a feasible and reproducible surgical technique. It would lead to less injury, rapid convalescence, and improved cosmetic results.

**Source of Funding:** This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

**MP24-03** SUPRAPUBIC-ASSISTED LAPAROENDOSCOPIC SINGLE-SITE SURGERY (SA-LESS) HEMINEPHRECTOMY FOR DUPLEX KIDNEYS IN CHILDREN WITH REPORT OF 6 CASES

Xiaofeng Zou*, Guoxi Zhang, Yuting Wu, Yuanhu Yuan, Rihai Xiao, Gengqing Wu, Xiaoning Wang, Yijun Xue, Dazhi Long, Hui Xu, Gang Xu, Ganzhou, China, People's Republic of

**INTRODUCTION AND OBJECTIVES:** We describe the clinical experience of suprapubic-assisted laparoscopic single-site surgery ©SA-LESS© heminephrectomy for duplex kidneys in children in our center, and evaluate its feasibility, safety and efficacy.

**METHODS:** Six consecutive patients with duplex kidneys, including 3 male and 3 females, were subjected to E-NOTES heminephrectomy in our center. The duplex kidneys were found on left side in 2 cases, on right side in 4. Under general anesthesia, the patients were positioned in lateral decubitus with affected side elevated. Two 5-mm trocars were inserted at the medial margin of umbilicus. A 10-mm trocar was inserted into abdominal cavity below the pubic hairline under the direct vision from a 5-mm flexible-tip 0° laparoscope through the umbilical trocar. The operation was same as that of standard laparoscopy.

**RESULTS:** All the 6 procedures were successfully performed without conversion to open surgery. The median operative time was 110 mins (range 100 to 180). The median blood loss was 160 mL (range 130 to 180). There was no major complication occurred. The patients resumed ambulation on postoperative day 1. The patients resumed nutrition on postoperative day 2. The abdominal drainage was removed on postoperative day 3 to 4. The patients were discharged on postoperative day 7. The follow-up of 2–18 months showed satisfactory short-term results, with hidden umbilical scar.

**CONCLUSIONS:** SA-LESS heminephrectomy appears to be a feasible and reproducible surgical technique. It would lead to less injury, rapid convalescence, and improved cosmetic results.

**Source of Funding:** This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)
LESS adrenalectomy, a LESS platform that can accommodate 4 ports is required (e.g.: Quadraport or GelPort). Besides the ‘crossing’ of the 2 instruments by the operator as mentioned above, the assistant has to hold the camera in one hand and at the same time uses a retractor, inserted via the LESS platform caudal to the telescope port, in the other hand to lift the liver or spleen and expose the target. Thus, the telescope and the retractor are being “crossed” inside the abdomen to facilitate exposure.

RESULTS: We have applied this technique to 9 LESS adrenalectomies and nephrectomies, and found it very helpful in affording good exposure and facilitates dissection.

CONCLUSIONS: During a pure LESS procedure without any extra auxiliary port, a “double-crossing technique” leads to good exposure of the operative field and nice dissection of the target organ, especially for lesions over the upper renal pole and the adrenal tumor.

Source of Funding: none

MP24-05 COMPARISON OF RETROPERITONEAL LAPAROENDOSCOPIC SINGLE-SITE (R-LESS) AND MULTI-PORT RETROPERITONEAL LAPAROSCOPIC RADICAL NEPHRECTOMY

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INTRODUCTION AND OBJECTIVES: Laparo-endoscopic Single-site Surgery (LESS) is an emerging platform which may represent a further decrease in morbidity compared to multi-port laparoscopy (MPL). We compared Retroperitoneal LESS (R-LESS) and Multiport Retroperitoneal (MPR) approaches for laparoscopic Radical Nephrectomy (LRN).

METHODS: Single surgeon (ID) retrospective comparison of R-LESS and MPR-LRN. 20 patients underwent R-LESS (10 RN/10 PN) and 20 patients underwent MPR (14 RN/6 PN) from 8/2007-5/2012. Sub 12th rib single-site access was employed for R-LESS (Figure). LESS-R duplicated principles of MPR-LRN, with careful dissection of creation of retroperitoneal working space, rapid identification and control of the renal hilum, and intact specimen extraction. Demographics, perioperative, and postoperative data were recorded.

RESULTS: All 20 MPL cases were successfully completed laparoscopically. 17/20 LESS cases were successfully performed; one LESS-R was converted to MPR-LRN and another 2 underwent accessory port placement. There were no significant differences with respect to demographic factors between the two groups. For LESS-R and MPR-LRN: Mean tumor diameter (cm) was 4.8 and 5.2 (p = 0.313); operative time (min) was 164 and 149 (p = 0.197); mean estimated blood loss (mL) was 93.5 and 102.6, (p = 0.910). For the LESS-R group, mean incision size was 4.3 cm. For LESS and MPL groups: mean hospital stay (days) was 1.7 and 2.3 (p = 0.117); analgesic use (morphine equivalents, mg) was 7.1 vs. 14.8, (p = 0.05), and mean visual analog pain score at discharge was 1.3 vs. 2.2 (p = 0.03). No patients required transfusions, all had negative margins, and all are currently alive and there were no significant differences in complication rates (p = 1.000).

CONCLUSIONS: In this well matched prospective comparison, LESS-R is comparable to MPR-LRN in terms of perioperative parameters and may confer benefit with respect to analgesic requirement. Randomized evaluation and longer-term assessment and follow up are requisite.

Source of Funding: None

MP24-06 LESS RADICAL NEPHRECTOMY FOR RENAL CELL CANCER IN HIGH-RISK PATIENTS: RESULTS OF AN INITIAL PROSPECTIVE SINGLE-SURGEON STUDY AND ANALYSIS OF PERIOPERATIVE AND SHORT-TERM OUTCOMES

Francesco Greco*, Halle Saale, Germany, Christopher Springer, Vienna, Austria, Paolo Fornara, Paolo Fornara, Halle Saale, Germany

INTRODUCTION AND OBJECTIVES: Laparoendoscopic single-site (LESS) surgery represents the evolution of laparoscopy for the treatment of urologic diseases.

To investigate the feasibility of LESS in patients with increased comorbidities and previous abdominal surgery undergoing radical nephrectomy (LESS-RN) for renal cell carcinoma.

METHODS: A total of 25 patients with increased comorbidities and previous abdominal surgery who underwent LESS-RN were compared to 31 patients with the same characteristics after conventional laparoscopic radical nephrectomy (LRN). LRN were performed between January 2009 and May 2010 and LESS-RNs were performed between June 2010 and November 2011.

Demographic data and perioperative and postoperative variables were recorded and analysed.

All complications were recorded according to the modified Dindo-Clavien classification.

Patients were assigned an ASA score, that described the patients’ physical status and comorbidities.

RESULTS: All patients underwent a radical nephrectomy for enhancing renal masses with a median preoperative tumour size of 6.1 ± 1.4 cm for LESS-RN and of 6.4 ± 1.9 cm for LRN (p = 0.09).

The mean ASA score in the LESS-RN and LRN groups was 3.2 ± 0.4, and the mean BMI was 32.7 ± 2.1 and 34.2 ± 0.8 kg/m² respectively.

The mean operative time in the LESS-RN and LRN groups was 143.7 ± 24.3 min and 130.6 ± 26.5 min, (p = 0.11), and the mean hospital stay was 3.8 ± 0.8 vs. 4.2 ± 1.4 days in the two groups, respectively (p = 0.06).
Three and four complications were recorded in the LESS-RN and in the LRN groups, for a mean complication rate of 12% and 12.9%, respectively (p=0.12). All tumours were organ-confined with negative surgical margins and the mean R.E.N.A.L nephrometry score for LESS-RN and LRN was 9.78±1.7 and 9.82±1.3 (p=0.14), respectively.

At the first postoperative visit, all patients completed an arbitrary questionnaire rating the cosmetic results (1: unsatisfied; 2: satisfied; 3: very satisfied; 4: enthusiastic). All patients (100%) who underwent LESS-RN were enthusiastic with the appearance of the scars, whereas only 21 patients of the LRN group (67.7%) were enthusiastic with the appearance of the scars (p=0.03).

CONCLUSIONS: LESS-RN in patients with increased comorbidities and previous abdominal surgery is equally effective as LRN without compromising on surgical, oncological short-term and postoperative outcomes.

Source of Funding: none

MP24-07 A STEP-BY-STEP STRATEGY TO INTRODUCE LAPAROENDOSCOPIC SINGLE-SITE (LESS) DONOR NEPHRECTOMY USING GELPOINT® WITHOUT ARTICULATING INSTRUMENTS

Takamitsu Inoue*, Shintaro Narita, Norihiko Tsuchiya, Kazuyuki Numakura, Mitsuru Saito, Shigeru Satoh, Tomonori Habuchi, Akita, Japan

INTRODUCTION AND OBJECTIVES: A laparoendoscopic single site surgery (LESS) donor nephrectomy (LESSDN) procedure has reportedly provided favorable results regarding invasiveness and cosmesis. However, the LESS procedure usually requires specialized articulating instruments which are demanding for the majority of urologic surgeons. We present our step-by-step strategy to introduce the LESSDN procedure after a LESS plus one trocar donor nephrectomy (LEPODN) reduced port procedure using the GelPOINT® without using articulating instruments.

METHODS: From 2009 to 2013, 27 Std-LDN, 20 LEPODN, and 20 LESSDN were consecutively performed. The mean age, height, weight, BMI, and serum creatinine level were not significantly different between the three groups. In the LEPODN and LESSDN, the GelPOINT® was applied at a pararectal incision at the level of the umbilicus. In the LEPODN, a 5 mm trocar was added as a right hand working trocar to facilitate the LESSDN procedure.

RESULTS: There was no significant difference in perioperative variables between the Std-LDN and LEPODN groups. The mean operative time and postoperative hospital stay of the LESSDN group were significantly shorter than that of the Std-LDN group, respectively (p=0.001 and p=0.002). The mean estimated blood loss and warm ischemic time were not significantly different between the three groups. No significant difference was observed in the complication rate, delayed graft function rate and the mean 7-days posttransplant serum creatinine level between the three groups.

CONCLUSIONS: The LEPODN procedure was useful reduced port procedure as an effective technical bridge between the Std-LDN and LESSDN. The step-by-step strategy to introduce the LESSDN after LEPODN with using the GelPOINT® can be recommended for urologic surgeons who have enough conventional laparoscopic surgical experience but little experience in the LESS procedure. The GelPOINT® may facilitate the LESS procedure without using any articulating instruments.

Source of Funding: none

Comparison of postoperative data between Std-LDN, LEPODN and LESSDN

<table>
<thead>
<tr>
<th></th>
<th>Std-LDN (n = 27)</th>
<th>LEPODN (n = 20)</th>
<th>p (Std-LDN vs LEPODN)</th>
<th>LESSDN (n = 20)</th>
<th>p (Std-LDN vs LESSDN)</th>
<th>p (LEPODN vs LESSDN)</th>
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<tr>
<td>operative time (min)</td>
<td>250.9 ± 34.2</td>
<td>279.1 ± 32.6</td>
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<td>estimated blood loss (ml)</td>
<td>73.0 ± 76.8</td>
<td>35.4 ± 51.6</td>
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<td>WIT (sec)</td>
<td>302.5 ± 77.1</td>
<td>272.4 ± 101.7</td>
<td>0.476</td>
<td>262.2 ± 84.9</td>
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<td>open surgery conversion</td>
<td>0 (0.0 %)</td>
<td>0 (0.0 %)</td>
<td>1</td>
<td>0 (0.0 %)</td>
<td>1</td>
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<td>blood transfusion</td>
<td>0 (0.0 %)</td>
<td>0 (0.0 %)</td>
<td>1</td>
<td>0 (0.0 %)</td>
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<td>time to oral intake (day)</td>
<td>1.11 ± 0.32</td>
<td>1.05 ± 0.22</td>
<td>0.892</td>
<td>1.20 ± 0.41</td>
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<td>time to ambulation (day)</td>
<td>1.74 ± 0.90</td>
<td>1.45 ± 0.60</td>
<td>0.403</td>
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<td>postoperative hospital stay (day)</td>
<td>8.41 ± 1.69</td>
<td>8.25 ± 1.25</td>
<td>0.924</td>
<td>6.90 ± 1.67</td>
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<td>recipient 7 days serum creatinine (mg/dl)</td>
<td>1.13 ± 0.37</td>
<td>1.57 ± 1.61</td>
<td>0.288</td>
<td>1.28 ± 0.58</td>
<td>0.864</td>
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<td>delayed graft function</td>
<td>0 (0.0 %)</td>
<td>0 (10.0 %)</td>
<td>0.115</td>
<td>0 (0.0 %)</td>
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MP24-08 PURE LAPAROENDOSCOPIC SINGLE-SITE RADICAL PROSTATECTOMY: TECHNIQUE AND INITIAL OUTCOMES

Gang Zhu*, Yan qun Zhang, Pengjie Wu, Shengjie Liu, Bin Jin, Ben Wan, Jianye Wang, Beijing, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: Laparoendoscopic single-site surgery radical prostatectomy (LESS-RP) is a challenging surgical procedure and usually finished with additional trocar. This study was to illustrate the safety and initial results of pure LESS-RP with conventional available instruments.
RESULTS: The early experience described in this study suggests that TNALN is a safe and effective alternative to CTLN that provides surgeons with a minimally invasive surgical option and the ability to hide the surgical incision within the umbilicus; however, a larger series is necessary to confirm these findings and to determine if there are any benefits in pain, recovery, or cosmesis.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. 2012AA021700), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (NO. 20121BBG70023), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 201004008)

MP24-10 SUPRAPUBIC-ASSISTED LAPAROENDOSCOPIC SINGLE-SITE VERSUS CONVENTIONAL LAPAROSCOPIC NEPHRECTOMY

Guoxi Zhang, Xiaofeng Zou*, Xiaoning Wang, Yuhanh Yuan, Rihai Xiao, Gengqing Wu, Yijun Xue, Dazhi Long, Yuting Wu, Min Liu, Ruiquan Xu, Yuhua Zou, Ganzhou, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: Laparoendoscopic single-site surgery (LESS) represents an evolution of laparoscopy for nephrectomy. This study aimed to present a comparison between suprapubic-assisted laparoendoscopic single-site nephrectomy (SLSN) and conventional transperitoneal laparoscopic nephrectomy (CTLN) with respect to perioperative outcomes and short-term measures of convalescence.

METHODS: This was a study comparing 50 SLSNs and 40 CTLNs performed from September 2010 to December 2012. In SLSNs, one 5- and 10-mm trocars were inserted at the medial margin of umbilicus. A 5-mm trocar was inserted into abdominal cavity below the ipsilateral pubic hairline. The technique for the SLSN is similar to that of CTLN, with conventional instruments placed in the abdominal trocars, under direct vision achieved by 5-mm flexible-tip laparoscope placed through the trocar below the pubic hairline. Patient characteristics, perioperative details, and time to return to work were recorded. Postoperative evaluation of pain and use of analgesic medication were recorded. In the SLSN group, sexual function was assessed with the Female Sexual Function Index questionnaire before and after surgery. To investigate the satisfaction of patients in terms of cosmetic results, the Patient Scar Assessment Questionnaire (PSAQ) was introduced after postoperative month 3.

RESULTS: Median patient age was 46.3 years for both groups. Nephrectomy was performed for benign disease in 68.6% of the cases. There was no difference in median operative time (120 min vs 115 min, P = 0.05), blood loss (80 vs 75 mL, P = 0.05), transfusion rates (0% for both), and hospitalization time (6.5 vs 7 days, P = 0.05) between the SLSN and CTLN groups. Time to return to normal activities was shorter in the SLSN group (16 vs 27 days, P = 0.006). Both the visual analogue scale and the postoperative use of analgesics were significantly lower during postoperative days 1, 2, and 3 in patients who underwent TNALN, compared with patients who underwent CTLN. There were no intraoperative or postoperative complications in both groups. There was no significant difference between median pre- and postoperative Female Sexual Function Index (FSFI) total scores in TNALN cases (33.3 vs. 32.7, P = 0.203). The median Patient Scar Assessment Questionnaire (PSAQ) was less in the TNALN group compared with the CTLN group (33.7 vs. 62.1, P = 0.001).

CONCLUSIONS: The early experience described in this study suggests that TNALN is a safe and effective alternative to CTLN that provides surgeons with a minimally invasive surgical option and the ability to hide the surgical incision within the umbilicus; however, a larger series is necessary to confirm these findings and to determine if there are any benefits in pain, recovery, or cosmesis.

Source of Funding: none
analogical scale and the postoperative use of analogesics were significantly lower during postoperative days 1, 2, and 3 in patients who underwent SLSN, compared with patients who underwent CTLN (P < 0.05). The median Patient Scar Assessment Questionnaire (PSAQ) was less in the SLSN group compared with the CTLN group (40.6 vs. 63.5, P = 0.001).

CONCLUSIONS: The early experience described in this study suggests that SLSN is a safe and effective alternative to CTLN that provides surgeons with a minimally invasive surgical option and the ability to hide the surgical incision within the umbilicus and the pubic hairs.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

INTRODUCTION AND OBJECTIVES: Few studies are available to compare the potential benefits of natural orifice transluminal endoscopic surgery (NOTES) to standard laparoscopy. We aimed to compare surgical stress between transvaginal NOTES-assisted laparoscopic and standard laparoscopic nephrectomy.

METHODS: Twenty female patients who underwent transvaginal NOTES-assisted laparoscopic nephrectomy (TNLN) at the initial stage (group N1), 20 female patients who underwent TNLN at the later stage (group N2), and two groups (group L1 and group L2) of patients who underwent standard laparoscopic nephrectomy (SLN) at the same time, were selected to the study. The same general anesthesia induction, continuous anesthesia and postoperative analgesia were used in the four groups. Blood samples were obtained before general anesthesia induction (T0), at the end of the surgery (T1), and at six o'clock on postoperative day 1 (T2), postoperative day 2 (T3) and postoperative day 3 (T4). The serum levels of glucose, cortisol, IL-6, and C-reactive protein were detected in each blood sample.

RESULTS: In group N1 and L1, the serum glucose concentrations at T1, T2 and T3 and the serum C-reactive protein concentration at T2, T3 and T4 were all higher than that at T0 (P < 0.05), but there were no statistically significant differences between the two groups (P > 0.05). The serum cortisol and IL-6 concentrations at T1, T2 and T3 were all higher than that at T0 (P < 0.05). The patients in group N1 had increases in serum cortisol and IL-6 concentrations at T1 compared with group L1, but there were no statistically significant differences at T2 and T3 between the two groups (P > 0.05). The operative time for N1 was longer than that of L1. In group N2 and L2, the serum glucose, cortisol and IL-6 concentrations at T1, T2 and T3 and the serum C-reactive protein concentration at T1, T2 and T3 and the serum C-reactive protein concentration at T2, T3 and T4 were all higher than that at T0 (P > 0.05), but there were no statistically significant differences between the two groups (P > 0.05). There was also no statistically significant difference in operative time between the two groups.

CONCLUSIONS: With the development of TNLN and the shortening of operative time, the postoperative stress in TNLN will be similar to that of SLN.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

MP24-13 LAPAROENDOSCOPIC SINGLE-SITE RADICAL NEPHRECTOMY BY SINGLE-CUP OR SINGLE-RING GLOVE TECHNIQUE

Zhang Shudong*, Ma Lulin, Qiu Min, Bi Hai, Beijing, China, People's Republic of

INTRODUCTION AND OBJECTIVES: With the development of minimally invasive surgical techniques, LESS has been widely
applied in the fields of urology. Compared with the traditional laparoscopic technique, LESS may have better results in cosmetic, less postoperative pain, better recovery and so on. We present two new homemade single-site devices which had been successfully used in radical nephrectomy and other urological surgery. Aim of this study is to evaluate the efficacy and safety of laparoendoscopic single-site radical nephrectomy by homemade devices.

METHODS: The clinical data of laparoscopic radical nephrectomy performed from June 2010 to April 2013 in Peking University Third Hospital were analyzed retrospectively. 17 cases underwent LESS radical nephrectomy and 34 cases received retropertioneal laparoscopic radical nephrectomy. Data on general presentation, tumor size, tumor location, operative time, blood loss, complications, Visual Analog Pain Scale (VAPS), postoperative hospital stay, pathological results were collected to compare between two groups. Our homemade equipments are composed of Single-Cup device (inter-diameter of 2.5-5.5 cm, peripheral diameter of 4.0-6.0 cm, and 4.0 cm high) or Single-Ring device (inter-diameter of 4 cm, peripheral diameter of 5 cm) and a 6 F sterile surgical glove. The thumb, middle, and ring fingers of the glove were implanted and fixed with 11 mm, 5 mm and 5 mm diameters; trocar respectively. the kidney was dissociated after cut off the renal vessel and extracted through the umbilical incision. The retroperitoneal approach followed the standard surgical procedures, the specimens were removed from the extended incision.

RESULTS: All procedures were completed without conversion to open radical nephrectomy. Compare with traditional laparoscopic surgery, operative time (P < 0.05) and VAPS (P < 0.05) show significant difference in LESS group£– and no difference was noted in other factors (P > 0.05). There was no secondary bleeding, wound infection, intestinal obstruction, incision hernia and other severe postoperative complication. Follow-up of 2 to 36 months shows no local recurrence.

CONCLUSIONS: laparoendoscopic single-site radical nephrectomy by Single-Cup or Single-Ring glove technique is feasible, effective and safe. It gives a more mini-invasive and cosmetic option for young or female patients. The characteristics of lower cost, more aesthetic, repeat use of the homemade devices appeared to be popularized. Further experience and long term evaluation are required.

Source of Funding: Peking University Third Hospital Clinical Essential Programme “Application of Transumbilical Laparoendoscopic Single-site Surgery in Urologic Oncology” (61446-04)

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**MP24-15 LAPAROENDOSCOPIC SINGLE-SITE SURGERY (LESS) FOR TREATMENT OF DIFFERENT UROLOGIC PATHOLOGIES IN PEDIATRICS: SINGLE-CENTER EXPERIENCE**


**INTRODUCTION AND OBJECTIVES:** Laparoscopic single-site surgery (LESS) has been increasingly reported as a new less invasive approach for treatment of various urologic pathologies in adults. However, the applications of LESS in the field of pediatric urology are still limited. In this study we present our initial experience with LESS as an option for treatment of some pediatric urologic pathologies.

**METHODS:** This is a retrospective study that included 14 pediatric patients with a mean age 6.2±2.9 years. Four patients had unilateral undescended testes, 3 with bilateral undescended testes, 2 with left and one with bilateral varicocele, one with right multicystic dysplastic kidney, one patient with non-functioning right kidney and two patients with left ureteropelvic junction obstruction (UPJO). Ports used were R-port (10 patients) and Covieden port (4 patients) and ports were inserted through the umbilicus. We used pre-bent (with R-port), articulating (with Covieden port) as well as straight instruments. In patient with left UPJO, one had LESS dismembered pyeloplasty and other had Y-V plasty where hand free intracorporeal suturing was done using 4/0 vicryl sutures.

**RESULTS:** In all patients there was no conversion to conventional laparoscopy or open surgery. We did not add any extraport in any of the patients. Mean operative time was 112±40 minutes. Mean blood loss was 40±25 c.c. There were no intraoperative or postoperative complications reported. Mean hospital stay was 2.5±0.7 days. Mean duration of follow-up was 18±6 months. Patients with unilateral undescended testes; 2 had orchiopexy, one had first stage Fawler-Stephens, and one had orchiectomy.

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**Table 1. Patients Characteristics**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Gender</th>
<th>Age (years)</th>
<th>BDI (kg/m²)</th>
<th>Diagnosis</th>
<th>Preoperative Stage</th>
<th>Type of surgery</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>31</td>
<td>18.3</td>
<td>Bilateral RCC</td>
<td>Minimal invasive</td>
<td>Minimal radical</td>
<td>Enlarged renal obstruction, diabetes</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>45</td>
<td>17.5</td>
<td>Bilateral RCC</td>
<td>Minimal invasive</td>
<td>Minimal radical</td>
<td>Enlarged renal obstruction, diabetes</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>43</td>
<td>14.9</td>
<td>Bilateral renal obstruction</td>
<td>Minimal invasive</td>
<td>Minimal radical</td>
<td>Enlarged renal obstruction, diabetes</td>
</tr>
<tr>
<td>4</td>
<td>Female</td>
<td>52</td>
<td>12.3</td>
<td>Left RCC and sigmoid injury</td>
<td>Minimal invasive</td>
<td>Minimal radical</td>
<td>Enlarged renal obstruction, diabetes</td>
</tr>
<tr>
<td>5</td>
<td>Male</td>
<td>56</td>
<td>14.3</td>
<td>Right upper ureter and left functioning kidney</td>
<td>Open</td>
<td>Open</td>
<td>Enlarged renal obstruction, diabetes</td>
</tr>
</tbody>
</table>

Source of Funding: none

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**MP24-14 SIMULTANEOUS LAPAROENDOSCOPIC SINGLE-SITE SURGERY FOR SURGICAL TREATMENT OF INTRA-ABDOMINAL PATHOLOGIES IN TWO DIFFERENT ORGANS**

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**INTRODUCTION AND OBJECTIVES:** To describe our early experience about with simultaneous laparoendoscopic single-site surgery (LESS) for surgical treatment of intra-abdominal pathologies in two different organs.

**METHODS:** Five patients with bilateral renal cell carcinoma (RCC) (n=2), bilateral aldosterone-producing adenoma (n=1), right proximal ureter stone and left non-functioning kidney (n=1), and synchronous left RCC and sigmoid colon cancer (n=1) underwent simultaneous LESS using with use of the umbilicus as the portal of entry. Perioperative outcomes including operative time, estimated blood loss, and complications were analyzed retrospectively.

**RESULTS:** All procedures were completed successfully without conversion to conventional laparoscopic or open surgery and within a reasonable operative time. Estimated blood loss was minimal and no perioperative complications occurred.

**CONCLUSIONS:** In our experience, we reported the technical feasibility and safety of simultaneous LESS of intra-abdominal pathologies in two different organs was technically feasible and safe. The procedure could be performed with minimal morbidity and obvious cosmetic advantage.

Source of Funding: none

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Patients with bilateral undescended testicles; one had bilateral orchidopexy, one had right orchidopexy and left first stage Fawler-Stephens and third had bilateral first stage Fawler-Stephens. All patients who had first stage Fawler-Stephens orchidopexy subsequently had LESS second stage orchidopexy after 6 months. Follow-up of patients with left UPJ showed complete clinical cure and patent ureteropelvic junction and marked decrease of left hydronephrosis. In all patients umbilical scar was invisible and patients had high wound satisfaction. **CONCLUSIONS:** LESS is a feasible, effective and safe option for treatment of many urologic pathologies in pediatrics. However, more patients and indications are need for further evaluation of role of LESS in pediatric urology.

**Source of Funding:** None

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**MP24-16 STEP-WISE ‘EXIT STRATEGIES’ DURING LAPAROENDOSCOPIC SINGLE SITE LIVE DONOR NEPHRECTOMY—EXPERIENCE SHARING**

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**INTRODUCTION AND OBJECTIVES:** Laparoendoscopic single site-live donor nephrectomy (LESS-LDN) is very challenging due to its nature of not allowing any slightest errors. We share our experience of LESS-LDN and, if difficulties ever encountered, our design how to step-wisely convert to conventional laparoscopic LDN or open surgery for safe execution of this highly demanding surgery.

**METHODS:** GelPort device was installed as the LESS platform at a 5 cm peri-umbilical midline incision. A large adhesive drape was applied over the abdomen, covering the whole GelPort (Fig. 1). Through the gel-cap of GelPort 3 ~ 4 ports were spaced apart to achieve triangulation and to avoid clashing of the instruments during LESS-LDN (Fig. 1). Standard dissection of the kidney for donation was performed by abiding by the principles to ensure the kidney was well perfused and the renal vein was nicely distented (Fig. 2). Before hilar vessels were ligated separately with Endo TA staplers, an EndoCatch-II was inserted through gel-cap tented (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with Endo TA staplers, an EndoCatch-II was inserted through gel-cap tented (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2). Before hilar vessels were ligated separately with the kidney was well perfused and the renal vein was nicely dis-tended (Fig. 2).

**RESULTS:** LESS-LDN was successful in all living donors without any multi-site laparoscopic or open conversion and without any instrument through extra wounds—although we would have done so if at any point we felt that this would have provided additional safety or facilitated the operation. No patient had peri-operative complications or received transfusions. Median operative time was 271 minutes with a warm ischemia time of 3.5 minutes. Hospital stay averaged 2 days with visual analog pain score 4/10 at discharge and 2/10 at 2 weeks. All recipients recuperated well with immediate graft function.

**CONCLUSIONS:** LESS-LDN using the GelPort device as the access platform provides feasibility and safety, and most importantly offers ‘exit strategies’ for an easy conversion potential in case of difficulty, to maintain the extremely high safety standard of LDN. This is especially useful for the beginners.

**Source of Funding:** none

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**MP24-17 SUBJECTIVE SCAR APPEARANCE AND SEXUAL SATISFACTION IN TRANSVAGINAL NOTES-ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY**

Giovanna Alberto Pini*, Nasredin Mohammed, Francesco Greco, Vincenzo Maria Altieri, Paolo Fornara, Halle, Germany

**INTRODUCTION AND OBJECTIVES:** To evaluate the sexual satisfaction and cosmetic outcomes after transvaginal (Tv) natural orifice transluminal endoscopic surgery (NOTES) assisted laparoscopic radical cystectomy (LRC) in patients affected by muscle-invasive urothelial carcinoma of the bladder (MITCC).

**METHODS:** From December 2011 and February 2013, 5 female patients with non-metastatic MITCC underneath to Tv-LRC. The group was matched for age, body mass index, number of deliveries, ASA score, Charlson comorbidity index, tumour characteristics with two groups-control including patients who underwent open radical cystectomy (ORC: 10 patients) and laparoscopic (LRC: 10 patients).

Demographic and intra- and postoperative variables were analyzed. Moreover, all patients were evaluated for sexual activity satisfaction (Female Sexual Function Index - FSFI) and subjective scar appearance.

**RESULTS:** Mean operating time, Hb drop, day of mobilization, retrieved lymphnodes and length of stay were statistically comparable in all groups. Blood lost where in favor of Tv-LRC compared to ORC. No major intraoperative complication occurred. No postoperative vaginal fistula or infection where notice in TV-LRC and number of complications was comparable in all groups; Clavien 3a and 3b were more frequent in LRC (33.3%) and ORC (40%).

At discharge the median VAS was 2.0 ± 0.8 comparable with other group.

The median scar satisfaction in Tv-LRC (3.4 ± 0.5) was significantly higher than ORC (1.8 ± 0.8; p 0.012) and LRC (2.6 ± 0.5; p 0.032).

With different follow-up (Tv-LRC: 10.3 ± 1.7; ORC: 29.2 ± 15.1; LRC: 21.4 ± 7.1; p 0.01) all patients were alive. No vaginal or port-site metastasis where noticed in Tv-LRC and LRC. Two and one patients of ORC and LRC respectively underneath chemotherapy because of late lymphonodal relapse. Sexual active patients where 3, 4 and 5 in Tv-LRC, ORC and LRC. Postoperative sexual function was disturbed significantly (p < 0.03) by surgery in all groups, with a mean decrease of FSFI index of 5.1 ± 1.5, 6.7 ± 1.3 and 5.5 ± 0.9 for Tv-LRC, ORC and LRC respectively, affecting
specially lubrication and ability to achieve orgasm, while arousal and dyspareunia remained stable.

CONCLUSIONS: The transvaginal approach could be considered as viable minimally invasive option in case of LRC performed in middle aged-old multiparous woman. It improves cosmetic results, it is not related to vaginal complication or metastasis and does not affect directly sexual satisfaction, rather worsened by cystectomy itself. Proper selection of patients is warranted for success.

Source of Funding: none

MP24-18 IS THERE INCONGRUENCE BETWEEN THE GOLD STANDARD APPROACH FOR CT1 RENAL MASSES - NEPHRON SPARING SURGERY - AND DIAGNOSIS RELATED GROUPS (DRG) REIMBURSEMENT? ANALYSIS OF INTRAOPERATIVE COSTS FOR LAPAROENDOSCOPIC SINGLE-SITE (LESS), LAPAROSCOPIC AND OPEN APPROACH IN A HIGH VOLUME CENTER

Giovannalberto Pini*, Ascalone Luigi, Francesco Greco, Paolo Formara, Halle, Germany

INTRODUCTION AND OBJECTIVES: Nephron sparing surgery (NSS) has become the standard treatment for small masses (SM) and laparoscopy is strongly supported in experienced and high volume center. Anyhow, both are not adequately adopt because complexity and incomplete support by the national reimbursement.

METHODS: In a non-randomised retrospective study we selected 90 consecutive patients (01/2010–12/2011) to partial (P) or radical (R) nephrectomy for SM (<7 cm-cT1N0M0) and divided in 6 groups: laparoscopic (LPN, LRN), LESS (LESS-PN, LESS-RN) or open (OPN, ORN). Patients were matched for age, sex, body mass index (BMI), ASA-score, Charlson score, tumor side (right/left) and tumor characteristics (PADUA Score). Primary endpoints were evaluation of total intraoperative material cost (disposable/reusable instruments) divided in general, laparoscopic, sutures and hemostatic agents; 2nd endpoints were 2nd approach (NSS) has become the standard treatment for small masses (SM) and laparoscopy is strongly supported in experienced and high volume center. Anyhow, both are not adequately adopt because complexity and incomplete support by the national reimbursement.

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CONCLUSIONS: Use of reusable instruments can reduce total costs of laparoscopy that anyway results still too expensive justify the complex learning curve of LPN. The sample of patients reported is enough to reflect costs but not maybe to mirror the real complication rates. These, already provided by international literature, may further increase the costs related to higher transfusion and surgical revision rates.

It is requested a subclassification with different reimbursement that incentives nephron sparing and laparoscopic approach.

Source of Funding: none

MP24-19 PERIOPERATIVE NURSING OF PATIENTS UNDERGOING PURE NATURAL ORIFICE TRANSLUMINAL ENDOSCOPIC SURGERY (NOTES) TRANSGAVINAL Nephrectomy

Lanying Liu, Meiying Meng, Lili Li, Xiaoying Zeng, Fangzhen Xiao, Yulan Huang, Guoxi Zhang, Xiaofeng Zou*, Ganzhou, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To investigate the perioperative nursing during the pure natural orifice transluminal endoscopic surgery (NOTES) transvaginal nephrectomy.

METHODS: Sixteen female patients underwent the pure transvaginal NOTES nephrectomy. The experience in perioperative nursing during the surgeries were analyzed. The key points in nursing were preoperative psychological nursing, sufficient preoperative preparations, such as bowel preparation, vaginal preparation and skin preparation, close observation of vaginal bleeding, care of various drainage tubes prevention of abdominal distension and intestinal obstruction, comfortable nursing, proper discharge education and follow-up services, may improve the efficiency and operative safety of pure transvaginal NOTES nephrectomy.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (20121BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

MP24-20 CLINICAL EXPERIENCE OF LAPAROENDOSCOPIC SINGLE-SITE BIOPSY FOR DIAGNOSIS OF RETROPERITONEAL TUMOR OF UNKNOWN ORIGIN

Tetsuo Nozaki*, Akihiro Morii, Kenji Yasuda, Hideki Fuse, Toyama, Japan

INTRODUCTION AND OBJECTIVES: When percutaneous image-guided biopsies are not possible for retroperitoneal tumor of unknown origin (RTUO), surgical tissue diagnosis becomes necessary. Traditional open surgical exploration with deep tissue biopsy might lead to unnecessary perioperative morbidity and serious delay in patient recovery. In this investigation, we report the safety and feasibility of the laparoendoscopic single-site (LESS) biopsy for diagnosis of RTUO adjacent to critical structures.

METHODS: Five patients underwent LESS biopsy for diagnosis of RTUO, because the tumor was adjacent to important structures, such as major blood vessels, the urinary tract, intestines, or other viscera. The EZ Access™ (Hakko Medical Industry, Tokyo, Japan) was utilized as a single port and inserted into the peritoneal or retroperitoneal space through a 3-cm skin incision. Obtaining numerous deep tissue biopsies from multiple anatomic sites was performed.

RESULTS: LESS biopsy was performed successfully and no patients required conversion to laparotomy or standard laparoscopy
because of difficulty in identifying the mass laparoscopically, inability to obtain an adequate tissue sample, or uncontrolled bleeding. Sufficient specimens were safely obtained not only for pathological diagnosis but also for further examinations such as immunohistochemical analysis or cytogenetic study. All patients were treated appropriately according to the pathological diagnosis.

CONCLUSIONS: LESS biopsy for RTUO is a safe and effective alternative to open surgical and standard laparoscopic biopsies. Further studies of clinical experience are needed to confirm the benefits of this new technique.

Source of Funding: none

MP24-21 PRELIMINARY EXPERIENCE WITH TRANSPERITONEAL LAPAROSCOPIC SINGLE-SITE RADICAL NEPHRECTOMY USING A HOME-MADE SINGLE-PORT DEVICE IN CHINA

Bi Hai*, Ma Lu-lin, Hou Xiao-fei, Beijing, China. People’s Republic of China, University of Chinese Academy of Science

INTRODUCTION AND OBJECTIVES: To present our preliminary experience with transperitoneal laparoscopic single-site (LESS) radical nephrectomy (RN) using a home-made single-port device in China.

METHODS: From July 2010 to November 2011, eleven patients with renal tumor not greater than T2 underwent LESS-RN by an experienced laparoscopic surgeon. A home-made single-port device was used through a 5-cm umbilical incision. A combination of standard and articulating laparoscopic instruments was used. The sequence of steps of LESS-RN was similar to transperitoneal laparoscopic RN. Patient characteristics, perioperative variables and postoperative outcomes were recorded and analyzed.

RESULTS: Except for two transperitoneal laparoscopic conversions and one hand-assisted laparoscopic conversion, the other procedures were completed successfully, without conversion to open surgery. The mean operative time was 224.5 (155–297) minutes, estimated blood loss 270.9 (50–900) ml, and hospital stay 10.4 (5–15) days. The mean visual analogue pain scale (VAPS) on the first postoperative day was 4.0/10. Final pathological analysis revealed renal cell carcinoma in all cases with a stage distribution of 1 case of T1a, 4 case of T1b, and 5 case of T2a tumors. With the mean follow-up period of 21.4 (12–28) months, all patients were alive without evidence of tumor recurrence or metastasis, and were satisfied with the appearance of the scars.

CONCLUSIONS: Transperitoneal LESS-RN using a home-made single-port device is technically feasible and safe in a selected group of patients (low BMI and stage tumor) and has excellent cosmetic results. Although preliminary oncologic outcome isn’t compromised, the long-term evaluation of these patients awaits.

Source of Funding: none

MP24-22 PURE LAPAROENDOSCOPIC SINGLE-SITE RETROPERITONEOSCOPIC ADRENALECTOMY: TECHNIQUE AND EARLY OUTCOMES

Gang Zhu*, Shengjie Liu, Ya qun Zhang, Pengjie Wu, Jianlong Wang, Hong Ma, Ben Wan, Jianye Wang, Beijing, China. People’s Republic of China

INTRODUCTION AND OBJECTIVES: To verify the safety and feasibility of applying pure retroperitoneal approach laparoscopic single-site adrenalectomy (LESS-A) in the treatment of adrenal gland tumors.

METHODS: From October 2009 to February 2013, fifteen patients accepted LESS-A through retroperitoneal approach in our institute for the treatment of adrenal tumors. In LESS-A, a Quadport device was placed through a 3.0-to 3.5-cm transverse skin incision below 12th rib tip into retroperitoneal space. The LESS-A was preformed by using 0,a lens 5 mm flexible tip video-laparoscope and conventional laparoscopic instruments. We evaluated this technique in terms of operative time, estimated blood loss, perioperative complications, drainage time, post-operative pain score (VAPS, 0–10) and pathological results.

RESULTS: The 15 procedures in this group were completed successfully with LESS-A. There was no additional trocar added, no conversion to conventional laparoscopic or open surgery. Application of Quadport reduced the instrument clash, both intracorporally and extracorporally. The average operative time were 86.3 (60–155) min, average estimated blood loss were 38 (5–200) ml. There was no severe peri-operative complication. The average VAPS in the first post-operative day was 1.8 (1–3). The average drainage time was 1.7 (1–3) d, post-operative hospital day was 3.8 (2–6) d. There was no secondary bleeding or wound infection. Pathological results showed 1 case of adrenal pheochromocytoma, 11 cases of adrenal cortical adenoma, 1 case of adrenal myelolipoma, 1 case of adrenal cortical nodular hyperplasia and 1 case of adrenal cyst.

CONCLUSIONS: The retroperitoneal approach LESS-A is feasible and safe. It offers a superior cosmetic outcomes and short convalescence, albeit with a longer operative time than conventional laparoscopic adrenalectomy.

Source of Funding: none

MP24-23 OPTIMAL INSTRUMENT LENGTH FOR TRANSMULLIBAL LAPARO-ENDOSCOPIC SINGLE SITE (LESS) SURGERY

Justin Houman*, Scott Tobis, Changyong Feng, Vikram Dogra, Guan Wu, Rochester, NY

INTRODUCTION AND OBJECTIVES: The use of traditional multi-port instrumentation in transumbilical LESS surgery often limits surgeon’s ability to manipulate within the desired field. In this series, we attempt to quantify the distance between the umbilicus and the following: xyphoid process, superior aspect of spleen, gallbladder neck, bifurcation of descending aorta, left and right adrenal glands, left and right superior poles of kidneys, suprapubic margin, and apex of the prostate. In doing so, this will help in the design of robotic and laparoscopic instrumentation that is better suited for LESS surgery.

METHODS: In December 2012, abdominal and pelvic CT scans from 100 consecutive patients (50 males and 50 females) at our institution were obtained. The distance from the umbilicus to an intra-abdominal point of interest was calculated using two triangles, triangle ABD (dark grey) and BCD (light grey). Point A1 represents the position of umbilicus without pneumoperitoneum, and Point A represents the position of the umbilicus displaced after insufflation. At 15 mmHg the distance between these two points is an average of 6 cm. Point A to D is the distance between the umbilicus to an intra-abdominal point of interest. We used patient abdominal and pelvic CT scans to measure distances between A1 and B, B and C, C and D. As in Figure 1, based on Pythagorean’s theorem \(c^2 = a^2 + b^2\), we calculated BD based on BC and DC, then calculated AD based on BD and AB.
RESULTS: Statistical analysis of umbilicus to organ distances is listed in Table 1.

CONCLUSIONS: The described calculations for measuring intra-abdominal distances provide surgeons with an accurate method to calculate the necessary instrument length prior to transumbilical LESS surgery. In our study population, we found that increasing the instrument’s working length to 35 cm would be sufficient for all of our patients to be able to undergo transumbilical LESS surgery to the measured points of interest.

Source of Funding: none

MP24-24 LAPAROENDOSCOPIC SIMULTANEOUS DRAINAGE OF INTRAABDOMINAL ABSCESS AND PERITONEAL DIALYSIS CATHETER INSERTION

Thomas Y. Hsueh*, Yi-Shen Lin, Allen W. Chiu, Taipei, Taiwan

INTRODUCTION AND OBJECTIVES: A 68 years old male presented to our clinic due to umbilical cellulitis with abscess formation he was a case of liver cirrhosis with massive ascites and about 1500 ml ascites was drained everyday. The patient was also a case of chronic renal failure under regular hemodialysis. Leukocytosis was noted and peritoneal sign was developed during hospitalization. Abdominal ultrasound-guided tapping showed turbid fluid with elevated white blood cell counts.

METHODS: Laparoendoscopic single site surgery was conducted for this patient. Under general anesthesia, the patient was put in supine position and excision the umbilicus to remove original infectious site was done. Laparoendoscopic single site drainage of intraabdominal abscess was performed and the abdominal cavity was irrigated with copious amounts of normal saline. Simultaneous insertion of peritoneal dialysis catheter was performed for peritoneal dialysis and drainage of massive ascites due to liver cirrhosis.

RESULTS: Total operative time was 65 minutes. Tital blood loss was 30 ml. Total drained ascites with pus was 9600 ml. The patient received intravenous antibiotics use for 14 days after operation. Convalescence was uneventful and he was discharged under stable condition.

CONCLUSIONS: Laparoendoscopic single site surgery was first reported in Urology in 2007. Various procedures were reported in the past 5 years ranging from benign to malignant disease and from destructive to reconstructive procedures. To our knowledge, there was no previous reports regarding the application of laparoendoscopic single site surgery in intraabdominal abscess drainage. In our preliminary experience, the application of laparoendoscopic single site surgery might be one of the treatment options for selected patients requiring intraabdominal abscess drainage with simultaneous peritoneal dialysis catheter insertion.

Source of Funding: None

MP24-25 LONGTERM RESULTS AFTER TWELVE YEARS OF RETROPERITONEOSCOPIC PYELOPLASTY FOR THE TREATMENT OF URETEROPELVIC JUNCTION OBSTRUCTION

Svetozar Subotic, Armin Halla*, Antje Feicke, Georg Müller, Basel, Switzerland, Thomas Gasser, Liestal, Switzerland, Stephen Wyler, Alexander Bachmann, Basel, Switzerland

INTRODUCTION AND OBJECTIVES: To evaluate our results after 12 years of experience with retroperitoneoscopic pyeloplasty.

METHODS: From July 2001 to July 2013 retroperitoneoscopic pyeloplasty was performed in 139 patients with ureteropelvic junction obstruction. The average age was 44 years (range 15 to 86) with 84 (60.4 %) females and 55 males. An Anderson-Hynes pyeloplasty was performed in 134 patients (96.4 %), a Fenger technique was performed in 5 cases (3.6 %). The mean follow-up time was 45 months (range 1 to 136).

RESULTS: The mean operation time was 147 min (55- 360) with a mean blood loss of 83 cc (30- 600). In 3 cases (2.2 %) conversion to open surgery was necessary because of severe fibrosis or adhesions. The transurethral catheter was removed after 4.13 days (1-18) and the patients were discharged after 8 days (4- 39). Post-operative complications were registered in 15 patients (11.4 %) with grade I (n=1; 0.7 %), II (n=7; 5.0 %) and IIIb (n=7; 5.0 %) in the Clavien-Dindo classification. The overall success rate was 93.5%. Nine patients (6.5 %) had ureteropelvic junction re-obstruction after an average time of 23.1 months (1- 118). These were successfully treated with an endopyelotomy, open pyeloplasty and retroperitoneoscopic redo-pyeloplasty.

CONCLUSIONS: Retroperitoneoscopic pyeloplasty is a safe and effective operation technique with low morbidity that provides excellent long-term results.

Source of Funding: none
MP25-01 UTILIZATION AND OUTCOMES OF PEDIATRIC PYELOPLASTY
Stacey Carter*, Lorna Kwon, Jim Hu, Los Angeles, CA

INTRODUCTION AND OBJECTIVES: Robotic assistance is gaining popularity among pediatric surgeons; however, uses, indications, and outcomes on a population level remain unknown. Our objective is to perform a comparative effectiveness study of commonly performed pediatric robotic surgeries using Kid’s Inpatient Database (KID), a nationally representative inpatient sample from 44 states with public and private payors.

METHODS: We identified 1,126 subjects who underwent robotic-assisted surgery during 2009 using the International Classification for Disease, 9th edition procedure code 17.4x. 42% were pyeloplasties, the most commonly performed robotic procedure, while 33% were miscellaneous Urologic procedures. We constructed regression models to determine factors associated with robotic vs. open and laparoscopic approaches and modeled factors associated with inpatient complications, length of stay (LoS), and costs.

RESULTS: Open vs. robotic-assisted and laparoscopic pyeloplasty was associated with younger age ($p < 0.001$), female gender ($p = 0.002$), non-white race ($p < 0.001$), fewer comorbidities ($p = 0.003$), lower income ($p = 0.02$), absence of private insurance ($p < 0.001$) and teaching hospitals ($p = 0.009$). No pyeloplasty mortalities were observed. In unadjusted analyses, open pyeloplasty was associated with more complications compared to robotic and laparoscopic approaches (14% vs. 8% vs. 7%, $p = 0.030$). Less than 1% of pyeloplasties required transfusion, and this did not vary by approach ($p = 0.752$). LoS was longest for open followed by laparoscopic and robotic approaches (Mean ± standard deviation 2.8 ± 0.2 vs. 2.4 ± 0.3 vs. 1.9 ± 0.1, $p < 0.001$). In adjusted analyses, robotic (–0.68 ± 0.15, $p < 0.01$) vs open approach was associated with shorter LoS but greater costs (robotic PE $–$2112 ± $–$782, $p = 0.03$). Costs were lower in non-teaching hospitals (PE–$1869 ± $874, $p = 0.03$).

CONCLUSIONS: Robotic assistance for pediatric surgery is used most commonly used for pyeloplasty, and also for various other procedures. Racial and socio-economic disparities exist in access to its use compared to laparoscopic and open approaches. While surgical approach did not affect complications or transfusions, children undergoing robotic and laparoscopic pyeloplasty experienced shorter LoS but greater costs in excess of $1300.

Source of Funding: none

Kid’s Inpatient Database Weighted Unadjusted Rates of Complications, Total Costs, Patient, and Hospital Characteristics

<table>
<thead>
<tr>
<th></th>
<th>RALS</th>
<th>LS</th>
<th>OS</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Complication</td>
<td>40</td>
<td>8%</td>
<td>6%</td>
<td>351 14%</td>
</tr>
<tr>
<td>Length of Stay in days, mean (SE)</td>
<td>3.52 (0.07)</td>
<td>2.44 (0.21)</td>
<td>2.79 (0.16)</td>
<td>$&lt; 0.0001$</td>
</tr>
<tr>
<td>Total Cost, mean (SE)</td>
<td>$12,601 (176)</td>
<td>$14,592 (124)</td>
<td>$10,181 (450)</td>
<td>0.0126</td>
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Age

<table>
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<tr>
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<th>RALS</th>
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<tbody>
<tr>
<td>0–12 months</td>
<td>19</td>
<td>2%</td>
<td>8%</td>
<td>3% 79%</td>
</tr>
<tr>
<td>1–5 years</td>
<td>46</td>
<td>10%</td>
<td>5%</td>
<td>60% 2%</td>
</tr>
<tr>
<td>6–8 years</td>
<td>83</td>
<td>18%</td>
<td>23%</td>
<td>36% 15%</td>
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<tr>
<td>9–13 years</td>
<td>89</td>
<td>17%</td>
<td>17%</td>
<td>23% 10%</td>
</tr>
<tr>
<td>14–20 years</td>
<td>248</td>
<td>53%</td>
<td>49%</td>
<td>32% 14%</td>
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Gender

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<th>RALS</th>
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<tbody>
<tr>
<td>Female</td>
<td>293</td>
<td>63%</td>
<td>71%</td>
<td>80% 71%</td>
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<tr>
<td>Male</td>
<td>172</td>
<td>37%</td>
<td>18%</td>
<td>20% 79%</td>
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Race

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<tr>
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<tbody>
<tr>
<td>White</td>
<td>206</td>
<td>78%</td>
<td>55%</td>
<td>78% 62%</td>
</tr>
<tr>
<td>Non-white</td>
<td>83</td>
<td>22%</td>
<td>16%</td>
<td>22% 38%</td>
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Primary Payer

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<th>RALS</th>
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<tr>
<td>Private Insurance</td>
<td>352</td>
<td>75%</td>
<td>60%</td>
<td>67% 1429 57%</td>
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<tr>
<td>Not Private Insurance</td>
<td>115</td>
<td>25%</td>
<td>25%</td>
<td>33% 1082 43%</td>
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Zip Code

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<tr>
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<th>RALS</th>
<th>LS</th>
<th>OS</th>
<th>P Value</th>
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<tbody>
<tr>
<td>1st (lowest quartile)</td>
<td>78</td>
<td>17%</td>
<td>16%</td>
<td>18% 54%</td>
</tr>
<tr>
<td>2nd</td>
<td>95</td>
<td>21%</td>
<td>17%</td>
<td>20% 64%</td>
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<tr>
<td>3rd</td>
<td>131</td>
<td>28%</td>
<td>21%</td>
<td>25% 65%</td>
</tr>
<tr>
<td>4th</td>
<td>156</td>
<td>34%</td>
<td>32%</td>
<td>37% 63%</td>
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Hospital Type

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<tr>
<td>Urban Teaching</td>
<td>363</td>
<td>89%</td>
<td>72%</td>
<td>89% 197 89%</td>
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<tr>
<td>Rural, non-teaching</td>
<td>93</td>
<td>20%</td>
<td>9%</td>
<td>11% 252 11%</td>
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Hospital Volume

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<tr>
<td>High</td>
<td>362</td>
<td>77%</td>
<td>77%</td>
<td>87% 2350 90%</td>
</tr>
<tr>
<td>Low/Intermediate</td>
<td>108</td>
<td>23%</td>
<td>11%</td>
<td>26% 121 10%</td>
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Comorbidity

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<th>RALS</th>
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<tbody>
<tr>
<td>None</td>
<td>392</td>
<td>83%</td>
<td>77%</td>
<td>86% 2160 90%</td>
</tr>
<tr>
<td>1 or more</td>
<td>78</td>
<td>17%</td>
<td>12%</td>
<td>14% 250 10%</td>
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MP25-02 MINI PCNL IN PAEDIATRIC UROLITHIASIS
Jitendra Amlani*, Deepak Rajyaguru, Aswin Gami, Rajkot, India

INTRODUCTION AND OBJECTIVES: In India there is high prevalence of urolithiasis in our region. PCNL is an established treatment used in children with renal calculi. This study was undertaken to assess the safety and efficiency of minimally invasive percutaneous nephrolithotomy (MINI PCNL) using Miniature Nephroscope and Pneumatic lithotripter in pediatric kidney calculi.

METHODS: We studied 42 renal units in 37 patients of pediatric urolithiasis [age between 6 month to 15 years] treated by MINI PCNL were retrospectively analysed between march 2008 to may 2013 who were treated at the three different departments. The average stone burden was 1.9 cm [range 09 mm to 2.9 cm]. The commenest presenting feature were urinary tract infection, pain and hematuria.all urinary calculi were confirmed by ultrasonography and spiral CT scan. The MINI PCNL was performed with an X-ray guided puncture. Minimal tract dilatation was done upto 16 fr. Initially we used ureteroscope and lithoclast later on we used miniature nephroscope and lithoclast. We reviewed
operative time, Hb drop, stone clearance & complications. Follow up X-ray was done in all cases to check stone clearance.

RESULTS: Thirty seven cases [42 renal] underwent MINI PCNL. The procedure was done primary via single puncture in 38 cases and secondary using preexisting nephrostomy tract in 4 cases.16 Fr access amplatz sheath was used. Stones were fragmented with pneumatic lithoclast and stones fragment were irrigated or removed by grasping forceps. Operative time ranged from 20 min to 70 mini. Bleeding amount range from 30 to 50 ml. None of the patients required blood transfusion. The nephrostomy was kept initially in all patients. now in last 18 cases tubeless MINI PCNL was done. D.J. Stent was kept in 80% of cases. No major complications were found.

The midian length of hospital stay was 2.5 days. Complete clearance was achieved was 91.5 %with MINI PCNL monotherapy in immediate postoperative period.5% patients with fragment less than 5 mm cleared at 3 month follow up. Patients were followed up till 2 years.

CONCLUSIONS: MINI PCNL is safe and effective treatment for pediatric urolithiasis. It can be performed in single stage. Even complex staghorn calculi can be tackled with this approach with good clearance.

Source of Funding: none

**MP25-03**

**NATURAL HISTORY OF HYDRONEPHROSIS AFTER ROBOTIC EXTRAVESICAL URETERAL REIMPLANTATION IN CHILDREN**

Dennis Lee, Leo Dalag, Mukil Patil, Roger De Filippo, Andy Chang, Los Angeles, CA, Chester Koh*, Houston, TX

**INTRODUCTION AND OBJECTIVES:** Robotic surgery in children is an expanding minimally invasive alternative to open surgery in children, such as for the surgical management of vesicoureteral reflux (VUR) via extravesical ureteral reimplantation. While the reported incidence of hydronephrosis after open reimplantation surgery is low, the natural history of hydronephrosis after robotic reimplantation surgery is unknown. We reviewed our experience to determine the natural history of hydronephrosis after robotic ureteral reimplantation surgery in children.

**METHODS:** 50 pediatric patients with primary VUR (38 unilateral and 12 bilateral for a total of 62 refluxing units) underwent robotic ureteral reimplantation surgery via an extravesical technique. An institutional review board-approved retrospective chart review was performed to collect patient demographic and perioperative data.

**RESULTS:** The operative success rate, defined as complete resolution of the VUR on the voiding cystourethrogram at the 4-month mark after surgery, was 95%, which is equivalent to those of historical open surgery series. No perioperative complications were noted. De novo mild to moderate hydronephrosis was noted in 18 kidney units (29%) at the 1-month mark after surgery, with a median time to resolution of 5 months (range: 3–14 months). No evidence of obstruction was identified, and no intervention was required in any of the cases.

**CONCLUSIONS:** Robotic ureteral reimplantation surgery in children is associated with high success rates and low complication rates that appear to be equivalent to those of open reimplantation surgery. De novo hydronephrosis can occur after robotic ureteral reimplantation surgery similar to open surgery; however, the hydronephrosis appears to have a temporary and self-limited natural history without the need for intervention.

Source of Funding: none

**MP25-04**

**A LEVEL ONE TRAUMA CENTER REVIEW OF PEDIATRIC RENAL TRAUMA**

Katherine Rotker*, Liza Aguiar, Kennon Miller, Pamela Ellsworth, Jeremy Aidlen, Anthony Caldamone, Providence, RI

**INTRODUCTION AND OBJECTIVES:** Little data or consensus exists on the follow-up management of pediatric renal trauma patients. Our objective was to review our renal trauma experience in order to create a follow-up plan for pediatric renal trauma patients.

**METHODS:** The records of 24 pediatric patients with the diagnosis of renal trauma between the years 2009–2012 were reviewed. All renal injuries were staged by CT with delayed IV contrast films. All patients had ultrasound imaging at 1 month post-injury. Patients with persistent perinephric hematoma on ultrasound had a repeat ultrasound at q3 month intervals until resolution. Urinalyses were performed at follow-up visits.

**RESULTS:** Twenty-four patients (ages 6 wks–17 yrs, median age = 15 yrs) with the diagnosis of renal trauma were identified. Three were excluded due to loss of follow-up. Of the 21 patients included in this study, 2 had grade 1 renal lacerations (10%), 4 grade 2 (19%), 8 grade 3 (38%), 6 grade 4 (29%), and 1 grade 5 (5%). Twenty renal lacerations were due to blunt injury and 1 to penetrating injury. Concurrent injuries were present in 13/21 patients (62%). All patients with grade 4 and 5 injuries presented with gross hematuria. Thirty six percent of patients with grade 1–3 injuries had a negative urinalysis, without microscopic hematuria. Of the patients with grade 4 and 5 injuries, 4/7 required intervention (57%), with 2 requiring stent placement and 2 requiring angio-embolization. No grade 1–3 injuries required intervention. Of the 14 patients with grades 1–3 injuries, 11 (79%) had no evidence of perinephric hematoma on ultrasound imaging at 1 month. The remaining 3 patients had resolution at 3 months, all of which were grade 3 injuries. All patients with grade 1–2 injuries had normal ultrasound findings at 1 month. Of the 7 patients with grade 4–5 injuries, 6 (86%) had persistent perinephric hematoma at 1 month, 5 of which resolved by 3 months. One patient had a persistent perinephric hematoma until 9 month follow-up. All microscopic hematuria resolved prior to or at the time of resolution of ultrasound findings.

**CONCLUSIONS:** No patients required surgical exploration due to kidney injury, although a significant number of grade 4–5 injuries (57%) required stenting or angio-embolization. We propose a follow-up plan for pediatric renal trauma patients which includes a 1-month follow-up ultrasound and urinalysis for patients with grade 3 injuries and a 3-month follow-up ultrasound and urinalysis for patients with grade 4–5 injuries. Considering there were no grade 1–2 injury patients with abnormalities on 1 mo follow-up ultrasound, we do not find it necessary to re-image these patients.

Source of Funding: None

**MP25-05**

**EXPERIENCE WITH ENDOSCOPIC INJECTION OF NONANIMAL DEXTRANOMER/HYALURONIC ACID WITH SMALLER DIAMETER MICROSPHERES (80–120 MICRON) IN THE TREATMENT OF PRIMARY VUR AND A MULTIVARIATE ANALYSIS OF FACTORS FOR FAILURE**

Yigit Akin*, Erzincan, Turkey, Erol Gunetkin, Mehmet Baykara, Selcuk Yucel, Antalya, Turkey

**INTRODUCTION AND OBJECTIVES:** We investigated the resolution rate of primary vesicoureteral reflux (VUR) following
INTRODUCTION AND OBJECTIVES:

Cairo, Egypt
Mohamed El Shiemy, Ahmed Shokry, Mohamed Eissa, Waseem Aboul Ela*, Hani Morsi, Ahmed Shoman, CYSTOLITHOTRIPSY IN CHILDREN From January 2010 to May 2011, we treated 33 children with vesical calculi using transurethral Ho: YAG laser lithotripsy. The treatment options currently available include open surgery, transurethral pneumatic cystolithotripsy, percutaneous suprapubic cystolithotomy and shockwave lithotripsy (SWL). Holmium: YAG (Ho: YAG) laser cystolithotripsy represents a novel modality of treatment that is minimally invasive. We had 8 (4.6%) children with postop fUTI following endoscopic correction. Multivariate analysis showed that gender, age, VUR grade, dysfunctional voiding, renal scar and injected volume were not effecting the success rate but only postoperative fUTIs were significantly associated with failures (p < 0.0001). Multivariate analysis also showed that only renal scars were significantly associated with postoperative fUTI (p = 0.006).

CONCLUSIONS: Endoscopic injection of NA Dx/HA with smaller diameter microspheres (80–120 micron) seems to be effective for VUR correction. The only factor correlated with failed endoscopic correction of VUR was postoperative fUTI and the presence of renal scar was the only significant factor for postoperative fUTI.

Source of Funding: None

MP25-06 OUR EXPERIENCE IN HOLMIUM LASER CYSTOLITHOTRIPSY IN CHILDREN

Waseem Aboul Ela*, Hani Morsi, Ahmed Shoman, Mohamed El Shiemy, Ahmed Shokry, Mohamed Eissa, Cairo, Egypt
INTRODUCTION AND OBJECTIVES: Management of vesical calculi in children poses an interesting challenge to the urologist. The treatment options currently available include open surgery, transurethral pneumatic cystolithotripsy, percutaneous suprapubic cystolithotomy and shockwave lithotripsy (SWL). Holmium: YAG (Ho: YAG) laser cystolithotripsy represents a novel modality of treatment that is minimally invasive.

METHODS: From January 2010 to May 2011, we treated 33 children with vesical calculi using transurethral Ho: YAG laser lithotripsy. The mean stone size was 2.02 cm (range 1–4). The mean patient age was 3.75 (range 6 months–11) years. Access was obtained with a cystoscope with sheath 11 F and holmium laser energy (2.75 J/pulse at 11 Hz and power at 30 watt) was applied through a 0.73-mm end-firing fibre under video guidance. The calculi were fragmented to tiny fragments about 2–3 mm in size. An 8 F silicone urinary catheter was placed for 3 days in all patients. Post-operatively the children were evaluated at 3 and 12 months with radiological imaging and uroflowmetry to confirm stone-free status and exclude urethral stricture formation.

RESULTS: The mean duration of the endoscopic procedure was 32 (range 20–50) minutes while the length of hospital stay was 24 hours for all patients. All the children were rendered stone-free following a single operative session. Laser-induced major complications were not observed in any of the children. At the mean follow-up of 16 (range 12–24) months none of the children developed stone recurrence, urinary tract infections or urethral strictures.

CONCLUSIONS: Transurethral Ho: YAG laser lithotripsy was found to be an efficient and safe modality for the treatment of vesical calculi in children.

Source of Funding: none

MP25-07 HIDES TECHNIQUE TROCAR PLACEMENT FOR PEDIATRIC ROBOTIC PYELOPLASTY: COMPARISON TO CONVENTIONAL TROCAR PLACEMENT

Danesh Bansal, Nicholas G. Cost, Christopher M. Bean, W. Robert DeFoer, Jr., Pramod P. Reddy, Eugene A. Minevich, Brian A. VanderBrink, Paul H. Noh*, Cincinnati, OH
INTRODUCTION AND OBJECTIVES: To compare outcomes between Hidden Incision Endoscopic Surgery (HIdES) technique trocar placement and traditional port placement (TPP) for pediatric robotic pyeloplasty.

METHODS: A retrospective review was performed of all patients who underwent robotic pyeloplasty at a single pediatric institution. Patient demographics, perioperative details, and outcomes were reviewed.

RESULTS: Seventy-seven patients (38 male, 36 female) were identified. HIdES was performed in 17 patients. TPP was utilized in 60 patients. All HIdES except 1 case was performed by a single surgeon. Median age at surgery was 16.3 months (range 3.7–143.5) for HIdES and 104.7 months (range 9.9–273.7) for TPP, p < 0.001. Median weight was 11 kg (range 5.8–47.5) for HIdES and 29 kg (range 6.6–96) for TPP, p < 0.001. Median operative time was 148 minutes (range 95–234) for HIdES and 186 minutes (range 106–540) for TPP, p < 0.001. Median hospital stay was 1 day (range 0–4) for HIdES and 2 days (range 1–6) for TPP, p = 0.001. Median inpatient postoperative narcotic use of morphine equivalent, Ketorolac, and Acetaminophen use as measured in mg/kg/day was not significantly different among the 2 groups, p = 0.332, 0.060, and 0.288, respectively. Median follow-up was 11.6 months (range 2.8–21.5) for HIdES and 28.8 months (range 2.6–50.6) for TPP, p < 0.001. There were 2 (12%) surgical complications with HIdES (1 ileus and 1 urinary leak) and 2 (3%) surgical complications with TPP (1 urinary leak and 1 stent migration), p = 0.210.

CONCLUSIONS: HIdES technique for trocar placement was observed to be feasible and efficacious with significantly shorter operative times and hospital stays than TPP for pediatric robotic pyeloplasty.

Source of Funding: None

MP25-08 TREATMENT OF RENAL STONES WITH FLEXIBLE URETEROSCOPY IN PRE-SCHOOL AGE CHILDREN

Bülent Erkurt, Turhan Caskurlu, Gokhan Atis*, Cenk Gurbuz, Sabri Pelit, Ozgur Arikan, Bülent Altay, Istanbul, Turkey
INTRODUCTION AND OBJECTIVES: To evaluate the efficacy and safety of retrograde intrarenal surgery (RIRS) in the treatment of renal stones in pre-school age (<7 years) children.

METHODS: From September 2005 to May 2013, a total of 65 patients with 72 renal stones were treated with RIRS. In all patients, the procedures were performed in the lithotomy position under general anesthesia with a prophylactic antibiotic cover. Initially, a semirigid ureteroscopy was performed to maintain the ureteral dilation and to place the hydrophilic guidewires into the renal pelvis. When necessary, the ureteral orifice was dilated using balloon dilators. Under fluoroscopic guidance, an ureteral access sheath (UAS) was placed over the hydrophilic guidewire. For patients in whom the UAS failed, an f-URS was placed over the guidewire, and the procedure was performed without using the UAS. If the f-URS could not be advanced into the renal pelvis due to ureteral kinking or stenosis, a Double-J stent was inserted, and the RIRS was performed two weeks later. Pre-operative, operative and post-operative data of the patients were retrospectively analyzed.

RESULTS: A total of 65 patients with a mean age 4.31 ± 1.99 years were included in the present study. The mean stone size was 14.66 ± 6.12 mm. The mean operative time was 46.47 ± 18.27 minutes. In 5 (7.69%) patients, the initial procedure failed in reaching the renal collecting system and ended with inserting a Double-J stent. The stone-free rates were 83.07% and 92.3% after the first and second procedures, respectively. A pigtail stent was placed in all patients. Minor complications as classified Clavien I or II occurred in 16 (24.6%) patients. Ureteral perforation was noted in 2 (3%) patients and managed successfully with Double-J stent. The stone-free rates were 83.07% and 92.3% after reaching the renal collecting system and ended with inserting a Double-J stent. The stone-free rates were 83.07% and 92.3% after reaching the renal collecting system and ended with inserting a Double-J stent. The stone-free rates were 83.07% and 92.3% after reaching the renal collecting system and ended with inserting a Double-J stent. The stone-free rates were 83.07% and 92.3% after reaching the renal collecting system and ended with inserting a Double-J stent. The stone-free rates were 83.07% and 92.3% after reaching the renal collecting system and ended with inserting a Double-J stent.

CONCLUSIONS: Histotripsy can create localized and repeatable punctures in a tissue similar to a ureterocoele wall. Results suggest targeting feedback and image guidance for the procedure can be achieved with real-time B-mode ultrasound. This therapy may provide a noninvasive alternative to current surgical methods to treat ureteroceles.

Source of Funding: Work supported by NIH 2T32DK007779-11A1 and 2R01EB007643-05.

MP25-10 SMALL INCOMPLETE POSTERIOR URETHRAL VALVES

Amlesh Seth*, Rajan Gupta, Ashish Saini, Prabhjot Singh, PN Dogra, New Delhi, India

INTRODUCTION AND OBJECTIVES: Patients with congenital posterior urethral valves usually present in the neonatal period or early infancy with severe urinary tract obstruction. Unless managed aggressively they usually progress to renal failure or death. We describe a different cohort of young children who had smaller valves, less severe obstruction and better prognosis despite presenting late.

METHODS: From Jan 2007 till Jun 2012 eleven male patients in the age range of 5–15 years presented to our unit with obstructive voiding symptoms of long duration (at least 2 years) without any obvious cause. They were investigated with complete hemogram, serum biochemistry, urine analysis, creatinine clearance, abdominal ultrasonography, uroflowmetry and micturating cystourethrogram. Four of these were suspected to have posterior urethral valves. All eleven were subjected to cysto-urethroscopy under general anesthesia. Seven of these (including the four mentioned earlier) were found to have posterior urethral valves. The valves were fulgurated using a low setting (4–5 watts) of Ho:YAG laser. The remaining four were labelled as having non-neuropathic neuropathic bladder. The patients have been followed for a period of one to five years.

RESULTS: The type of valves noted in these 7 patients were smaller incomplete valves. A high bladder neck with a trabeculated bladder was seen in 6. (A short video showing the valves, the cystoscopy findings and laser fulguration of these valves would be shown.) Subjectively all seven patients/parents agreed to an improvement in voiding. Uroflowmetry improved in five. Two patients agreed to follow up MCU and one patient to pressure flow study. MCU studies showed reduction in posterior urethral dilatation in both and reduction in diverticulization in one. The follow-up pressure flow study showed a reduction in obstruction from moderate to mild.

CONCLUSIONS: The grades of obstruction due to posterior urethral valves can vary from less severe to severe. This variation is likely to be related to the size and extent of valves. Male children in the age group of 5–15 years with significant lower urinary tract obstruction should be subjected to urethrocystoscopy under general anaesthesia to rule out smaller posterior urethral valves.

Source of Funding: None
MP25-11 TRANSURETHRAL NEOURETERAL ORIFICE CREATION: A NEW TECHNIQUE FOR MANAGEMENT OF UPPER POLE HYDROURETERONEPHROSIS IN INFANTS: INITIAL EXPERIENCE

Hubert Swana*, Orlando, FL, Tariq Hakky, Tampa, FL, Mark Rich, Orlando, FL

INTRODUCTION AND OBJECTIVES: Ureteral duplication is the most common urologic anomaly. The upper pole ureter can insert ectopically and have significant hydroureteronephrosis. Patients can present with urinary tract infection, urinary obstruction or failure to thrive. Traditional surgeries include upper pole heminephroureterectomy, ureteral reimplantation, ureteroureterostomy or temporizing ureterostomy with definitive repair at a later date. We describe our early experience treating infants with a cystoscopic approach that provides intravesical drainage of the ectopic ureter without the need for open surgery or a stoma.

METHODS: Four infants presented with urinary tract infections and/or failure to thrive. Ultrasonography revealed severe upper pole hydroureteronephrosis without ureterocele in all cases. VCUG did not reveal vesicoureteral reflux or ureterocele.

Technique: Cystoscopy and transvesical needle puncture of the dilated upper pole ureter was followed by confirmatory ureteropyelography. Guidewire passage and catheter dilation allowed creation of a new ureteral orifice with either a holmium laser or resectoscope. An externalized ureteral catheter was left and removed prior to discharge. Ultrasound confirmed decompression. VCUG was repeated if a febrile urinary tract infection occurred.

RESULTS: Four infants (2 boys & 2 girls) were treated for unilateral upper pole obstruction. Three right and one left upper pole ureters were treated. Ages ranged from 6–14 weeks of age. Transurethral neoureteral orifice creation was successful in three cases. In one child retrograde studies identified crossed ureteral ectopia and therefore open distal cutaneous ureterostomy was performed. All patients tolerated the procedure well, without intraoperative complication, and were discharged after overnight observation. Average follow-up is 11.5 months (7–14 mth). Postoperative ultrasounds revealed improved hydroureteronephrosis in all. No further surgery has been required in 2 patients who remain infection-free with preserved function in the upper pole moiety. One patient developed a febrile urinary tract infection and underwent distal ureteroureterostomy after vcug demonstrated high grade vesicoureteral reflux one year after initial surgery.

CONCLUSIONS: Transurethral neo-orifice (TUNO) creation is a minimally invasive option for the treatment of ectopic duplication in infants with symptomatic upper pole ureteral obstruction. The new orifice provides internal drainage and avoids the need for open surgery or stoma.

Source of Funding: None

MP25-12 MANAGEMENT OF DISLODGED URETERAL STENT THROUGH A NEFROSCOPIC APPROACH IN A INFANT CHILD – TWO CASE REPORT AND REVIEW OF THE LITERATURE

Marino Cabrera*, Camilo Orjuela, Yair Cadena, Adolfo Serrano, Bogota, Colombia

INTRODUCTION AND OBJECTIVES: The ureteral stents are widely used in urologic surgery. The displacement or migration of these catheters is uncommon.

The aim of this study is to describe the management of two pediatric patients nefrosópico catheter displaced and literature review.

METHODS: We performed a systematic search in PubMed and a critical analysis of the literature.

We describe two clinical cases of patients undergoing open dismembered pyeloplasty plus ureteral stent due to ureteropelvic junction obstruction; in the postoperative there was a proximal migration of the stents. Extraction was attempted under fluoroscopic guidance without success.

Procedure: In prone Position. Upper calyceal puncture needle 18 G trocar nephrostomy with clear urine output; nephrostomy tract dilation to 10 Fr caliber, ureteroscope 7.5 Fr. we practiced pyeloscopy and ureteral stent removal using a grasper.

RESULTS: Procedure: In prone Position. Emphasis is placed on the heat shield. Upper calyceal puncture needle 18 G trocar nephrostomy; nephrostomy tract dilation to 10 Fr caliber, with ureteroscope 7.5 Fr. we practiced pyeloscopy and ureteral stent removal using a grasper.

CONCLUSIONS: Nefroscopic approach in handling stent dislodged in infants is a safe and effective.

Source of Funding: none

MP25-13 LAPAROSCOPIC MODIFIED BYPASS PYELOPLASTY: INITIAL EXPERIENCES

Nobuhiro Haga*, Yuichi Sato, Tomoyuki Koguchi, Junya Hata, Tomomichi Yabe, Hidenori Akaihata, Norio Takahashi, Tomohiko Yanagida, Yoshiyuki Kojima, Fukushima, Japan

INTRODUCTION AND OBJECTIVES: The ureteral stents are widely used in urologic surgery. The displacement or migration of these catheters is uncommon.
INTRODUCTION AND OBJECTIVES: Bypass pyeloplasty (BP) is a simple procedure in which the ureter and renal pelvis are not divided. Hence, BP has been considered more suitable than Anderson-Hynes dismembered pyeloplasty for laparoscopic surgery. However, mobilization of the ureter is restricted because the ureteropelvic junction (UPJ) is not removed; this represents a key disadvantage of BP performed via the laparoscopic approach. Thus, when the side-to-side anastomosis between the ureter and renal pelvis is performed in this procedure, it is difficult to suture the side of the anastomosis that is far from the camera. To overcome this disadvantage, a new technique of modified BP was developed, and the initial results are presented.

METHODS: Five consecutive patients underwent laparoscopic modified BP between June 2012 and November 2012. In BP, a 1–2 cm side-to-side anastomosis is created between the dilated and elastic portion of the ureter just distal to the UPJO and the lower and dependent portion of the hydroureteric renal pelvis without disturbing the UPJ or reducing the renal pelvis. In addition, modified BP involves dividing the UPJ after the suture of the dependent portion, facilitating easy suture of the far side of the side-to-side anastomosis.

RESULTS: The median age of the five patients at surgery was 3 years (range, 1–16 years). Their median height and weight were 106 cm (range, 72–172 cm) and 19 kg (range, 11–59 kg), respectively. All five patients (four males, one female) had left UPJO. Two presented with flank pain, and the remainder were detected on prenatal maternal sonography. The average split renal function of the diseased side with a diuretic renogram was 39.3%. Four patients had Society for Fetal Urology (SFU) grade 4, and one patient had SFU grade 1. The median operative duration was 282 minutes (range, 248–357 minutes). The anteroposterior diameter of the renal pelvis was decreased postoperatively (preoperative 31 [delta] 17 mm, postoperative 16 [delta] 16 mm).

CONCLUSIONS: Laparoscopic modified BP has two advantages compared with standard dismembered pyeloplasty. One is that prevention of rotation and kinking of the ureter due to attachment of the UPJ facilitates easy suturing of the dependent portion. The other is that lifting the restrictions of the ureter by dividing the UPJ after the suture of the dependent portion makes it easy to suture the side of the anastomosis that is far from the camera. Modified BP appears to be an efficient procedure for laparoscopic pyeloplasty.

Source of Funding: None

MP25-15 INFANT ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: COMPARISON WITH NON-INFANT COHORT

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INTRODUCTION AND OBJECTIVES: To compare outcomes for robotic assisted laparoscopic pyeloplasty (RALP) between infants and a non-infant patient population.

METHODS: A retrospective review was performed of all children who underwent unilateral dismembered RALP at a single pediatric institution from March 2009 to March 2013. Data collection included age, weight, gender, operative time, length of hospital stay, postoperative analgesics use, length of follow-up period, and complication rates.

RESULTS: A total of 77 patients (41 male, 36 female) were identified, with 9 infants and 68 non-infants. Median age was 9.2 months (3.7–11.9) for infants and 103.4 months (13.7–273.7) for non-infants, p < 0.001. Median weight was 8 kg (5.8–10.9) for infants and 27.5 kg (9–96) for non-infants, p < 0.001. Median operative time was 115 minutes (95–205) for infants and 191 minutes (106–540) for non-infants, p < 0.001. Median hospital stay was 1 day (1–2) for infants and 3 days (0–6) for non-infants, p = 0.002. There was no significant difference between patients who received intraoperative regional anesthesia (infants 0% vs. non-infants 17.6%), p = 0.34. Median postoperative narcotic use of morphine equivalent was < 0.01 mg/kg/day (0–0.1) for infants and 0.07 mg/kg/day (0–0.4) for non-infants, p = 0.001. Median postoperative Ketorolac use was 0.5 mg/kg/day (0–1.1) for infants and 0.29 mg/kg/day (0–2.7) for non-infants, p = 0.437. Median postoperative Acetaminophen use was 21.7 mg/kg/day (10–55.9) for infants and 8.2 mg/kg/day (4–47.7) for non-infants, p = 0.003. Median follow-up was 12.1 months (9.3–19.9) for infants and 25.8 months (2.6–50.7) for non-infants, p = 0.026. The complication rate was 22% (2/9) for infants (ileus and urinary leak) and 4% (3/68) for non-infants (ileus, port site infection, and stent migration), p = 0.101. The success rate was 89% (8/9) for infants and 100% (68/68) for non-infants, p = 0.117.

Source of Funding: None

MP25-14 INFANT ROBOTIC PYELOPLASTY: INITIAL EXPERIENCE AND COMPARISON WITH AN OPEN COHORT


INTRODUCTION AND OBJECTIVES: To present our experience with infant pyeloplasty, comparing outcomes between robotic assisted laparoscopic pyeloplasty (RALP) and open pyeloplasty (OP).

METHODS: A retrospective review was performed of all children under 1 year of age who underwent unilateral dismembered pyeloplasty at a single pediatric institution since January 2007. Patients with standard laparoscopic pyeloplasty were excluded. Data collected included age, weight, gender, operative time, length of hospital stay, analgesics, complications, and length of follow-up period.

RESULTS: A total of 70 infants (51 male, 19 female) were identified, with 9 RALP and 61 OP performed. Median age was 9.2 mo (3.7–11.9) for RALP and 4.1 mo (1–11.6) for OP, p = 0.005. Median weight was 8 kg (5.8–10.9) for RALP and 7 kg (4–14) for OP, p = 0.163. Median operative time was 115 min (95–205) for RALP and 166 min (79–300) for OP, p = 0.028. Median hospital stay was 1 day (1–2) for RALP and 3 days (1–7) for OP, p < 0.001. Median postoperative narcotic use of morphine equivalent was < 0.01 mg/kg/day (0–0.1) for RALP and 0.05 mg/kg/day (0–2.2) for OP, p < 0.001. Median postoperative Ketorolac use was 0.5 mg/kg/day (0–1.1) for RALP and < 0.01 mg/kg/day (0–1.1) for OP, p < 0.001. More patients undergoing OP received intraoperative regional anesthesia (RALP 0% vs. OP 65%), p < 0.001. Median follow-up was 12.1 mo (9.3–19.9) for RALP and 44.7 mo (5.0–76.9) for OP, p < 0.001. The success rate was 89% (8/9) for RALP and 98% (60/61) for OP. There were 22% (2/9) surgical complications with RALP (1 ileus and 1 urinary leak) and 7% (4/61) surgical complications with OP (1 ileus, 1 stent migration, 1 catheter dislodgement and occlusion, and 1 urinary leak), p = 0.168.

Source of Funding: None
CONCLUSIONS: Infant RALP was observed to be feasible and efficacious with significantly shorter operative times, hospital stay, and narcotic utilization than non-infant RALP.

Source of Funding: None

MP25-16 LEARNING CURVES FOR PEDIATRIC ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: A SINGLE PEDIATRIC INSTITUTION EXPERIENCE

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INTRODUCTION AND OBJECTIVES: To determine if there is a significant difference in the learning curve for pediatric urology fellows and faculty when performing robotic assisted laparoscopic pyeloplasty.

METHODS: A retrospective review was performed of all robotic pyeloplasty procedures at a single pediatric institution from the start of the robotic surgery program in February 2009 to December 2012. No faculty had experience with robotics during residency or fellowship training. Two attendings (AA, AB) had prior experience and one attending (AC) had no experience with laparoscopic pyeloplasty. AA mentored AB and AC. Fellows (FA 175 cases, FB 20 cases) had experience with robotics during training prior to pediatric urology fellowship. Operative time was used as an indicator of proficiency in performing the procedure and recorded as the start to finish based on anesthesia records. The Wilcoxon-Mann Whitney test was used to compare median operative times for 3 attendings and 2 fellows.

RESULTS: Sixty-five cases were performed (AA 38, AB 19, AC 8, FA 12, FB 6). Median operative times (minutes) were 200 for AA, 180 for AB, 288 for AC, 173 for FA, and 247 for FB. Statistical difference was found between FA and FB (P = 0.008), AA and AC (P = 0.009), FB and AA (P = 0.017), FB and AB (P = 0.012), AA and AC (P = 0.009), AB and AC (P = 0.016).

CONCLUSIONS: Operative times were shorter for faculty with previous experience with laparoscopic pyeloplasty. FA was more proficient than AC and FB due to extensive prior experience with robotic surgery.

Source of Funding: None

MP25-17 EFFECTS OF ACETYL SALICYLIC ACID ON SYMPTOMS RELATED TO THE SYNDROME NUTCRACKER

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INTRODUCTION AND OBJECTIVES: The purpose of this study was to compare the relative efficacy of acetylsalicylic acid (ASA) for the treatment of pain and hematuria and fatigue related to syndrome Nutcrakker.

METHODS: comparative study colligate 26 patients with syndrome Nutracker with left lumbar pain, fatigue and intermittent gross hematuria or microscopic. Patients aged between 18 and 33 years were randomly assigned to two treatment groups. The first group (13 patients) was the control group received paracetamol with sitting for 4 weeks. The second group (13 patients), which is the study group received aspirin (500 mg once daily) for 4 weeks. Patients were evaluated at the beginning and end of each phase with the scale of severity of fatigue and pain, and on the existence of gross or microscopic hematuria.

RESULTS: Aspirin associated with reduced effort during symptomatic periods Nutcracker syndrome has led to a significant improvement of the various parameters.

CONCLUSIONS: this study demonstrates that aspirin significantly reduces fatigue, pain and hematuria related syndrome nutcraker during symptomatically without any adverse effects.

Source of Funding: none

MP25-18 COMPARISON OF CHILDREN VERSUS ADULTS UNDERGOING MINI-PERCUTANEOUS NEPHROLITHOTOMY: LARGE-SCALE ANALYSIS OF A SINGLE INSTITUTION

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INTRODUCTION AND OBJECTIVES: As almost any version of percutaneous nephrolithotomy (PCNL) was safely and efficiently applied for adults as well as children without age being a limiting risk factor, the aim of the study was to compare the different characteristics as well as the efficacy, outcome, and safety of the pediatric and adult patients who had undergone mini-PCNL (MPCNL) in a single institution.

METHODS: We retrospective reviewed 331 renal units in children and 8537 renal units in adults that had undergone MPCNL for upper urinary tract stones between the years of 2000–2012. The safety, efficacy, and outcome were analyzed and compared.

RESULTS: The children had a smaller stone size (2.3 vs. 3.1 cm) but had similar stone distribution (number and locations). The children required fewer percutaneous accesses, smaller nephrostomy tract, shorter operative time and less hemoglobin drop. The children also had higher initial stone free rate (SFR) (80.4% vs. 78.6%) after single session of MPCNL (p < 0.05); but no difference was noted in the final SFR (94.7% vs. 93.5%) after auxiliary procedures. The complication rate (15.6% vs. 16.3%) and blood transfusion rate (3.1% vs. 2.9%) were similar in both group (p > 0.05). Both groups had low rate of high grade Clavien complications. There was no grade III, IV, V complications and no angiographic embolization required in pediatric group. One important caveat, children who required multiple percutaneous nephrostomy tracts had significant higher transfusion rate than in adults (18.8% vs. 4.5%, p = 0.007).

CONCLUSIONS: This contemporary largest-scale analysis confirms that the stone-free rate in pediatric patients is at least as good as in adults without an increase of complication rates. However, multiple percutaneous nephrostomy tracts should be practiced with caution in children.

Source of Funding: none

MP25-19 EFFECTIVENESS OF PENILE BLOCK WITH BUPIVACAINE DURING CIRCUMCISION IN CHILDREN: A COMPARATIVE STUDY

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INTRODUCTION AND OBJECTIVES: Evaluation of the effectiveness of penile block with bupivacaine to prevent pain intraoperative and postoperative during circumcision.

METHODS: 24 boys aged 2 to 6 years, who underwent circumcision in general anesthesia were included in our work, over a period of 12 months spanning from June 2011 to June 2012.
These children were randomized to have just after induction of anesthesia, a block penis with bupivacaine 0.25% (group I: GI) is an intravenous injection of fantanyl (2µg/kg) associated with paracetamol (group II: GII).

The efficacy of intraprostatic analgesia was estimated based on heart rate and Changes in blood pressure.

Postoperative pain is estimated to post anesthetic care unit, by anesthetists and parents in the next 24 hours. The quality of analgesia was estimated on postoperative activity and mobilization of children. The quantity and schedule of administration of paracetamol were evaluated postoperatively.

RESULTS: In the GI, it was noted cardiovascular stability and recovery significantly faster, with duration of postoperative analgesia without a longer statistical significance (p > 0.05).

The first analgesic request was earlier in the GI.

No complications were noted in both groups.

CONCLUSIONS: The penile block with bupivacaine devoid of serious complications allowed prolonged analgesia, reduced consumption of analgesics, and ambulation Quick children.

Source of Funding: NONE

MP25-20 HOLMIUM LASER ENucleation of the PROSTATE (HOLEP) BEFORE HIGH-INTENSITY FOCUSED ULTRASound (HIFU) FOR THE PROSTATE CANcer TREATMENT: OUR EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Nowadays HIFU is an alternative treatment for localized prostate cancer (PCa). It’s an option for patients of advanced age, in the low or intermediate-risk groups, and with a life expectancy of 10 years.

Looking at the meta-analysis studies concerning HIFU the bladder neck obstruction (BNO) is the most frequent side effect (25–30 %). This is related to the effects of HIFU on residual adenoma after endoscopic surgery. The rate of BNO is significantly lower compared to the greater volume of resected tissue by Trans urethral prostate resection (TURP) before HIFU.

The goal of this study is to analyze the BNO rate using HOLEP pre-HIFU (H.H.)

METHODS: From June 2010 to March 2013 we treated 47 patients with local PCa with H.H. Between the HOLEP and HIFU treatment we waited minimum 30 days.

We performed to all patients International Prostate Symptom Score (IPSS) test and uroflowmetry before surgery and after six months. We considered the criteria listed below:

Inclusion criteria:
- 70 years < patient age < 76 years, 40 cc < adenoma volume < 120 cc, clinical stage (T1–T2), Gleason Score (G.S.) < 7 (3+4), PSA < 20.

Exclusion criteria:
- 70 years > patient age > 76 years, 40 cc < adenoma volume > 120 cc, clinical stage > T2, G.S. > 7 (4+3), PSA > 20.
- Anal stenosis, previous rectal surgery, coxofemoral anhidrosis.
- We tested PSA, urine analysis and culture every three months during the first year after H.H. PSA every six month after one year.

RESULTS: Pre-operative medium IPPS: 15
- Pre-operative medium maximum flow (Medium Q max): 13 ml/sec.
- Medium catheterization time after HOLEP was 32 hours and 2.4 days after HIFU.
- We didn’t report mayor complications.

Minor complications after H.H.: Post-operative Urinary infections (10%), penis urethral stenosis (2.1%), urge urinary incontinence after three months (1 pad /day) 13%, low grade stress incontinence after three months (1 pad /die) 7%.

No cases of new endoscopic surgery.

Medium volume of adenoma enucleated: 67 cc.

IPPS medium after six months: 11

Medium Q Max: 17 ml/sec

CONCLUSIONS: HIFU is a mini invasive treatment of PCa in patient with low and intermediate tumor risk. Generally a TURP is performed before HIFU. Looking at our experience HOLEP is a good alternative to TURP because reduces the BNO rate. It’s mini-invasive although in case of big adenoma volume and, at least, improves obstructive symptoms.

Source of Funding: “none”

MP25-21 SIMPLE TECHNIQUE FOR NON-INVASIVE REMOVAL OF URETERAL STENT IN RENAL TRANSPLANT RECIPIENTS: COMPARISON WITH CONVENTIONAL CYSTOSCOPIC REMOVAL

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INTRODUCTION AND OBJECTIVES: Using ureteral stent at the time of kidney transplantation significantly decreases early urologic complication such as urinary tract obstruction, anastomosis site urine leakage. However, removal of ureteral stent related complications such as urinary tract infection, pain by cystoscopic removal also can be present. Herein we have analyzed the comparison conventional cystoscopic removal of ureteral stent with retrieval of ureteral stent by suturing of urethral catheter.

METHODS: Between March, 2008 and March, 2013, we evaluated 34 patient who were underwent kidney transplantation. Among these patients, 18 patients were underwent deceased donor kidney transplantation, and 16 patients were underwent living donor kidney transplantation. We routinely inserted Double J ureteral stent during extravesical ureteroneocystostomy. We removed Double J ureteral stent by conventional cystoscopic method in 19 patients in postoperative 7 day (group 1). For the remaining 15 patients, we used simple non-invasive removal technique in postoperative 7 day which is sutureting the distal side hole of Double J ureteral stent to the end side hole urethral catheter (group 2). We can remove Double J ureteral stent by gentle traction on urethral catheter. We evaluated and compared the age, sex, catheter removal related pain scale (0–10 points), postoperative urinary leakage/ureter obstruction, persistent hematurnia/pyuria after one week of urethral catheter removal, UTI episode within 6 month of kidney transplantation of each groups.

RESULTS: The mean age of group 1,2 is 41.9, 44.1 years old (p = 0.601), and sex ratio (% of male) of group 1,2 is 57.9%, 60.0% (p = 0.905), respectively. There was no postoperative urinary leakage or ureter obstruction within postoperative one month. Catheter removal related mean pain scale of each group 1,2 were 6.9 and 1.9 (p = 0.000), respectively. Persistent hematuria after one week of urethral catheter removal of each group 1,2 were 47.4%, 6.7% (p = 0.006), persistent pyuria were 26.3%, 6.7% (p = 0.122), respectively. UTI episode of each group 1,2 were 15.8%, 0% (p = 0.083), respectively.

CONCLUSIONS: Non-invasive ureteral catheter removal technique with suturing to urethral catheter was simple, easy, and minimal painful. This technique also had less persistent hematuria and showed less trend of UTI episode compared with cystoscopic removal. However, there was no difference in persistent
INTRODUCTION AND OBJECTIVES: Intra-operative frozen section (FS) evaluation for tumor margin during partial nephrectomy (PN) is a matter of controversy in urologic oncology. We hereby evaluate the preferences and practice patterns of urologists about intra-operative FS during PN.

METHODS: A 17-item questionnaire was designed to collect information on surgeons’ preferences and practice patterns about FS during PN. The survey was sent to the members of the Society of Urologic Oncology and the Endourological Society.

RESULTS: 197 responses were received. 46% of the respondents were fellowship trained in Urologic Oncology. 69% and 58% of respondents chose to obtain FS (always or sometimes) during Open Partial Nephrectomy (OPN) and Laparoscopic Partial Nephrectomy (LPN) respectively. There was strong correlation between surgeons’ preferences during OPN and LPN (p < 0.001). A higher proportion of surgeons younger than 50 years (37 vs 19%) chose to “never” obtain FS during OPN (p < 0.001). For surgeons who did not routinely obtain FS, “confidence about complete resection” was the most common reason (79%), followed by “no change in management with positive margins” (35%). Majority (75%) believed the margins to be negative if surgical margin was microscopically free of tumor by one cell layer. Older surgeons (> 50 years) preferred sending additional specimen from tumor bed for FS analysis (p = 0.01). Only 41% and 24% of respondents would repeat FS for positive microscopic margins during OPN and LPN respectively. 95% of the respondents would not recommend additional treatment for positive margins on final pathology.

CONCLUSIONS: Despite recent literature pointing to low clinical utility of FS, most surgeons still obtain FS during PN. A higher proportion of younger surgeons tend not to obtain FS. Fellowship training, practice type and surgical volume did not appear to influence preferences and practice patterns in regards to FS.

Source of Funding: None

MP25-24 INNER PREPUTIAL INLAY GRAFT URETHROPLASTY IN HYPOSPADIAS REPAIR: WORTH DOING?
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INTRODUCTION AND OBJECTIVES: Inner preputial inlay graft has been proposed to reduce the risk of meatal and neourethral stenosis and in redo urethroplasty for scarred urethral plate. We extended its indication to be the standard technique for primary distal and midpenile hypospadias. We conduct this prospective study to clarify whether the inner preputial inlay graft is the optimal procedure to minimize the hypospadias repair complications and to get excellent cosmetic result especially for meatal position.

METHODS: This prospective study included consecutive 110 patients who underwent inner preputial inlay graft urethroplasty for primary hypospadias repair from November 2011 to March 2013. Age ranged between 11 months to 7 years (mean: 3.2 years). Localization of the meatus was glanular in 5 patients, coronal in 42, distal penile in 52, midpenile in 10 and proximal in one. Eight patients received hormonal therapy (Dihydrotestosterone cream/Testosterone injection) due to extremely small glanular size. In all patients, the urethral plate was incised deeply and extended distally beyond the end of the plate (entering the glans by 3–4 mm). The wide dorsal inner preputial vascular flap was dissected. The graft harvested from the inner preputial flap, inlayed and quilted in the incised urethral plate till the position of meatus. Neourethra was created over urethral catheter using 7.0 polyglactin sutures in 2 layers. A positional dorsal vascular dartos flap was laid over the neourethra as a second barrier.

RESULTS: Follow up period ranged from 2 to 18 months. Excellent cosmetic and functional results were achieved in 108 of 110
patients (98.2%). Neither meatal stenosis nor urethral diverticulum has been encountered. Excellent glanular position of a wide slit like neomeatus was achieved by this technique. Only 2 patients (1.8%) developed urethrocuteanous fistula that occurred in one patient very early (5 days) post operatively. Satisfactory urinary flow pattern was detected on follow up.

CONCLUSIONS: Inner preputial inlay graft urethroplasty significantly reduces the incidence of urethrocuteanous fistula as the inlay graft plays a major role in minimising the postoperative scarring of incised urethral plate that might occur in original tubularized incised plate urethroplasty. Furthermore, it secures optimal glanular position of a wide slit like neomeatus due to extension of the incision beyond the end of the plate, thus optimising functional and cosmetic outcome.

Source of Funding: none

MP25-25 NEW THERAPEUTIC APPROACH TO TREAT SLOWLY RISING PROSTATIC SPECIFIC ANTIGEN FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: Slowly rising serum prostatic specific antigen (PSA) level following robotic assisted laparoscopic prostatectomy (RALP) presents a dilemma in terms of clinical interpretation and subsequent management. Presence of benign prostatic glands at the surgical margins, versus presence of local and or distant recurrence are the plausible sources for the rising PSA. We hypothesized that a particular subset of men with Gleason score <= 7, negative margins at surgery, and a slowly rising PSA (PSA doubling time (PSADT) >15 months) detected at least one year after RALP can be treated using dutasteride as long as their PSA is lower than 0.9 ng/ml.

The objective of this study was to evaluate the effect of dutasteride (0.5 mg/day) on serum prostate-specific antigen (PSA) kinetics in men with slowly rising PSA after RALP who had negative margins at surgery and no evidence of local or distant recurrence.

METHODS: A total of 33 consented men who underwent margin negative RALP for prostate cancer (Gleason score <= 7) over the past 8 years were included in the study. A multidisciplinary approach was formulated with the medical and radiation oncologist included in the study design. All subjects had a slowly rising PSA between 0.2 and 0.9 ng/mL and PSADT of more than 15 months, with no evidence of local recurrence on prostascint scan and or skeletal metastasis on bone scan. The men were treated with 0.5 mg dutasteride and were followed for > 24 months. Primary endpoints were a rising serum PSA level despite treatment and or presence of local and or distant recurrence (detected by 6 monthly bone and prostascint scans).

RESULTS: Of the 33 patients treated with dutasteride, 13 patients (39%) had no further increase in serum PSA and 17 patients (52%) showed a reduction in PSA level; whereas, only 3 patients (9%) had further increase in PSA (> 0.9 ng/ml) without evidence of local or distant recurrence. The 3 patients with rising PSA received radiation and or androgen deprivation therapy without a detrimental effect because of the delay. Dutasteride was well tolerated in all patients with no significant side effects.

CONCLUSIONS: In a particular subset of men with slowly rising PSA (0.2–0.9 ng/ml) after margin negative RALP and good prognostic factors (Gleason score <= 7, PSADT >15 months), residual benign prostatic glands rather than local or distant recurrence may be the source of a rising PSA. Dutasteride can provide growth inhibitory effects on residual benign prostate glands with a decrease in PSA level and obviates the need for radiation or hormone therapy with their attendant side effects.

Source of Funding: None
function recovered in postoperative month 3 in each patient, and no patient experienced sexual dysfunction. Each patient was very satisfied with the results, especially with the cosmesis result.

CONCLUSIONS: TNALN is a feasible and safe surgical option for both benign and malignant diseases of the kidney in appropriate female patients.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (2012BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

V13-02 SUPRAPUBIC-ASSISTED LAPAROENDOSCOPIC SINGLE-SITE SURGERY (SA-LESS) FOR NEPHROURETERECTOMY

Xiaofeng Zou*, Guoxi Zhang, Yunfeng Liao, Yuanhu Yuan, Rihai Xiao, Gengqing Wu, Xiaoning Wang, Yijun Xue, Dazhi Long, Min Liu, Hui Xu, Gang Xu, Ganzhou, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: During the past years, suprapubic-assisted laparoscopic single-site surgery „SA-LESS£€ established by ourselves has been used in urology in our center. This study aimed to describe our experience with SA-LESS nephroureterectomy and to evaluate its feasibility and efficacy.

METHODS: Between July 2012 and April 2013, 8 consecutive male patients (two of them with renal pelvic carcinoma, two with ureteral carcinoma, one with renal pelvic carcinoma combined with ureteral carcinoma, two with renal tuberculosis, and one with megaureter and empyema) were subjected to SAU-LESS nephrectomy at the authors¡â€™ center. The patient was administered general endotracheal anesthesia and secured on the operating table in lateral decubitus with affected side elevated 70°. Two trocars were inserted at the medial margin of umbilicus, and one was inserted into abdominal cavity below the pubic hairline. The operation was performed using conventional operating instruments, under direct vision achieved by a 5-mm flexible-tip 0°laparoscope. Firstly, the distal ureter was isolated completely in lithotomy with ipsilateral lumbar at 30° angle to the operating table. A 3-mm incision was made at the posterior vaginal fornix, and a 5 mm Trocar was introduced into the pelvic cavity guided by a 5-mm forceps. A 5-mm 0° flexible laparoscope was inserted into the pelvic cavity confirming no rectum injury. Then a Zoe-port was introduced at the posterior vaginal fornix. The patients head end was uppered by 25° with right lumbar at 60° angle to the floor. Dissection was performed according to the method of the standard laparoscopic nephrectomy. The vaginal wound was closed under direct vision using a 2/0 absorbable suture.

RESULTS: All the procedures were successfully completed except one patient who was converted to suprapubic-assisted laparoscopic single-site surgery nephrectomy for rectal injury. The median operative time was 255 mins (range 210 to 360). The median estimated blood loss was 250 ml (range 150 to 300). The patients were discharged on postoperative day 6 to 7. During the 6- to 10-month follow-up period, all the patients were in good condition. The posterior colpotomy incision healed up well. No scars were visible on the abdominal wall. There were no complication in retrograde infection of pelvic and abdominal cavity, umbilical hernia, uterine prolapse, and sexual dysfunction.

CONCLUSIONS: SA-LESS nephroureterectomy appears to be feasible and effective. The placement of trocar at umbilicus and below the pubic hairline not only decreases the difficulty of operation, but can also leads to good cosmetic results.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (2012BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

INTRODUCTION AND OBJECTIVES: Hybrid transvaginal natural orifice transluminal endoscopic surgery (NOTES) nephrectomy (HTNN) is indeed possible. But pure transvaginal NOTES nephrectomy (PTNN) has been limited to animal experiments with only one report of its use in humans. We describe the initial clinical experience of PTNN, and evaluate its feasibility.

METHODS: Between January 2011 and March 2013 14 female patients with non-function kidney (right 10, left 4) and one with right renal cancer, underwent PTNN. The patients were positioned in lithotomy with ipsilateral lumbar at 30° angle to the operating table. A 3-mm incision was made at the posterior vaginal fornix, and a 5 mm Trocar was introduced into the pelvic cavity guided by a 5-mm forceps. A 5-mm 0° flexible laparoscope was inserted into the pelvic cavity confirming no rectum injury. Then a Zoe-port was introduced at the posterior vaginal fornix. The patients head end was uppered by 25° with right lumbar at 60° angle to the floor. Dissection was performed according to the method of the standard laparoscopic nephrectomy. The vaginal wound was closed under direct vision using a 2/0 absorbable suture.

RESULTS: All the procedures were successfully completed except one patient who was converted to suprapubic-assisted laparoscopic single-site surgery nephrectomy for rectal injury. The median operative time was 255 mins (range 210 to 360). The median estimated blood loss was 250 ml (range 150 to 300). The patients were discharged on postoperative day 6 to 7. During the 6- to 10-month follow-up period, all the patients were in good condition. The posterior colpotomy incision healed up well. No scars were visible on the abdominal wall. There were no complication in retrograde infection of pelvic and abdominal cavity, umbilical hernia, uterine prolapse, and sexual dysfunction.

CONCLUSIONS: Pure transvaginal NOTES for nephrectomy is feasible. This novel technique seeks to provide cosmetic result even when compared to today¡â€™s minimally invasive procedures.

Source of Funding: This work was supported by the National High Technology Research and Development Program (863 Program) of China (NO. SQ2011AAJY2801), Important Science and Technology Project from the Department of Science and Technology of Jiangxi Province (2012BBG70032), and Important Science and Technology Project from the Department of Health of Jiangxi Province (NO. 20104008)

V13-04 COST-EFFECTIVE GLOVE-URETERIC CATHETER SINGLE PORT FOR LAPARO-ENDOSCOPIC SINGLE SITE NEPHRECTOMY

Raguram Ganesamoni*, Shashikant Mishra, Arvind Ganpule, Jigish Vyas, Jitendra Jagtap, Amit Bhattu, Ravindra Sabnis, Mahesh Desai, Nadiad, India
INTRODUCTION AND OBJECTIVES: Laparo-endoscopic single site (LESS) nephrectomy is associated with lower postoperative pain and better cosmesis. The commercially available single ports are costly and hence not affordable for many of our patients. In this video we describe the use of a single port made from cheap materials readily available in Urology operating room.

METHODS: From April to May 2013, we performed four LESS simple nephrectomies using a single port made from a glove, two ureteric catheters and standard laparoscopic ports. Patient demographics, operative parameters, complications and problems, if any, due to the single port were assessed.

RESULTS: The mean age of the patients was 46 years. There were three male patients and one female patient. The mean operating time was 168 minutes. The mean blood loss was 130 ml. There was no complication in any of the procedure. The single port was successfully utilized till the end of the procedure in all the patients without the need for any repair. Two procedures which were performed in patients, who had undergone open procedures, were converted to multiport laparoscopic nephrectomy due to dense adhesions around the hilum.

CONCLUSIONS: The use of glove-ureteric catheter single port is feasible and effective in LESS nephrectomy. It can be considered as a cheaper alternative to the costly commercially available single ports.

Source of Funding: None

V13-05 LESS TRANSVESICAL DIVERTICULECTOMY
Lokesh Sinha, Rajendra Godbole, Dombivli, India, Prashanth Rao, Pradeep Rao*, Mumbai, India

INTRODUCTION AND OBJECTIVES: The Triport and Quadport are uniquely suited to perform transvesical procedures because they can synch the bladder to the anterior abdominal wall. Combined with a pneumovesicum, this makes an adequate space within the bladder to perform various surgeries. This approach has been reported for BPH, VVF and Ca Prostate in the past. We used the Triport Plus to do a single port LESS diverticulectomy through the Transvesical route.

METHODS: A 35 year old male presented with 3 large bladder diverticuli which were together larger than the size of the bladder itself. He was getting repeated UTI and was unable to void on a urodynamic examination. The bladder was unable to generate pressures due to the diverticuli. A Triport plus was inserted into the bladder under cystoscopy control and pneumovesicum initiated. An Flexible tip Endoeye video laparoscope was used to facilitate the surgery. All 3 large diverticuli were excised and the defects closed using a barbed suture.

RESULTS: Patient was able to void after surgery and he is free of infection 1 year after surgery. He remains a dysfunctional voider and is on alpha blockers to prevent development of any new diverticuli.

CONCLUSIONS: Large bladder diverticuli are a difficult problem to treat using conventional laparoscopy due to the difficulty of dissecting out the diverticuli from surrounding structures. The open transvesical route is well suited and routinely used for this surgery.

The LESS approach using a triport distends the bladder well with the pneumovesicum and makes it easy to dissect the diverticuli. Barbed sutures facilitate suturing through a single port.

The LESS approach makes for an elegant and relatively easy minimally invasive solution for bladder diverticuli.

Source of Funding: None

V13-06 BILATERAL SPERMATIC CORD DISSECTION AND LIGATION BY LAPAROENDOSCOPIC SINGLE SITE SURGERY: OUR TECHNIQUE “STEP BY STEP”
Salvatore Micali*, Eugenio Martorana, Alessio Zordani, Marco Rosa, Modena, Italy, Ahmed Ghaith, Tanta, Egypt, Francesco Fidanza, Giampaolo Bianchi, Modena, Italy

INTRODUCTION AND OBJECTIVES: The laparo-endoscopic single-site surgery (LESS) represents an important evolution of minimally invasive surgery and aims to improve the cosmetic outcome, reduce surgical trauma and complications associated with traditional laparoscopy. The following video shows our LESS technique to perform bilateral spermatic cord dissection and ligation.

METHODS: The procedure was performed on 6 patients aged between 24 and 52 years (mean age 32.7 years) during a period of 36 months. Five patients have the operation for bilateral varicocele and one of them had a relapse after previous open varicocelectomy. One of the 6 patients underwent operation for bilateral chronic testicular pain. All patients were placed in supine position. The access to the peritoneal cavity was performed, after creation of the pneumoperitoneum, with the aid of an 10 mm optical trocar (TERNAMIAN Endo TIP, Storz) through infra-umbilical 2 cm incision. The subsequent positioning of SILS port (Covidien) allowed the use of laparoscopic instruments (5 and 10 mm). Flexible 5 mm endo-eye optics (Olympus) allowed to minimize the clashing between the instruments. Laparoscopic scissors, a 5 mm laparoscopic grasper and a 10 mm dissector allowed to dissect the spermatic cord sparing the deferens vas with its vessels. Dissection of the spermatic cords were cut en bloc after positioning of four Hem-o-lok. Hemostasis was completed with the application of oxidized cellulose gauze.

RESULTS: The mean operative time was 49 minutes (34–73 minutes). No patients reported intra, nor post-operative complication. The hospitalization time was less than 24 hours. No patient did not need post-operative analgesia. The scrotal echo-color Doppler was performed after three months and showed no recurrence of varicocele.

CONCLUSIONS: The procedure was successfully performed in all cases. The main difficulty is represented by clashing between the instruments. Operative times were acceptable. The trans-umbilical approach offers the advantage of a better cosmetic result. Bilateral spermatic cord ligation with LESS is an alternative to conventional laparoscopy. The LESS approach is feasible, safe, reliable (100% success) and easily applicable in all urological centers.

Source of Funding: none

V13-07 RETROPERITONEAL LAPAROENDOSCOPIC SINGLE-SITE SURGERY: OUR TECHNIQUE IN RENAL CYST DECORTICATION
Salvatore Micali*, Eugenio Martorana, Alessio Zordani, Riccardo Galli, Modena, Italy, Ahmed Ghaith, Tanta, Egypt, Maria Chiara Sighinolfi, Giampaolo Bianchi, Modena, Italy

INTRODUCTION AND OBJECTIVES: Retroperitoneal Laparoscopic single-site surgery (LESS) has been developed in an attempt to reduce the morbidity and scarring associated with laparoscopic surgery. We report our experience on 5 renal cyst decortication procedures were performed in a retroperitoneal LESS.

METHODS: LESS renal cyst decortication was performed in 5 patients during a 24-months. All procedures were performed by a single operator. The patient was in a standard flank position. The
procedure was performed using a 2.5 cm single incision via a retroperitoneal access at the Petit’s triangle. In all cases retroperitoneal access was created with a laparoscopic visual reusable trocar, Teramian EndoTIP 10 mm (Karl Storz®), and a 10 mm laparoscope was used for blunt dissection of the aeroelastic retroperitoneal fat. In all cases we used a single-trocar technique with a Multiport (Covidien SILSTM Port) placed in the Petit’s Triangle with a 5-mm flexible laparoscope EndoEye camera system (Olympus Medical®). In all patients a 5 mm reusable and disposable bent instruments were used to dissect the retroperitoneal space and the cyst wall. A working pressure of 15 mmHg and exposure of the lower pole of the kidney allow to isolated the cyst. We performed the hemostasis with a bipolar probe and the application of oxidized regenerated cellulose gauze. A drainage was left in place for 12–24 hours in all patients.

RESULTS: All cases were completed without conversion to standard laparoscopic or open surgery. Mean operative time were 55.1 minutes, blood loss was minimal and the hospital stay ranged from 12 to 24 hours. None of the patients required narcotics or additional analgesia in the postoperative period. No postoperative complications occurred.

CONCLUSIONS: The LESS technique is safe, reliable (100% success), easy to learn and offer subjective cosmetic benefits to the patient. Short hospital stay following retroperitoneal LESS renal cyst decortication is an additional advantage over laparoscopic renal cyst decortication. A comparative randomized studies are required between standard laparoscopy and LESS.

Source of Funding: none

V13-08 LAPAROENDOSCOPIC SINGLE-SITE (LESS) DONOR NEPHRECTOMY USING GELPOINT® WITHOUT ARTICULATING INSTRUMENTS
Takamitsu Inoue*, Shintaro Narita, Mitsuru Saito, Norihiko Tsuchiya, Shigeru Sato, Tomonori Habuchi, Akita, Japan

INTRODUCTION AND OBJECTIVES: Laparoscopic single site surgery (LESS)-donor nephrectomy (LESSDN) may provide more favorable results regarding invasiveness and cosmesis than conventional multi-trocar laparoscopic donor nephrectomy.

The Results of LESSDN and Standard Laparoscopic Procedure

<table>
<thead>
<tr>
<th></th>
<th>Standard Laparoscopic (n = 27)</th>
<th>LESSDN (n = 20)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>operator</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>operation time (min)</td>
<td>250</td>
<td>215</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>bleeding (ml)</td>
<td>73</td>
<td>45</td>
<td>0.238</td>
</tr>
<tr>
<td>warm ischemic time (sec)</td>
<td>302</td>
<td>242</td>
<td>0.015</td>
</tr>
<tr>
<td>POD 7 recipient SCr (mg/dl)</td>
<td>1.13</td>
<td>1.28</td>
<td>0.297</td>
</tr>
<tr>
<td>oral intake (days)</td>
<td>1.11</td>
<td>1.20</td>
<td>0.408</td>
</tr>
<tr>
<td>ambulation (days)</td>
<td>2.74</td>
<td>3.45</td>
<td>0.239</td>
</tr>
<tr>
<td>hospital stay (days)</td>
<td>8.41</td>
<td>6.90</td>
<td>0.002</td>
</tr>
<tr>
<td>complications</td>
<td>1 (3.8%)</td>
<td>0 (0.0%)</td>
<td>0.395</td>
</tr>
<tr>
<td>open conversion</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1</td>
</tr>
<tr>
<td>blood transfusion</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1</td>
</tr>
<tr>
<td>delayed graft function</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1</td>
</tr>
</tbody>
</table>

While it is very difficult and demanding to perform LESS surgeries via a 2–3 cm single incision without employing articulating instruments, LESSDN may be well performed by straight instruments alone via a 4.5 &8211; 5.5 cm single incision using a a GelPOINT®. We present our experience of LESSDN at Akita University using the GelPOINT® without using articulating instruments.

METHODS: From 2011 to 2013, perioperative results of a total of 20 living renal transplant donors who underwent LESSDN were retrospectively compared with those of 27 donors who underwent standard 4-trocar laparoscopic donor nephrectomy (Std-LDN). The GelPOINT® platform with attached 4 cannules was applied at a 4–5 cm pararectal incision at the level of the umbilicus. All procedures were performed using only straight instruments.

RESULTS: The mean operative time and warm ischemic time of the LESSDN group were significantly shorter than that in Std-LDN group (p < 0.001 and p = 0.015). There were no complications or delayed graft function in both groups. The mean hospital stay was significantly shorter in LESS-DN than in Std-DN (p = 0.002). No significant difference in 7-days posttransplant serum creatinine level was observed between the LESSDN group and the Std-LDN group.

CONCLUSIONS: The LESSDN using the GelPOINT® was safely and efficiently performed using only straight instruments with better cosmetic outcome and less invasiveness.

Source of Funding: None

V13-09 A NEW INTERNAL RETRACTOR SYSTEM USEFUL FOR LAPARO-ENDOSCOPIC SINGLE-SITE LIVING DONOR NEPHRECTOMY
Kazunori Iwasaki*, Toshitaka Shin, Mutsushi Yamasaki, Yasuhiro Sumino, Takeo Nomura, Fuminori Sato, Hiromitsu Mimata, Oita, Japan

INTRODUCTION AND OBJECTIVES: Laparoscopic single-site (LESS) surgery has gained popularity in urology over the last few years. We present our experience of a case of LESS living donor left nephrectomy using a new internal retractor system named Endograb™ Port-Free Retractor (Virtual Ports, Misgav, Israel). Endograb™ enables to retract organs entirely from within the abdominal cavity without additional ports.

METHODS: A 70-year-old woman was admitted as a living donor for kidney transplantation to her son, and we operated on her for living donor left nephrectomy. First of all, we made a 5 cm transverse incision from the left border of the rectus abdominis at the level of the umbilicus, and setted the Gel-Point™ system (Applied Medical, CA, USA). We placed four 10 mm trockers through GelPoint™ and used 30 degree rigid scope, straight forcipes (monopolar and bipolar) and LigaSure™ 5 mm Blunt-tip (Covidien, Mansfield, MA, USA) as an energy device. We incised the white line of Toldt and dissected the junction of the descending colonic
mesentery and Gerota’s fascia. The Endograb™ was loaded into the applier, and inserted in the abdominal cavity through one of the ports. The larger end of the Endograb™ was used to grasp the dissected colonic mesentery, and the other end was used to grasp the contralateral abdominal wall. We enabled to displace the descending colon to midline and keep excellent operative view. At the last of the operation, Endograb™ was put away using the applier and no injury was confirmed in the abdominal cavity.

RESULTS: The operation was completed without any troubles. Operative time was 279 minutes, blood loss was 50 ml, and warm ischemic time was 296 seconds. The donated kidney was transplanted to the recipient and is functioning well. The hospital stay after the operation was 10 days and there was no complication.

CONCLUSIONS: Patient safety, minimal morbidity and successful graft function are required for LESS living donor nephrectomy. The Endograb™ internal retractor system is easy to use and effective for LESS living donor nephrectomy.

Source of Funding: none

V13-10 INNOVATIVE ARTICULATING INSTRUMENTS FOR LAPAROENDOSCOPIC SINGLE-SITE SURGERY: PRECLINICAL EVALUATION OF THE PROTOTYPE
Chang Wook Jeong*, Seoul, Korea, Republic of; Jin-Woo Jung, Byung Ki Lee, Sangchul Lee, Seongnam, Korea, Republic of; Seung Bae Lee, Seoul, Korea, Republic of; Sang Eun Lee, Seongnam, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Conventional articulating laparoscopic instruments for laparoscopic endoscopic single-site surgery (LESS) has three major drawbacks: weak articulating force, internal and external crowding, and mirror imaging and motion. The RoboHand™ (Mouvasu, Inc., Seoul, Korea) is a recently developed novel articulating instrument that has 7 degrees of freedom. The goal of its development was to minimize the abovementioned three major drawbacks. This study aimed to evaluate the RoboHand™ with regard to its mechanical properties and clinical utility through animal testing.

METHODS: In an ex-vivo test, the bending forces of the joint were compared with those of conventional articulating instruments, the 2nd version of the LaparoAngle™ (Cambridge Endoscopic Devices, Framingham, MA) and the SILSTM hand instrument (Covidien, Mansfield, MA). The bending forces of the joint, from a neutral position to 20° in a state of position locking, were measured by a digital push-pull gauge.

One surgeon performed 12 LESS nephrectomies with either the RoboHand™ prototype or the 2nd version of LaparoAngle™. General laparoscopic instruments were used in combination. The operative time and estimated blood loss (EBL) were compared by group.

RESULTS: The joint force of the RoboHand™ (9.0 ± 0.5 N in pitch, 6.4 ± 0.4 N in yaw direction) was more powerful than that of the LaparoAngle™ (2.7 ± 0.2 N, p < 0.001 for each direction) or the SILSTM instrument (2.6 ± 0.2 N, p < 0.001 for each direction). In the animal test, the operative times in the RoboHand™ group (28.8 ± 6.6 minutes) were shorter than those in the LaparoAngle™ group (39.7 ± 5.4 minutes), although not significantly (p = 0.146). There was no significant difference in EBL between the groups (6.8 ± 2.8 ml vs 7.4 ± 3.0 ml, p = 0.843), and no adverse events occurred during any of the surgeries.

CONCLUSIONS: The RoboHand™ prototype seems to be superior to other articulating laparoscopic instruments in its mechanical properties, such as joint force, and not to be clinically inferior to LaparoAngle™ for LESS. Official products will soon be released, and the RoboHand™ may prove itself to be clinically useful for overcoming the present obstacles of LESS instruments.

Source of Funding: This research was financially supported by the Ministry of Knowledge Economy (MKE) and the Korea Institute for Advancement of Technology (KIAT) through the Research and Development for Regional Industry.

V13-11 PERCUTANEOUS ACCESS UNDER DIRECT ENDOSCOPIC VISUALIZATION: A MODIFIED APPROACH FOR PERCUTANEOUS NEPHROLITHOTOMY
Shubha De, Robert Brown*, Giovanni Marchini, Carl Sarkissian, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy has been replaced the need for open surgery in the vast majority of kidney stone cases. Evolved from retrograde contrast approaches, we employ an endoscopic assisted procedure. Using flexible ureteroscopy (URS) for calyx selection with concurrent fluoroscopy, we can be very specific with positioning our access. Comparing this method to radiologist attained fluoroscopic access, we have noted several key benefits.

METHODS: Prone cystoscopy is performed, allowing safety and working wires to be inserted. A ureteric re-entry sheath is placed for the duration of the case, and flexible ureteroscopy is performed. The optimal calyx is visualized, and the scope tip is held in that position. Fluoroscopically a Chiba needle is placed in line with the angulation of the calyx, using the bulls-eye technique to achieve the correct trajectory. Once oriented, the C-arm is rotated 50 off axis to judge depth of penetration, and the needle is advanced (while endoscopically observing the papilla). When the needle and URS tips meet fluoroscopically, the assistant sees the needle tip emerge from the papilla. The trocar is removed from the needle, and a Benston wire is passed, pulled to the meatus using a preloaded URS basket. The Benston is exchanged for a superstiff wire through an open ended catheter, which then becomes a through-and-through safety/working wire.

Balloon dilation and sheath placement are performed under URS minimizes the risk of not being in the collecting system. If fragmentation is required, flexible nephroscopy/ureteroscopy are performed at the end of the procedure to ensure no residual stones. A double J stent and skin stitch are placed, without leaving any nephrostomy tubes. Post op CXR is ordered for all supra-costal accesses.

RESULTS: To date we have performed several hundred consecutive cases using this approach. Comparing 160 patients, (fluoroscopic PCNL vs. endoscopic assisted PCNL) we had significantly decreased fluoroscopy time by 87.5% (20 min vs 2.5 min), decreased operative time by 66.6% (5.4 minutes) were shorter than those in the LaparoAngle™ group (6.6 minutes) were shorter than those in the LaparoAngle™ group (5.4 minutes), although not significantly (p = 0.146).

CONCLUSIONS: Endoscopic guidance for percutaneous access is an easy modification, allowing for an added degree of selectivity and accuracy. With benefits seen in fluoroscopy time, reducing the need for secondary procedures, and bleeding risk, we have now employed this method as our standard of care.

Source of Funding: none

V13-12 ROBOTIC INGUINAL LYMPHADENECTOMY FOR PENILE CANCER
Rene´ Sotelo*, Oswaldo Carmona, Robert De Andrade, Golena Fernández, Marino Cabrera, Oscar Martin, Juan Arriaga, Caracas, Venezuela, David Canes, Burlington, MA
INTRODUCTION AND OBJECTIVES: To present the first bilateral inguinal lymphadenectomy robot assisted for penile cancer in Latin America.

METHODS: fgnWe performed a robotic bilateral inguinal lymphadenectomy secondary to squamous cell carcinoma, poorly differentiated with infiltration to corpora cavernosa, spongy and proximal urethra in a patient of 64 years.

RESULTS: The entire procedure was performed with the robot-assisted method. The operative time was 360 minutes, estimated blood loss was 200 ml and hospital stay was 3 days. The pathology reported squamous carcinoma metastases in 1 of 19 lymph nodes on the right side and 2 of 14 lymph nodes on the left side. The patient presented a lymphocele that was drained at consult. Considering pathology results the patient underwent to a pelvic lymphadenectomy reporting no metastatic nodes.

CONCLUSIONS: Robotic bilateral inguinal lymphadenectomy secondary to penile cancer is feasible, safe and provides a good oncologic performance. Prospective studies are required to include a larger number of patients and long-term monitoring to assess the results of this procedure in comparison to open and laparoscopic techniques.

Source of Funding: None

V14 LAPAROSCOPY: UPPER TRACT II

V14-01 LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH "KIDNEY INVERSION"

Roberto Sanseverino*, Oliver Intilla, Umberto Di Mauro, Giovanni Molisso, Carmine Cicales, Giorgio Napodano, Nocera Inferiore, Italy

INTRODUCTION AND OBJECTIVES: Laparoscopic partial nephrectomy (LPN) remains a technically challenging procedure that requires advanced laparoscopic skill. Bleeding is one of the most fearful complication of LPN. Tumours of upper pole, especially when large, are difficult to handle. We report a case of a resection of upper pole tumour resection after "kidney inversion".

METHODS: The video shows a cases of a 40 years old male affected by upper pole left renal tumour. A transperitoneal approach is performed; medialization of colon and identification of renal vessels. Kidney is completely isolated using Ligasure™ device. Kidney is rotated (180 degrees) inverting pole orientation. Intraoperative ultrasound with laparoscopic probe is performed to recognize limits of the tumour. Renal artery is clamped with self made tourniquet. Resection of the lesion with cold en-doshears; medullary is repaired with Vicryl™ sutures arrested with absorbable clips. Artery is declamped. Suture of cortex is completed with other stitches secured with Hem-O-lok™ clips. Application of Floseal™ covered by Surgicell™ on resection surface. Kidney is inverted in original position.

RESULTS: Operative time was 130 minutes; warm ischemia time was 16 minutes and mean blood loss was 450 ml Tumour size was 50 mm. The patients were discharged on day 5. No postoperative complications occurred.

CONCLUSIONS: LPN seems to combine the advantages of nephron sparing surgery and minimal laparoscopic invasiveness; however it remains a technically challenging procedure. Kidney rotation with inversion of poles offers an excellent exposure of upper pole allowing an easy and accurate resection of large tumours too.

Source of Funding: none

V14-02 ZERO ISCHEMIA LAPAROSCOPIC PARTIAL NEPHRECTOMY

Roberto Sanseverino*, Oliver Intilla, Umberto Di Mauro, Giovanni Molisso, Carmine Cicales, Giuseppe Lubrano, Giorgio Napodano, Nocera Inferiore, Italy

INTRODUCTION AND OBJECTIVES: Laparoscopic partial nephrectomy (LPN) remains a technically challenging procedure that requires advanced laparoscopic skill. Bleeding is one of the most fearful complication of LPN. Warm ischemia time is a mainstay issue that could impact on renal function. Video shows a case of “zero ischemia” laparoscopic partial nephrectomy.

METHODS: A transperitoneal approach is performed; medialization of colon and isolation of renal vessels. Renal tumour is identified. A controlled hypotension is realized to reduce bleeding without clamping. The renal lesion is excised using cold endoshears. Parenchyma is repaired with VLoK™ suture. Application of Floseal™ covered with Surgicell™ precedes peritoneum closure.

RESULTS: 12 patients underwent laparoscopic partial nephrectomy without clamping for renal tumour (10 patients) and for renal lithiasis (2 patients). Mean age of the patients was 50.9 years (±18.7). Mean tumour size was 3.7 cm (±1.5). Operative time was 175 (±50.4) minutes; blood loss was 435 (±280) ml. Two patients required blood transfusion. Mean hospitalization was 7.3 (2.8) days. In one patient postoperative urine leakage required placing of ureteral stent. Histological evaluation revealed a Renal Cell Carcinoma in 7 patients, an oncocytoma in 2 patient, an angio-myolipoma in 1 patient. All surgical margin were negative for cancer.

CONCLUSIONS: Zero-ischemia laparoscopic partial nephrectomy without hilar clamping is feasible and safe. Eliminating global renal ischemia now appears achievable. It allows both preservation from ischemic renal damage and an excellent control of bleeding.

Source of Funding: none

V14-03 ALTERNATIVE TECHNIQUES TO PERFORM SUPERSELECTIVE MICRODISSECTION DURING UNCLAMMED LAPAROSCOPIC PARTIAL NEPHRECTOMY

Giuseppe Simone*, Rocco Papalia, Mariaconsiglia Ferriero, Salvatore Guaglianone, Michele Gallucci, Rome, Italy

INTRODUCTION AND OBJECTIVES: Superselective microdissection was described by Gill as an effective tratment to perform “Zero Ischemia” partial nephrectomy.
We demonstrate alternative techniques to perform superselective microdissection during unclamped laparoscopic partial nephrectomy.

METHODS: The video shows alternative techniques applied in three different cases to perform superselective microdissection during unclamped partial nephrectomy.

In the first case, a right hilar tumor, tertiary arterial branches were identified, clipped and divided.

In the second case, a right polar tumor with a main afferent artery from the aorta, we performed a tumor enucleation and finally the artery was clipped and divided.

In the last case, a left postero-medial tumor, the tertiary arterial branches were identified during tumor enucleation and selectively clipped in touch with tumor pseudocapsule.

RESULTS: Operative time was 90 minutes, 60 minutes and 100 minutes, respectively. Intraoperative blood loss was 250 mL, 200 mL and 350 mL, respectively. Hospital stay was 3, 2 and 4 days, respectively.

CONCLUSIONS: Superselective microdissection can be performed antegrade in cases of hilar tumors or retrogradely, identifying small arterial branches in touch with pseudocapsule during tumor enucleation, in cases non-hilar tumors.

Source of Funding: None

V14-04 EXTENDED RADICAL LAPAROSCOPIC NEPHRETERECTOMY WITH PELVIC LYMPH NODES DISSECTION FOR LOCALLY ADVANCED URETERAL CANCER
Toshitaka Shin*, Mayuka Shinohara, Fuminori Sato, Hiromitsu Mimata, Yifu-shi, Japan

INTRODUCTION AND OBJECTIVES: Surgical management of locally advanced cT3 ureteral cancer is still controversial. The peri-ureteric fat, fascia and peritoneum act as barriers against invasion of the tumor. Therefore, securing a wide resection to remove the tumor with surrounding tissues is essential for radical surgery.

Herein we present our experience of cT3 ureteral cancer treated with extended radical laparoscopic nephreterectomy (LNU) and pelvic lymph nodes dissection. The main concept of this surgery is that we never see the ureter directly.

METHODS: Radical LNU was performed by a transperitoneal approach. The patient was positioned in a modified flank position at first and was moved to a head-down lithotomy position. The peritoneum was incised along the white line of Toldt. Subsequently, aorta was identified and dissected toward the renal pelvis along the surface of aorta. The renal vessels were dissected and individually secured and divided in a standard manner. The entire kidney, along with all the perinephric fat, Gerota's fascia and para-aortic lymph nodes was fully mobilized. The ureteral dissection was continued distally, keeping in mind that we never saw the ureter directly just before the bladder. Because an invasive lower ureteral lesion was suspected, the dissection of the lower ureter included a wide margin of peri-ureteric tissues, such as the peri-ureteric fat and peritoneum. Complete distal ureterectomy with a bladder cuff was performed by an extravesical approach. The defect in the bladder wall was closed with a 2-0 absorbable running suture. Subsequently, extended pelvic lymph nodes dissection was performed.

RESULTS: The operative time was 681 minutes and blood loss was 600 mL. Radical LNU specimen was including the kidney, Gerota's fascia and perinephreouretic fat without the ipsilateral adrenal gland. The specimen was also resected en bloc with the renal hilar, para-aortic and peri-ureteric lymph nodes. The pathological diagnosis was invasive urothelial carcinoma, high grade, pT3N1. No intraoperative complications were noted. The patient is still without evidence of recurrence, 6 months after the surgery.

CONCLUSIONS: For malignant tumors, obtaining an adequate wide margin is essential. Laparoscopic surgery may still pose technical challenges in the surgical management of locally advanced cT3 ureteral cancer. In experienced hands, our performed techniques might be feasible, safe, and effective in selected patients.

Source of Funding: none

V14-05 LAPAROSCOPIC URETEROVESICOSTOMY IS A SAFE AND EFFECTIVE PROCEDURE USING INTRAVESICAL OR EXTRAVESICAL APPROACH IN PATIENTS WITH MEGAURETER DUE TO URETEROVESICAL JUNCTION OBSTRUCTION
Dai Kouguchi*, Morihiro Nishi, Kazumasa Matsumoto, Takahiro Hirayama, Tepepi Oyama, Tetsuo Fujita, Kazunari Yoshida, Masatsugu Iwamura, Sagamihara, Japan

INTRODUCTION AND OBJECTIVES: Ureterovesical junction obstruction (UVJO) is one of the cause of hydrenephrosis following deterioration of renal function. Several laparoscopic procedures of UVJO with megaureter were reported. In addition, minimum invasive surgery is suitable for this benign lesion particularly in adolescent patients. We report two cases of megaureter due to UVJO treated with laparoscopic ureterovesicostomy utilizing different surgical approaches.

METHODS: A 24-year-old female presented with left lumbago. Computer tomography demonstrated grade 2 hydrenephrosis and dilation of lower ureter. She was intravesically treated with ureteroplasty and Cohen procedure. A 26-year-old female suffered from acute pyelonephritis and right lumbago. Diagnostic imaging showed grade 4 hydrenephrosis and severe dilation of lower ureter. She was extravesically treated with ureteroplasty and Lich-Gregoir procedure. Ureteral stent was inserted at the time of plasty in both procedures.

RESULTS: Operative time of the intravesical and extravesical approach was 227 and 295 minutes, respectively. Each procedure was uneventful and no blood transfusion was required. Both patients resumed oral intake and ambulation on the next day of surgery. There was no complication during the hospital stay. In addition, clinical symptom in which they persisted preoperatively was vanished after the surgery. There have been no signs of recurrence in both patients after removal of a ureteral stent during one years follow-up.

CONCLUSIONS: Laparoscopic ureterovesicostomy using intravesical or extravesical approach is safe and effective in patient with megaureter due to UVJO. To clarify the usefulness of these procedures, further study was warranted.

Source of Funding: None

V14-06 J-TUBE TECHNIQUE FOR DOUBLE-J STENT INSERTION DURING LAPAROSCOPIC UPPER URINARY TRACT SURGERY
Byung Ki Lee*, Seongnam, Korea, Republic of, Chang Wook Jeong, Seoul, Korea, Republic of, Jin-Woo Jung, Jung Keun Lee, Yong Hyun Park, Seok-Soo Byun, Sang Eun Lee, Seongnam, Korea, Republic of
INTRODUCTION AND OBJECTIVES: Double-J stent insertion during laparoscopic upper urinary tract surgery was thought to be time consuming and difficult procedure. To make the procedure easy and safe, we devised the innovative “J-tube technique". We evaluated the feasibility and safety of this technique.

METHODS: A total of 33 patients who underwent double-J stenting with this new technique by a single surgeon from July 2011 through May 2013 were assessed. We used a 25-cm-long plastic tube having bent end like “J”-shape. Its outer diameter was 5 mm, inner diameter was 3 mm, respectively. Distal end of a J-tube was placed to a distal opening of ureter through an appropriate port. A guidewire was inserted through the J-tube to the bladder. Then, using a pusher, a 6- or 7-Fr double-J stent was advanced through the J-tube with the assistance of the inserted guidewire. The J tube and guidewire were removed, and then the proximal part of the double-J stent was inserted to the proximal opening using laparoscopic forceps. We assessed stenting time and complication rate.

RESULTS: There were 11 pyeloplasties, 3 pyelolithotomies, 12 ureterolithotomies, 3 concomitant pyeloplasties with pyelolithotomies, and 4 concomitant pyelolithotomies with ureterolithotomies. Among these, 8 cases (24.2%) were performed by laparoendoscopic single-site surgery (LESS) and 1 case was a robot-assisted laparoscopic surgery. Double-J stents were successfully positioned without intraoperative complication in all cases. Mean stenting time was 4.8±2.7 minutes and it could be achieved less than 10 minutes except 1 case took 15 minutes. LESS required more stenting time than conventional laparoscopic surgery (8.2±3.5 vs. 3.8±1.2, p<0.001).

CONCLUSIONS: New J-tube technique is a safe and easy stenting method during laparoscopic surgery. It can be also applied during LESS, even though more time consuming than conventional laparoscopic surgery.

Source of Funding: None

V14-07 RETROPERITONEAL ADRENALECTOMY USING LIGASURE

Redouane Rabii*, Mohamed El Mrini, Youssef Elkattani, Rachid Aboutaieb, Fathi Meziane, Casablanca, Morocco

INTRODUCTION AND OBJECTIVES: We reported the safety and efficacy of retroperitoneal laparoscopic adrenalectomy approach using Ligasure in obese patient with Cushing’s syndrome.

METHODS: A 65-year-old female with high blood pressure and diabetes type 2, presented with Cushing’s syndrome. The CT-scan showed a large right adrenal tumor. We performed a retroperitoneal laparoscopic approach using Ligasure only.

RESULTS: The total adrenalectomy for the mass was realized. The operative time was 40 min. The blood loss was 40 cc. There were no bleeding complications. The catheter was take out the first postoperative day, and the patient left the hospital in the second day.

CONCLUSIONS: Retroperitoneal laparoscopic adrenalectomy is the operation of choice for adrenal lesions. Laparoscopic adrenalectomy as well as other laparoscopic procedures has become easier with the introduction of new energy systems. Vascular control and dissection of the gland by Ligasure is feasible. It makes the procedure easier with very low blood loss and eventually shortens the operation time.

Source of Funding: None

V14-08 LAPAROSCOPIC PYELOPLASTY WITH INTRACORPOREAL FLEXIBLE URETEROSCOPY FOR MANAGEMENT OF PELVIURETERIC JUNCTION OBSTRUCTION AND MULTIPLE CALICEAL CALCULI: PRELIMINARY EXPERIENCE

Krishanu Das*, Muscat, Oman

INTRODUCTION AND OBJECTIVES: To present our technique of laparoscopic pyeloplasty (LP) & intracorporeal flexible ureteroscopy (FURS) for simultaneous addressal of pelviureteric junction obstruction (UPJO) & multiple caliceal calculi (MCC) & enumerate our experience with this approach.

METHODS: Preoperative assessment included presenting history, clinical & biochemical profile & imaging (radiography (XR), ultrasound (USG), computed tomography urogram (CTU), diuretic renogram (DR) & retrograde pyelogram (RGP)). Patients with significant UPJO & MCC comprised the study cohort. All procedures were conducted via transperitoneal access. After dismemberment of pathological segment & pyelotomy, FURS with access sheath was inserted through a 5 mm working port & directed into the pelvicaliceal system under direct supervision. Flexible ureteroscopy was then carried out, all calices inspected & caliceal calculi were retrieved using entrapment basket. The retrieved calculi were immediately transferred to intraperitoneal retrieval bag. Pyeloplasty was then completed, pelviureteric approximation with interrupted sutures & pelvic edge approximation in continuous fashion. Ureteric stent was placed in antegrade fashion. Operative & postoperative parameters were noted. Stent removal was undertaken at 6 weeks. Follow-up assessment included USG & XR for calculi clearance. Drainage was assessed by RGP & DR at 6 months postoperative.

RESULTS: Between July 2012 to January 2013, 5 similar procedures were conducted. Mean age was 32.2 years (range 8–55 years). Mean number of caliceal calculi were 18.8 (range 3–59). Pathology involved left side in 4 & right side in 1. 1 unit was malrotated. Mean preoperative glomerular filtration rate (GFR) was 30.2 millilitres (ml)/ minute (min), range 22.2- 34.8 ml/min. Mean operative duration was 280 min, range 240–330 min. Mean blood loss was 75 millilitres (ml), range 50–100 ml. No major intraoperative or postoperative events were noted. Mean hospital stay was 3.8 days (range 3–5 days). Complete clearance of calculi at pyeloplasty was possible in 4 patients (80%). 1 patient required additional flexible ureteroscopy during stent removal. Till last follow-up all patients were symptom free. Mean 6 months postoperative GFR was 42.2 ml/min, range 40.4-44.6 ml/min (p<0.001).

CONCLUSIONS: Intracorporeal usage of FURS during LP enables simultaneous addressal of MCC & UPJO preserving the goals of minimally invasive access. The procedure is well tolerated & renders satisfactory outcome.

Source of Funding: None

V14-09 SINGLE SESSION LAPAROSCOPIC PARTIAL NEPHRECTOMY AND CONTRALATERAL TOTAL NEPHRECTOMY: A FEASIBLE PROCEDURE THROUGH THE SAME PORTS

Isaac Braga*, João Cabral, Nuno Louro, Avelino Fraga, José Soares, Luís Osório, Porto, Portugal

INTRODUCTION AND OBJECTIVES: The ideal management of patients with bilateral renal disease is still controversial. Some case reports describe the feasibility of simultaneous laparoscopic bilateral nephrectomies, mainly in non-oncological procedures.
INTRODUCTION AND OBJECTIVES: Partial nephrectomy has become the standard of care for small cT1a renal masses. Robot-assisted laparoscopic partial nephrectomy has led to decreased morbidity while preserving oncologic outcomes compared to traditional open surgery. Current techniques focus on minimizing ischemic injury which has been associated with decreased renal function. The purpose of our abstract is to present a novel technique of zero ischemia, off-clamp robot-assist laparoscopic partial nephrectomy using the Intuitive EndoWrist® One™ Vessel Sealer.

METHODS: We identified a 77 year old female with an exophytic, cT1a renal mass. The renal hilum and tumor were identified and dissected in the standard fashion. After circumscribing a 5 mm to 1 cm margin around the tumor, the Intuitive Endo Wrist One Vessel Sealer was used to excise the tumor without clamping the renal artery. Renal reconstruction was then completed in the standard fashion.

RESULTS: The conversion rate was 9.7% (two patients by uncontrolled bleeding and one due to difficult pedicle dissection). One patient developed a perirenal abscess that resolved with intravenous antibiotic. Only one patient needed reintervention due to perirenal hematoma requiring percutaneous drainage. The mean hospital stay was 5.4 days (range 3–16 days). Glomerular filtration rate (GFR) was evaluated at three moments (with Cockroft-Gault formula): before the surgery (93.4 ml/min), during hospital stay (90.2 ml/min) and one month post-operatively (87.7 ml/min). No patient needed dialysis, neither presented GFR < 30 ml/min at any time during follow-up. Comparing the evolution of the GFR we were able to confirm the importance of this procedure in preserving the renal function with 4.7% of variation of GFR after surgery.

CONCLUSIONS: Laparoscopic partial nephrectomy is a technique with good oncological outcomes in stage T1 renal tumours, associated with short hospital stay, low rate of complications and excellent functional results, while preserving renal function.

Source of Funding: None
RESULTS: The patient experienced an uncomplicated hospital course with clear liquid diet implemented on POD 0. The patient was subsequently advanced to a regular diet on POD 1 and discharged on POD 2 after removing the Jackson-Pratt drain.

CONCLUSIONS: The Intuitive EndoWrist® One™ Vessel Sealer greatly facilitates zero-ischemia off-clamp partial nephrectomy for small, exophytic cT1a renal masses.

Source of Funding: none

V15-02 ROBOTIC-ASSISTED LAPAROSCOPIC DISTAL URETERAL REIMPLANTATION TECHNIQUES

INTRODUCTION AND OBJECTIVES: Robotic-assisted laparoscopic (RAL) techniques are being increasingly adopted by urologists for reconstruction of the upper urinary tract given the benefits of improved dexterity, visualization, ergonomics, and ability to perform intracorporeal suturing. In this video we demonstrate three separate techniques initially described as an open approach that can be recreated and reproduced robotically. These techniques allow for creation of tension free, watertight ureterovesical anastomoses during RAL distal ureteral re-implantation (RALDUR).

METHODS: Using a high definition recording system and iMovie software with narrative and annotative editing we created a video outlining our three techniques of RALDUR. In addition, we created a multi-institutional, retrospectively collected database in which intra-operative and post-operative outcomes were recorded.

RESULTS: Utilizing a standardized and reproducible technique we were able to perform refluxing and non-refluxing re-implantations using extravesical and intravesical approaches. Key steps of the procedures are outlined in the video. Data from our series of 46 patients are presented in Table 1.

CONCLUSIONS: RALDUR is safe, effective, and reproducible for the management of distal ureteral pathology. All steps and principals used in open surgery can be reproduced while utilizing a minimally invasive approach. It is our hope that this video will allow more urologists to consider this approach.

Source of Funding: none

V15-03 A NOVEL USE OF RUMMEL TOURNIQUET FOR RENAL ARTERY OCCLUSION DURING ROBOTIC PARTIAL NEPHRECTOMY
Gordon Fifer*, Matthew Raynor, Eric Wallen, Michael Woods, Matthew Nielsen, Chapel Hill, NC

INTRODUCTION AND OBJECTIVES: Nephron sparing surgery is the recommended treatment for incidentally discovered T1a small renal masses, and strongly recommended for T1b masses (AUA Guidelines 2009). Hilar clamping during minimally invasive partial nephrectomy can reduce blood loss, and improve visualization for tumor extirpation as well as renal reconstruction. In this video, we present our technique utilizing laparoscopic Rummel tourniquets for renal artery occlusion during robotic partial nephrectomy. We present our standard-use case, as well as extensions into the retroperitoneal approach and

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<tr>
<td>Ureteral ectopia</td>
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<tr>
<td>Locally recurrent prostate cancer</td>
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<tr>
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<td>Follow-up (months)</td>
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*One case with associated ureterocele

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<td>Warm Ischemia Time (min)</td>
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Source of Funding: none
multiple artery clamping. Finally, we present our results compared to cases utilizing laparoscopic bulldog clamps.

METHODS: Since September 2010 when we started using this technique, we identified 119 patients at our institution with small renal masses who underwent robotic-assisted partial nephrectomy performed by four different surgeons. A retrospective chart analysis was performed and data extracted into a central database. Preoperative, intraoperative, and postoperative characteristics including operative time, warm-ischemic time, estimated blood loss, and positive margin rate were analyzed for comparison between the two techniques.

RESULTS: A total of 89 patients had Rummel tourniquets used for renal hilum vascular control, and 30 bulldog clamping. All of our outcomes were statistically equivalent. Trends showed that the Rummel patients tended to have larger tumors measured on preoperative imaging (3.7 vs 3.2 cm) and slightly more complex tumors based on RENAL nephrometry score totals (7.7 vs 7.3 avg). Operative time (201 vs 191 min) and estimated blood loss (150 v 138 ml) favored towards bulldogs, but shorter ischemic times (22 vs 28 min) trended towards the Rummels. Margin status was equivalent as well (4.4 vs 3.3%).

CONCLUSIONS: Laparoscopic Rummel tourniquets applied to the renal artery provide excellent vascular control during robotic-assisted partial nephrectomy with similar outcomes to cases performed with bulldog clamps. This provides the robotic surgeon with another valuable tool for hilar control during renal surgery.

Source of Funding: None

V15-04 ROBOTIC MICROSURGICAL MANAGEMENT OF LARGE RENAL ARTERY ANEURYSM

Kush Patel*, Mathew Oommen, Janet Colli, Philip Dorsey, Arthur Caire, Christopher Keel, Albert Sam, Anil Paramesh, Raju Thomas, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Renal artery aneurysms and renal arterio-venous malformations present a challenging dilemma for urologists. We present a case of robotic excision of a 4 cm saccular right main renal artery aneurysm in a 38 year old female. Our patient presented with intermittent right flank pain due to the renal artery aneurysm causing external compression of the renal pelvis with resultant hydronephrosis. We performed a tangential excision of the saccular aneurysm and AV malformation with moderate right hydronephrosis at the level of the saccular aneurysm. The inferior aneurysm was found to be 4.1 cm and was located 2 cm from the aorta and 1 cm proximal to the renal parenchyma. We performed a tangential excision of the saccular aneurysm with primary reconstruction of the renal artery and closure of the aneurysmal os with the daVinci robot. Caveat points included: a) control of artery with bulldog clamps proximal and distal to the aneurysm, b) excision of saccular aneurysm and c) reconstruction of the renal artery with 4-0 prolene.

RESULTS: Robotic excision of renal artery aneurysm with primary artery reconstruction was performed without complications. Estimated blood loss was 200 cc. Patient was discharged on postoperative day 2. Postoperative creatinine was stable at 0.8. CONCLUSIONS: Select renal artery aneurysms can be treated with surgical or endovascular approaches, and management largely depends on the location and type of aneurysm. We present our technique for robotic excision of large saccular renal artery aneurysm.

Source of Funding: None

V15-05 ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY: RESECTION OF MULTIPLE RENAL MASSES AND DEMONSTRATION OF THE SEQUENTIAL PRE-PLACED SUTURETECHNIQUE

Dinesh Samarasekera*, Emad Rizkala, Ricardo Auturino, Jihad Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: The incidence of multifocal RCC is increased in patients with hereditary syndromes (eg. VHL). Patients are typically managed with staged resection or thermal ablative therapies. Simultaneous resection of multiple tumors is beneficial because it obviates the need for repeated general anesthetic and hilar dissection. Because of the longer warm ischemia time (WIT) multifocal resection has typically been carried out by the open approach. However increasing experience with robotic partial nephrectomy has allowed for resection of more complex solitary tumors with comparable WIT. Our aim was to demonstrate a technique for robotic partial nephrectomy for multifocal RCC. We also demonstrate our technique for the resection of tumors with the hilum unclamped (sequential pre-placed suture).

METHODS: A 28 yo female with VHL presented with 3 left sided enhancing renal masses. Her BMI was 18.72 kg/m2, serum creatinine was 0.65 mg/dL, and eGFR was > 60 mL/min/1.73 m2. A CT scan with contrast showed a 2.1 cm upper pole isom (R.E.N.A.L. 5x), a 2.1 cm lateral inter-polar mass (R.E.N.A.L. 7p), and a 2.0 cm lateral lower pole mass (R.E.N.A.L. 7x). The upper and inter-polar masses were resected on clamp, and the lower pole mass was resected off clamp, using our sequential pre-placed suture technique.

RESULTS: Operative time was 210 minutes, and estimated blood loss (EBL) was 250 cc. WIT was 26 minutes. There were no intraoperative or post-operative complications. Serum creatinine on post-operative day 2 was 0.62 mg/dL. The final pathology of all 3 masses was grade 2 Clear Cell RCC. All margins were negative. CONCLUSIONS: Robotic-assisted partial nephrectomy for multifocal RCC is technically feasible with an acceptable WIT. We encountered no complications with minimal blood loss. Additionally all resection margins were negative, and short-term renal function was not affected. The use of an un-clamped sequential pre-placed suture technique can be used to facilitate a decreased WIT. Eleven patients at our center have had a partial nephrectomy with this technique (3 with multiple tumors) and results are comparable to our clamped technique.

Source of Funding: none

<table>
<thead>
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<tr>
<td>Sex</td>
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<td>Tumor size off clamp (cm)</td>
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<td>Highest Renal Score</td>
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<td>Patient 2 (n=1)</td>
<td>Blood Transfusion</td>
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</table>

Table 1. Cleveland Clinic Sequential Pre-Placed Suture Experience
INTRODUCTION AND OBJECTIVES: Increasing experience with robotic-assisted partial nephrectomy have allowed for the resection of more complex tumors. Newer suturing techniques (eg. knotless sliding heme-o-lock) and hemostatic agents have lead to lower warm ischemia times (WIT) and decreased blood loss (EBL). However, resection of these masses can still be technically challenging, leading to serious complications such as hemorrhage and urine leak. Our objective was to present some maneuvers that we have found helpful when removing these tumors. We feel that these techniques may reduce WIT, allow for the resection larger more complex masses, improve visualization during resection, and minimize positive margins.

METHODS: A 69 yo female was found to have a 3.6 cm Bosniak IV right renal mass (R.E.N.A.L. 9x). There was an associated subcapsular hematoma extending caudally to the mass. Additionally, the mass was seen to extend to the renal sinus, and abutted an upper pole calyx. A Tc 99m MAG3 renogram showed 38% split function in the right kidney. Her baseline serum Cr was 0.75 mg/dL and eGFR was >60 mL/min/1.73 m². We used a three-armed approach with our standard port placement for robotic partial nephrectomy which has previously been described. Our first tip describes the use of intra-operative Doppler ultrasound to carefully plan the resection, which we feel is essential. Next we present troubleshooting methods for persistent arterial hemorrhage during resection. This is likely due to a missed accessory artery, a bulldog placed too laterally on the renal artery (actually placed on a segmental branch), and failure of the bulldog to completely occlude the artery. Tip#2 includes maneuvers for dealing with this problem such as further hilar dissection to find all accessory arteries, unclamping the vein, more proximal clamping of the renal artery (to ensure the main trunk is occluded), or placing an extra bulldog on the artery to ensure adequate closure. Tip#3 describes techniques for controlling bleeding vessels as they are encountered, during the resection. Finally, Tip#4 stresses the importance of pre-operative imaging to guide the resection, and not solely relying on visual cues.

RESULTS: OR time was 150 min, EBL was 300 cc, and WIT was 109 minutes. Blood loss for this case was 30 ml. No intra-operative or post-operative complications. Final pathology was benign renal cyst.

CONCLUSIONS: Robotic partial nephrectomy for a completely endophytic hilar tumor is technically feasible. We incurred a longer WIT, however we were able to preserve 70% of functional parenchyma with good short-term renal function. For this young patient, we felt that this was a better alternative than performing a radical nephrectomy for her endophytic hilar tumor, given the past history of a tumor on the contralateral kidney.

Source of Funding: none
operative complication occurred. The final pathology showed renal cell carcinoma, Fuhrman grade 2/4, and all margins negative.

CONCLUSIONS: This video illustrates the feasibility of the off-clamp RAPN. Further investigations will be required to determine the long term effects on renal function of the off-clamp RAPN compared to the traditional clamped RAPN.

References:

Source of Funding: None

V15-09 ROBOTIC-ASSISTED LAPAROSCOPIC CALICEAL DIVERTICULECTOMY

Richard Link*, Dominic Lee, Houston, TX

INTRODUCTION AND OBJECTIVES: Symptomatic caliceal diverticula, particularly those containing stones, are simple anatomic problems that often require complex surgical solutions. Although relatively rare, caliceal diverticula can present with intractable pain, hematuria and recurrent urinary tract infections. Techniques ranging from extracorporeal shockwave lithotripsy to open extirpative surgery have been applied to treat diverticula with varying success, although percutaneous approaches have become the primary minimally invasive therapy. However, anteriorly oriented diverticula or those that have failed percutaneous or ureteroscopic management present a management dilemma. We have had excellent success addressing these complex cases using a novel robotic-assisted laparoscopic diverticulectomy (RALD) technique.

METHODS: To illustrate the technique, we selected a 22-year-old woman with a large, chronically symptomatic right upper pole posterior caliceal diverticulum. She had previously failed percutaneous management despite being rendered stone free. The RALD technique is a modification of robotic-assisted laparoscopic partial nephrectomy in which the diverticulum is identified by laparoscopic ultrasound and unroofed, stones are removed and then the mucosa is resected from its entire from the inside under vascular control. The ostium into the collecting system is then ligated and the defect is closed hemostatically. This approach eliminates the need to resect a significant volume of renal parenchyma despite the endophytic nature of the diverticula.

RESULTS: The procedure was completed without complications in 203 min with a total warm ischemia time of 18 minutes. The patient was discharged on postoperative day #3 and has been symptom free for over eight months. Specific technical points from our larger case experience are illustrated in detail in the accompanying video presentation.

CONCLUSIONS: RALD is an effective method for addressing complex symptomatic caliceal diverticula, particularly anteriorly oriented diverticula, those containing large calculi, or those that have failed percutaneous and ureteroscopic management. Morbidity appears favorable as compared to percutaneous diverticulectomy. For surgeons facile with robotic partial nephrectomy, the learning curve for RALD is relatively short.

Source of Funding: None
retention. The incidence of neobladder-vaginal fistula may also be decreased with preservation of the anterior vaginal wall. Herein, we demonstrate a stepwise anatomic approach to female organ-sparing robotic cystectomy.

METHODS: Female patients with bladder cancer without hydronephrosis, a three-dimensional palpable mass, or bladder neck or posterior bladder wall tumors were considered candidates for female organ-sparing robotic cystectomy. We focus on identification and preservation of critical anatomic structures, including the uterus, anterior vaginal wall, and supporting ligaments. Indications for a female organ-sparing approach were desire to preserve sexual function and request for neobladder reconstruction.

Following cystectomy, extended pelvic lymphadenectomy and urinary diversion were completed as previously described.

RESULTS: Female organ-sparing robotic cystectomy was completed in 4 patients. Peri-operative details are summarized in Table 1. Median operative time was 396 minutes and median estimated blood loss was 350 milliliters. Median hospital length of stay was 12 days. All margins were negative. No patients developed neobladder-vagina fistula. One patient received a blood transfusion. One patient required percutaneous drainage of a pelvic fluid collection.

CONCLUSIONS: Preservation of female reproductive organs can be readily accomplished during robotic cystectomy. Accurate clinical staging and patient selection are critical to optimize post-operative voiding function and oncologic safety. Further prospective study is needed to understand the impact on quality of life and long-term cancer-specific outcomes.

Source of Funding: None

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<td>-Extracorporeal</td>
<td>1</td>
</tr>
<tr>
<td>Pathologic stage</td>
<td></td>
</tr>
<tr>
<td>≤ cT2 N0</td>
<td>3</td>
</tr>
<tr>
<td>cT3-4 N0</td>
<td>1</td>
</tr>
<tr>
<td>Lymph node yield</td>
<td>63</td>
</tr>
</tbody>
</table>

V15-12 ROBOT-ASSISTED INTRACORPOREAL ILEAL NEOBLADDER: SIMPLIFIED STEP-BY-STEP TECHNIQUE AND SURGICAL OUTCOMES

Idir Ouzaïd*, Riccardo Autorino, Emad Rizkala, Dinesh Samarasekera, Vishnuvardhan Ganesan, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

INTRODUCTION AND OBJECTIVES: The aim of this video is to detail our simplified technique for robotic intracorporeal ileal neobladder (NB) after robot assisted radical cystectomy (RARC).

METHODS: A transperitoneal five-port approach using a 4-arm da Vinci® robot (Intuitive Surgical, Sunnyvale, CA, USA) and one patient-side assistant was employed. A NB was performed in all cases. The enclosed video details the surgical steps including the bowel segment selection and anastomosis, the ileourethral anastomosis, the detubularization and neobladder reconstruction, and finally the ureteroileal anastomoses.

RESULTS: Overall, 7 patients underwent RARC with intracorporeal NB between February 2011 and February 2013. All procedures were successfully completed. Main surgical parameters were as follows: mean operative time 442 ± 57 min, estimated blood loss 420 ± 213 ml, and hospital stay 8.6 ± 3.6 days. Overall complication rate was 42.8% (grade 1–2: 28.5 %; grade 3–5: 14.3%). After mean follow-up of 6.6 months, all patients reported daytime continence and two patients have nighttime incontinence. No patient required self-catheterization.

CONCLUSIONS: Robotic intracorporeal NB is a challenging procedure. Given the complexity of the procedure, a simplified step-by-step standardization is needed to implement this approach in routine. We believe the technique described herein, will allow robotic surgeons to perform intracorporeal NB in a safe and reproducible fashion.

Source of Funding: None
**MP26-01 TRANSPERITONEAL ROBOTIC PARTIAL NEPHRECTOMY FOR POSTERIOR RENAL MASSES**

Mark Ball*, Michael Gorin, Phillip Pierorazio, Gautam Jayram, Mohamad Allaf, Baltimore, MD

**INTRODUCTION AND OBJECTIVES:** Robotic partial nephrectomy for posterior renal masses necessitates access to the posterior surface of the kidney either via a transperitoneal or retroperitoneal approach. Advocates of retroperitoneal approach claim reduced morbidity for posterior tumors. In our institution, transperitoneal robotic partial nephrectomy is performed, and the kidney is flipped the kidney anterior-medially to access posterior tumors. Here, we compared demographic, perioperative and recurrence outcomes between transperitoneal robotic partial nephrectomy for posterior tumors compared to the rest of our transperitoneal partial nephrectomy cohort.

**METHODS:** Our departmental robotic PN was queried for patients with posterior tumors on cross sectional imaging who underwent transperitoneal PN. A total of 63 cases were identified. These were compared to the transperitoneal PN for anterior and lateral tumors. Demographic, perioperative characteristics and recurrence data were assessed and compared.

**RESULTS:** Overall, 258 transperitoneal robotic partial nephrectomies were identified. Of these, 63 were for posterior tumors and 195 were for anterior and lateral tumors. Among preoperative characteristics, age, BMI and gender were similar between groups. Among operative characteristics, mean tumor volume, estimated blood loss, operative time, and warm ischemia time were similar between groups. Among post-operative characteristics, complications were similar overall and when stratified by Clavien grade. There were no recurrences in either cohort.

**CONCLUSIONS:** Transperitoneal partial nephrectomy is a safe, effective treatment option for posterior renal masses, with similar operative characteristics to anterior and lateral tumors. Retroperitoneal partial nephrectomy remains an alternative treatment option.

Source of Funding: none

**Table 1. Demographic and Perioperative Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Anterior</th>
<th>Posterior</th>
<th>P-Value</th>
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<tbody>
<tr>
<td>Age</td>
<td>0.72</td>
<td>0.16</td>
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<tr>
<td>Male (%)</td>
<td>0.02</td>
<td>0.21</td>
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</tr>
<tr>
<td>BMI</td>
<td>0.06</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Tumor volume</td>
<td>0.02</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Estimated blood loss</td>
<td>0.02</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Warm ischemia time</td>
<td>0.02</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Resolutions</td>
<td>0.02</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Complications by Grade (%)</td>
<td>0.01</td>
<td>0.04</td>
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</tr>
</tbody>
</table>

**MP26-02 LONG-TERM FOLLOW-UP RESULTS OF LAPAROSCOPIC PYELOPLASTY**

Il Young Seo*, Tae Hoon Oh, Jea Whan Lee, Iksan/Jeonbuk, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** Laparoscopic pyeloplasty has become an accepted minimally invasive alternative with success rates reported to equal or exceed those of open pyeloplasty. However it needs to get a long-term follow-up result to be a standard treatment for ureteropelvic junction obstruction.

**METHODS:** One hundred fifteen patients underwent laparoscopic pyeloplasty including robot-assisted and single-site operations from December 2001 to May 2013. Among of them, 65 patients who underwent standard laparoscopic pyeloplasty with transperitoneal approaches were enrolled into this study. They should be followed-up more than 6 months. There were 35 males and 30 females, and mean age was 43.8 years (11–76). Chief complaints were flank pain in 57 patients and incidental detected in 8. Twenty-three patients had previous abdominal surgeries, including 10 patients of open pyeloplasty and endopyelotomy. Mean length of stricture was 1.1 cm (0.2–3.7) in radiologic studies, and degree of hydrenephrosis was grade 1/4 in 5 patients, grade 2/4 in 10, grade 3/4 in 36, and grade 4/4 in 14. Obstructive pattern (more than 20 minutes of T1/2) in 99 mTc-MAG3 renal scan was presented in 53 patients (81.5%).

**RESULTS:** Fifty-seven patients were treated with dismembered Anderson-Hynes pyeloplasty and 8 patients Fenger pyeloplasty. Mean operating time was 192.6 minutes (57–480). Mean hospital stay was 8.4 days (5–20). During the operation, crossing vessels were found in 27 patients (41.5%). One patient had an ascending colon injury, which was postoperatively detected and repaired. Ant another patient had a spleen injury, which was postoperatively detected and repaired. Mean follow-up period was 36.5 months (6–111). Follow-up excretory urography and 99 mTc-MAG3 renal scan showed improvements in 60 patients (92.3%), and flank pain was disappeared in 54 patients (94.7%) who had complained flank pain.

**CONCLUSIONS:** As the long-term follow-up results, laparoscopic pyeloplasty could be a standard treatment for ureteropelvic junction obstruction.

Source of Funding: none

**MP26-03 ROBOTIC PARTIAL NEPHRECTOMY: WHERE DO WE STAND IN TERMS OF ONCOLOGIC OUTCOMES?**

Brandy Hood*, Spencer Krane, Theodore Manny, Ashok Hemal, Winston-Salem, NC

**INTRODUCTION AND OBJECTIVES:** Previous studies have shown robot assisted partial nephrectomy (RAPN) to be a viable option for the treatment of small renal masses. Due to recent adoption of this modality, long-term data on oncologic outcomes have not matured. We describe our experience with intermediate term follow up.

**METHODS:** We performed a retrospective review of the records of the 253 initial consecutive patients undergoing RPN for small renal masses from January 2008 to July 2012. We assessed...
pathological characteristics, recurrence-free survival and overall survival rates. Patients were followed with renal ultrasound, computerized tomography or magnetic resonance imaging. Both patient records and the social security death index were used to assess overall survival. Descriptive statistics are used to summarize findings.

RESULTS: Of 253 patients undergoing partial nephrectomy, 188 had malignant lesions. Overall positive margin rate was 7.9% (20/253). In patients with post-operative imaging greater than 3 months following their procedure, median follow-up time was 14.9 months with a range of 3 to 55 months. The 4-year oncologic retreatment rate for any patient was 0%. One patient demonstrated a subtle imaging abnormality at the site of the previous resection site, which was not large enough for fine needle aspiration. Another patient developed a new suspicious lesion adjacent to resection site, which was unable to be biopsied.

Both were stage T1a with negative margins. Average time to imaging abnormality was 19 months. The 2- and 4-year overall survival rates were 97% and 96%, respectively, for the entire cohort. Median overall follow-up time was 14 months (range 2–57 months).

CONCLUSIONS: RAPN produces durable intermediate term oncologic results for patients undergoing extirpative surgery for small renal masses. These rates are comparable to other modalities, however long-term follow up will continue to be required in this cohort.

Source of Funding: None

MP26-04 LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR HILAR TUMORS: ONCOLOGIC AND RENAL FUNCTIONAL OUTCOMES


INTRODUCTION AND OBJECTIVES: Hilar tumors present a complex technical challenge to achieve adequate oncologic resection while at the same time minimizing warm ischemia. To present our experience with laparoscopic partial nephrectomy (LPN) for hilar tumors and evaluate intermediate oncologic and renal functional outcomes.

METHODS: A retrospective review of LPN cases performed in 488 patients was performed. Hilar lesions were defined as renal cortical tumors in direct physical contact with the renal artery, vein, or both as identified on preoperative imaging and confirmed intraoperatively. The clinicopathologic parameters, perioperative course, complications, and oncologic and 6-month renal functional outcomes were analyzed.

RESULTS: A total of 488 patients underwent LPN of which 43 were hilar. Perioperative characteristics are presented in Figure 1.

Table 1. Perioperative Characteristics (N = 488)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hilar (n=43)</th>
<th>Non-hilar (n=445)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (yr) (range)</td>
<td>59.2 (38-81)</td>
<td>50.2 (20-99)</td>
<td>NS</td>
</tr>
<tr>
<td>Gender:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (%)</td>
<td>42% (18)</td>
<td>34% (153)</td>
<td>NS</td>
</tr>
<tr>
<td>Female (%)</td>
<td>58% (25)</td>
<td>66% (292)</td>
<td></td>
</tr>
<tr>
<td>Mean ASA score (range)</td>
<td>2.3 (1-3)</td>
<td>2.3 (1-4)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean BMI (range)</td>
<td>21.2 (20.9-35.1)</td>
<td>20.4 (19.8-30.8)</td>
<td>NS</td>
</tr>
<tr>
<td>Estimated Proximal GFR ± SD (ml/min) (range)</td>
<td>95.5 (21.1-225.5)</td>
<td>96.3 (24.0-394.3)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean Tumor Size (cm) (range)</td>
<td>3.6 (1.9-5.5)</td>
<td>3.1 (1.4-13.5)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean Operative Time (min) (range)</td>
<td>139.0 (90-277)</td>
<td>141.8 (48-445)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean Estimated Blood Loss (ml) (range)</td>
<td>311.6 (80-1200)</td>
<td>288.4 (19-5100)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean Warm Ischemia Time (min) (range)</td>
<td>19.1 (14-58)</td>
<td>16.4 (6-80)</td>
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</tr>
<tr>
<td>Mean Length of Stay (days) (range)</td>
<td>3.6 (2-20)</td>
<td>2.4 (1-14)</td>
<td>NS</td>
</tr>
<tr>
<td>Positive Margin</td>
<td>2.9% (1)</td>
<td>1.5% (5)</td>
<td>NS</td>
</tr>
<tr>
<td>GFR:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-operative GFR (ml/min/1.73m²)</td>
<td>80.7 (49-135)</td>
<td>84.0 (22-264)</td>
<td>NS</td>
</tr>
<tr>
<td>Post-operative GFR (ml/min/1.73m²)</td>
<td>74.3 (54.8-135)</td>
<td>82.3 (22-264)</td>
<td>NS</td>
</tr>
<tr>
<td>Estimated GFR (ml/min/1.73m²)</td>
<td>69.9 (51.8-121)</td>
<td>82.3 (22-264)</td>
<td>NS</td>
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</tbody>
</table>

Table 2. Tumor Characteristics (N = 488)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hilar (n=43)</th>
<th>Non-hilar (n=445)</th>
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</thead>
<tbody>
<tr>
<td>Mean Tumor Size [cm] (range)</td>
<td>3.1 (1.9-5.5)</td>
<td>3.1 (0.4-13.5)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean Tumor Volume ± SD [cm³] (range)</td>
<td>28.8 (3-567)</td>
<td>33.6 (0.4-567)</td>
<td>NS</td>
</tr>
<tr>
<td>Depth of Penetration:</td>
<td></td>
<td></td>
<td>0.013</td>
</tr>
<tr>
<td>Endophytic</td>
<td>36% (16)</td>
<td>34% (14)</td>
<td>NS</td>
</tr>
<tr>
<td>Exophytic</td>
<td>54% (22)</td>
<td>59% (253)</td>
<td></td>
</tr>
<tr>
<td>Unavailable*</td>
<td>2% (1)</td>
<td>2% (10)</td>
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<tr>
<td>Histology:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Clear Cell RCC</td>
<td>42% (18)</td>
<td>34% (153)</td>
<td>NS</td>
</tr>
<tr>
<td>Papillary RCC</td>
<td>26% (11)</td>
<td>32% (142)</td>
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</tr>
<tr>
<td>Chromophobe RCC</td>
<td>6% (2)</td>
<td>6% (24)</td>
<td></td>
</tr>
<tr>
<td>Oncocytoma</td>
<td>5% (2)</td>
<td>9% (34)</td>
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<tr>
<td>Angiomyolipoma</td>
<td>7% (3)</td>
<td>5% (20)</td>
<td></td>
</tr>
<tr>
<td>Other Unavailable*</td>
<td>2% (1)</td>
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<tr>
<td>Low Complexity Score 4/6</td>
<td>19%</td>
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<td>NS</td>
</tr>
<tr>
<td>Moderate Complexity Score 7/8</td>
<td>3%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>High Complexity Score 10-12</td>
<td>35%</td>
<td>21%</td>
<td>NS</td>
</tr>
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</table>
1 and tumor characteristics in Figure 2. The mean tumor size for hilar and non-hilar tumors was 3.6 cm and 3.1 cm, respectively. The mean operative time was shorter for hilar as compared to non-hilar tumors (129.1 minutes versus 141.8 minutes). Mean estimated blood loss was greater in LPN for hilar tumors (311.65 ml versus 298.4 ml). There were no statistically significant differences noted in any of the perioperative parameters investigated despite a higher nephrometry complexity score in the hilar group. Change in estimated GFR at 6 months showed a decrease of 10.9 ml/min and 8.8 ml/min for hilar and non-hilar tumors, respectively (p = NS). There was one recurrence detected in the hilar group with a median follow-up of 41.6 months.

CONCLUSIONS: In the hands of an experienced laparoscopist, LPN can safely be performed for hilar tumors with preservation of perioperative outcomes and durable renal functional and oncologic outcomes.

Source of Funding: none

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**MP26-05**  
**OFF-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY: LONG TERM RENAL FUNCTIONAL OUTCOMES**


**INTRODUCTION AND OBJECTIVES:** Off-Clamp partial nephrectomy has been demonstrated to better preserve short-term renal function in recent series. The objective of this study was to evaluate the evolution of renal function in patients undergoing off-clamp laparoscopic partial nephrectomy with extended follow-up.

**METHODS:** A retrospective review was performed of 631 patients undergoing laparoscopic partial nephrectomy. Patients with a minimum 2 years of postoperative followup with documented serum creatinine were included. Patient demographics and perioperative parameters were recorded. Multivariate regression analysis was used to model each outcome of interest, change in eGFR and percent change in eGFR, as a function of clamp status with tumor size included as a covariate.

**RESULTS:** A total of 124 clamped (77.02%) and 37 unclamped (22.98%) patients met inclusion criteria with a followup of 24–66 months. (Figure 1). Larger tumors were more likely to be performed with hilar control (3.06 cm vs 2.53 cm, p = 0.025) though this did not translate into higher complexity by nephrometry scoring (7.19 vs. 6.96, p = NS). The mean warm ischemia time for the clamped group was 26.6 minutes. There were no differences in preoperative patient characteristics or postoperative parameters including OR time, blood loss, transfusion rate or complications between the groups. There were no significant associations between change in eGFR and clamp group or tumor size. The adjusted mean change in eGFR was −8.96 ml/min in the clamped group (95% CI: −12.42, −5.51) and −15.28 in the unclamped group (95% CI: −21.66, −8.90). There were no significant associations between percent change in eGFR and clamped group or tumor size. The mean percent change in eGFR decreased in both groups. The adjusted mean percent change in eGFR was −9.16% in the clamped group (95% CI: −13.11%, −5.21%) and −16.62% in the unclamped group (95% CI: −23.92%, −9.32%).

**CONCLUSIONS:** Off-clamp partial nephrectomy can be performed safely in select patients with equivalent perioperative outcomes. The early benefit of off-clamp surgery equilibrates with time revealing no demonstrable differences in patients with greater than 2 years of follow-up.

Source of Funding: none

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**MP26-06**  
**ROBOTIC VS. PURE LAPAROSCOPIC PARTIAL NEPHRECTOMY: COMPARISON OF OUTCOMES AND EVALUATION OF LEARNING CURVE**

Steve K Williams*, Jared Winoker, Abhishek Srivastava, Reza Ghavamian, Bronx, NY

**INTRODUCTION AND OBJECTIVES:** Laparoscopic partial nephrectomy (LPN) is a challenging operation requiring advanced laparoscopic skills for resection and suturing. A robotic approach may serve as a platform to the adoption of minimally invasive partial nephrectomy for the laparoscopically naive surgeon. We analyze the transition from laparoscopic to robotic partial nephrectomy for an experienced laparoscopic surgeon to assess the learning curve and possible added benefits.

**METHODS:** We retrospectively analyzed the last 60 consecutive patients who underwent LPN and compared them to the first 60 patients who had a robot assisted partial nephrectomy (RAPN) between June 2008 and December 2012. All procedures were performed by a single surgeon (RG) with extensive prior laparoscopic experience. The clinical, pathologic and patient characteristics were compared with respect to estimated blood loss, surgical margins, warm ischemia time (WIT) and complications. All complications were classified according to the Clavien system. To evaluate the impact of surgeon experience on perioperative outcomes, the 60 robotic patients were classified into 4 subgroups, each including
15 consecutive cases and their operative parameters and outcomes were analyzed.

RESULTS: The robotic and laparoscopic partial nephrectomy groups were comparable in terms of age, gender, body mass index, ASA score and mean radiographic tumor size (3.1 vs 3.4 cm), respectively. There were no significant differences in terms of mean operative time (164.7 vs 150.7 minutes, WIT (23.5 vs 23.9 minutes) and positive margin rates for RALPN vs LPN, respectively. The patients undergoing LPN had a greater decrease in GFR in the immediate post-operative period (– 7.0 vs – 1.8 mL/min/1.73 m2, P = 0.004) and had significantly more blood loss (180 vs 103 mL, p = 0.001). Postoperative complication rates were seen more frequently after LPN (8.6% vs 10.2%, p = 0.002). On evaluation of the learning curve for RAPN, it was noted that improvements in the operative time, WIT, and EBL were noted as experience increased. This difference was most pronounced when comparing the first 15 RAPN patients to the three subsequent groups (Groups 2, 3 and 4, P = 0.010).

CONCLUSIONS: RAPN can easily and safely adopted for the laparoscopically experienced surgeon. The learning curve is relatively short and easily overcome for the experienced laparoscopic surgeon and the robotic approach provides equivalent and evitably short and easily overcome for the experienced laparoscopic surgeon. The learning curve is relatively short and easily overcome for the experienced laparoscopic surgeon and the robotic approach provides equivalent and improving outcomes with more experience with less immediate and short term complications and loss of renal function.

Source of Funding: None

MP26-07 FACTORS PREDICTIVE OF SYMPTOMATIC PRESENTATION IN RENAL CELL CARCINOMA
Joseph Song*, Yousef Tanagho, Saint Louis, MO, Sam Bhayani, St Louis, MO, Robert Figenshau, Saint Louis, MO

INTRODUCTION AND OBJECTIVES: Up to 50–85% of cases of renal cell carcinoma (RCC) present with symptoms in the form of hematuria, pain, varicoceles, paraneoplastic symptoms, or other cancer sequelae. Here, we examine the factors which predict symptomatic presentation of renal cell carcinoma.

METHODS: A retrospective chart review was performed for patients who underwent surgery for renal cell carcinoma at Washington University between 1996 and 2010. A multivariate model was used to identify factors predictive of symptomatic presentation. Local symptoms were defined as hematuria, flank pain, abdominal pain, flank mass or varicocele. Systemic symptoms were defined as weight loss, fever, hypertension, or sequelae of paraneoplastic syndromes. Factors investigated included tumor size, histologic subtype, presence of tumor necrosis, Fuhrman grade, perirenal fat invasion, collecting system involvement, renal vein invasion, caval thrombosis, adrenal involvement, pathologic stage, multifocality, and bilaterality.

RESULTS: 944 patients were identified; 754 were asymptomatic at presentation, 165 had local symptoms, and 25 had systemic symptoms. There was an association between tumor size and symptomatic presentation (p < 0.0001), with a 1.54 and 1.14 times increased odds of systemic and local symptoms, respectively, with every 1 cm increase in tumor size. Bilateral disease (p = 0.0028) was also predictive of both systemic (OR 4.96) and local (OR 2.42) symptoms. Collecting system involvement (p = 0.002, OR 3.2) was associated with local but not systemic symptoms. Metastatic disease was a predictor for both local (p = 0.01) and systemic symptoms (p < 0.0001); however, the presence of metastasis increased the odds of systemic symptoms (OR 13.5) and decreased the odds of local symptoms (OR 0.12). None of the other factors involved were statistically significant predictors of symptomatic presentation.

CONCLUSIONS: Increasing tumor size and presence of bilateral disease were predictive of symptomatic presentation of renal cell carcinoma. Collecting system involvement was associated with local symptoms upon presentation. While metastatic disease was associated with an increased risk for systemic symptoms, it predicted decreased local symptoms.

Source of Funding: None

MP26-08 MULTI-CENTER, LONGITUDINAL OUTCOMES OF ROBOTIC PARTIAL NEPHRECTOMY FOR MODERATE TO HIGHLY COMPLEX RENAL MASSES: COMPARATIVE OUTCOMES BASED ON R.E.N.A.L NEPHROMETRY SCORE
James Bienvenu*, Brent Hardin, Eric Heidel, Frederick Klein, Knoxville, TN, David Thiel, Jacksonville, FL, Wesley White, Knoxville, TN

INTRODUCTION AND OBJECTIVES: To evaluate the effect of tumor complexity on perioperative and postoperative outcomes of robotic partial nephrectomy (RPN).

METHODS: A retrospective, multi-center study was performed to evaluate perioperative and oncologic outcomes among patients who underwent RPN for suspected renal cell carcinoma. Patients underwent RPN at 2 academic centers by one of 2 surgeons. Lesions were classified as minimally complex (R.E.N.A.L=4–7, Group 1) or moderately/highly complex (R.E.N.A.L.=8–12, Group 2). Salient demographic and perioperative data was obtained. Patients were followed post-operatively for evidence of remote adverse events as well as for evidence of tumor recurrence. Statistical analysis was performed.

RESULTS: Between January 1, 2008 and August 10, 2012, a total of 133 patients (79 males and 54 females) underwent RPN. Mean age was 58 years (17–80 years). Mean BMI was 30.5 kg/m2. Mean R.E.N.A.L nephrometry score was 7. Mean operative time was 169 minutes (110–322 minutes) and mean warm ischemia time (WIT) was 18 minutes (0–34 minutes). Ten patients required conversion to radical nephrectomy (7.5%) and one patient was converted to open partial nephrectomy (0.75%). Mean blood loss was 421 mL (25–2000 mL). Mean pathologic tumor size was 3.1 cm (range 1.0–8.8 cm). Mean WIT for Group 1 was 15.6 min and 18.5 min for Group 2, respectively (p = 0.058). Mean EBL was 323 mL for Group 1 versus 459 mL for Group 2 (p = 0.077). Mean operative time was 159 min for Group 1 versus 174 min for Group 2 (p = 0.038). Length of stay (LOS) was 3 days for Group 1 versus 3.3 days for Group 2 (p = 0.061). Post-operative adverse events occurred in 9 patients in group 1 versus 13 patients in group 2 (p = 0.19). There was no difference between the two groups in regards to conversion to radical nephrectomy.

CONCLUSIONS: Based on our combined experience, robotic partial nephrectomy for moderate and highly complex renal masses is feasible and is not associated with a higher risk of adverse events or conversions to radical nephrectomy. Patients with complex lesions required significantly longer operative times and demonstrated a trend towards higher blood loss, length of stay, and WIT.

Source of Funding: none
**INTRODUCTION AND OBJECTIVES:** Previous studies have reported increased complication rates in minimally invasive partial nephrectomies with increased intrabdominal fat. Additionally, operative time has been correlated to perinephric fat in patients undergoing laparoscopic donor nephrectomies. We sought to evaluate our experience with robotic assisted laparoscopic partial nephrectomies (RALPN) and correlated operative time to both perinephric fat and intrabdominal wall fat.

**METHODS:** Sixty-six patients who underwent robotic partial nephrectomy at our academic institution from 2011 to 2013 were reviewed. Patient's whose imaging was unavailable for review were excluded from analysis (six patients). Perioperative and demographic data were obtained from chart review. A blinded radiologist reviewed all preoperative images (CT/MRI) and calculated perinephric and intrabdominal fat as explained in Table 1. Operative time was correlated to all fat measurements and perioperative data using linear univariate regression analysis and correlation coefficient and associated P values were calculated.

**RESULTS:** Operative time was significantly correlated with posterior abdominal fat (correlation coefficient $r = 0.4$, $p = 0.001$) and lateral abdominal wall fat (correlation coefficient $r = 0.36$, $p = 0.004$). Operative time was not statistically significantly correlated with anterior or posterior perinephric fat. BMI was a continuous variable that was statistically significantly correlated with posterior perinephric fat and lateral, posterior, and anterior abdominal wall fat but not anterior perinephric fat. In patients who were converted to radical nephrectomy or open partial, all fat measurements were not statistically different from patients who successfully underwent RALPN. (anterior perinephric, $p = 0.39$, posterior perinephric $p = 0.11$ and abdominal wall, $p = 0.65$, posterior abdominal wall $p = 0.5$, lateral abdominal wall $p = 0.25$).

**CONCLUSIONS:** Preoperative imaging measurements of posterior and lateral abdominal wall fat on cross sectional imaging correlate with operative time. This may reflect lack of sufficient space for insufflation of carbon dioxide during pneumoperitoneum. Preoperative calculation of abdominal wall fat is beneficial when adequately counseling patients with small renal masses on RALPN.

**Source of Funding:** none
maintain precision while adjusting for multiple covariates. Investigated outcomes included estimated blood loss (EBL), ischemia and operative time, length of hospital stay, margin status, opioid use, postoperative estimated glomerular filtration rate (eGFR), complications within 30 days, and readmission rates.

**RESULTS:** Tumors treated with RPN were more likely to be less complex by nephrometry score (p = 0.038). Four of the 5 components of R.E.N.A.L. (radius; nearness to collecting system or sinus; anterior/posterior location; and location with respect to the polar line) were significantly different between the groups. After adjustment for these factors, a lower EBL was noted in the RPN group (β = −97; 95% CI: 156, −39; p = 0.001). Risk of readmission for the RPN group was significantly lower (OR 0.15, p = 0.001). Risk of readmission was lower (OR 0.2, p = 0.05).

**CONCLUSIONS:** RPN was associated with lower EBL and readmission rates.

**Source of Funding:** none

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**MP26-11 LAPAROSCOPIC NEPHRECTOMY: SAFETY AND EFFICACY IN PATIENTS ON ANTICOAGULANT THERAPY**

Takaharu Ichikawa*, Kurashiki, Japan, Yasuhiro Nishiyama, Susumu Yamane, Shunji Hayata, Tottori, Japan, Tomoko Sako, Youichi Shiotoku, Yasuo Yamamoto, Noritaka Ishito, Hitoshi Takamoto, Kurashiki, Japan

**INTRODUCTION AND OBJECTIVES:** The increasingly common use of laparoscopic surgery has been accompanied by improvements in related devices such as HD monitors and hemostatic energy sources.

The goal of the study was to evaluate the safety and efficacy of laparoscopic nephrectomy in patients with renal diseases under treatment with anticoagulants.

**METHODS:** The subjects were 44 patients with renal cancer, upper urinary tract cancer or kidney dysfunction who underwent laparoscopic nephrectomy in patients with renal diseases under treatment with anticoagulants.

**RESULTS:** Laparoscopic nephrectomy was performed successfully in all patients. In the aspirin and control groups, the mean operation times were 207 and 203 minutes, the mean estimated blood loss was 132 and 134 mL, and the mean postoperative periods before drainage tube removal were 2.0 and 2.5 days, respectively. Use of pain killers did not differ significantly between the two groups. There were no major perioperative or postoperative complications and no blood transfusions were required.

**CONCLUSIONS:** Surgery after withdrawal of anticoagulant therapy is generally thought to have a threefold higher risk of cerebral stroke compared to that with continuation of anticoagulants. Our findings show that laparoscopic nephrectomy using modern devices is a safe and effective surgical modality for patients on anticoagulant therapy.

**Source of Funding:** none
MP26-13 MID-TERM OUTCOMES OF LAPAROSCOPIC RADICAL NEPHRECTOMY IN PATIENTS WITH LOCALIZED RENAL TUMOR.

Luca Lunelli*, Eric Barret, Rafael Sanchez-Salas, Youness Ahalal, Laurent Mascle, Petr Macek, Camilo Giedelman, Dominique Prapotnich, Francois Rozet, Marc Galiano, Annick Mombet, Nathalie Cathala, Xavier Cathelineau, Paris, France

INTRODUCTION AND OBJECTIVES: Laparoscopic radical nephrectomy (LRN) has become the standard technique for surgical treatment of renal tumors > 4 cm. There is limited long-term, population-based evidence supporting the effectiveness of laparoscopic radical nephrectomy after its widespread adoption. The aim of this study was to evaluate the results and outcomes of purely laparoscopic radical nephrectomy among patients with kidney cancer.

METHODS: A retrospective review of a series of 683 patients (1996 to 2012) who underwent laparoscopic radical nephrectomy (LRN) was performed. The population was split in two match paired groups: Group 1 (G1) counted 341 patients treated in the period 1996–2005 and Group 2 (G2) counted 342 patients treated between 2005 and 2012. Groups were compared in terms of age, tumor size, intraoperative blood loss, operative time and follow-up duration. Cardiovascular events and complications, stratified by Clavien Score are reported. Percent change in serum creatinine at long-term follow-up, overall mortality and 5-years survival rate are analyzed.

RESULTS: Mean overall patient age at surgery was 62.7 years (61.9 years in G1 versus 63.4 years in G2, p = 0.1) and mean tumor diameter was 59.8 mm (G1: 60.6 versus G2: 59.6 mm, p = 0.6). The G1 group had significantly higher mean blood loss (290 versus 194 ml, p = 0.004) and operative time (135 versus 117 minutes, p < 0.001) compared with G2 group. Cardiovascular post-operative events presented in 4 (0.6%) patients and 98 (14.5%) patients presented with postoperative deterioration in renal function, as measured by the percent increase in serum creatinine postoperatively (13% in G1 versus 24% in G2, p < 0.001). Median follow-up time was 37.6 months (range 1–190 months), 183 patients had a follow up longer than 5 years. Lower complication rate was reported for patients who underwent LRN in the first group than for those operated in the second group (n = 57 vs 80, respectively). Average Clavien score was 2.2 in G1 and 2.1 in G2 (p > 0.05). Only one complication Clavien score 5 was registered, in G2. Overall mortality for cancer specific and non-cancer specific causes was 10.2%, while overall 5 years survival rate after LRN was 90%.

CONCLUSIONS: Our mid-term evaluation of LRN shows that radical laparoscopic nephrectomy is an effective option for treatment of localized kidney cancer. With increasing experience it is possible to significantly reduce operative time and blood loss. Oncologic outcomes show a limited cancer related mortality.

Source of Funding: None

MP26-14 MULTI-INSTITUTIONAL ANALYSIS OF RENAL FUNCTION FOLLOWING CRYOABLATION OF SMALL RENAL MASSES IN SOLITARY KIDNEYS

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INTRODUCTION AND OBJECTIVES: Presence of small renal masses (< 4 cm) in solitary functioning kidneys represents an absolute indication for nephron sparing surgery.

The purpose of this study was to evaluate the outcomes of cryoablation in patients with solitary kidneys focusing on renal function in a large multi-centre series.

METHODS: Data from 434 consecutive cases that underwent laparoscopic cryoablation at 3 institutions was studied. Experienced laparoscopic surgeons performed all operations. Patient demographics, tumour size and renal function were analysed with specific focus on serum creatinine concentration and estimated glomerular filtration rate (eGFR). Data was collected pre-ablation and 3 months post-operatively.

RESULTS: Fifty-two patients were identified with solitary kidney, of which two were excluded because of long-term dialysis. Of these, 46 patients had solitary kidney secondary to previous malignancy and 4 had a non-functioning contralateral kidney. Cryotherapy was performed laparoscopically in 46 patients and 4 were ablated percutaneously (CT-guided). Mean age was 65.7 years (range 44–82). Mean tumour size was 2.9 cm (range 1.5 to 5 cm). Mean pre-operative creatinine was 141.8 mmol/l (range 56–404 mmol/l), 3 month post-operative creatinine was 148.7 mmol/l (range 66–358 mmol/l), and the percentage difference equating to 4.9%, p = 0.793. Post-operative renal function did not change significantly as measured by eGFR. Pre-operatively it was averaged at 46.9 ml/min (range 24–90 ml/min), at 3 months was recorded at 44.6 ml/min (range 15–78 ml/min), percentage difference of ~ 5.1%, p = 0.076.

CONCLUSIONS: Our findings suggest cryoablation in solitary kidneys does not alter renal function significantly, therefore cryotherapy is a viable option for small tumours.

Source of Funding: “None”

MP26-15 LAPAROSCOPIC NEPHRECTOMY FOR XANTHOGRANULOMATOUS PYELONEPHRITIS

Oscar Fugita*, Sao Paulo, Brazil, Paulo Kawano, Hamilto Yamamoto, Joao Amaro, Rodrigo Guerra, Botucatu, Brazil, Marcos Nogueira, Sao Paulo, Brazil, Horacio Consolmagno, Sao Paulo, Brazil, Americo Sakai, Sao Paulo, Brazil

INTRODUCTION AND OBJECTIVES: The laparoscopic approach is currently the standard option for benign kidney diseases requiring nephrectomy. However, xanthogranulomatous pyelonephritis (XGPN) sometimes is considered a relative contraindication to laparoscopic nephrectomy, due to the severe adhesions around the kidney and potential for complications. We present our experience in managing XGPN through laparoscopic nephrectomy.

METHODS: A retrospective chart review of 401 consecutive patients that underwent laparoscopic nephrectomy (from Jan/2003 to Dec/2012) for benign conditions was conducted, among which 41 (mean age 43 years) had a histopathological diagnosis of XGPN and were further analyzed. Transperitoneal approach was used in all cases and data regarding age, sex, preoperative symptoms, operative time, bleeding, hospital stay and complications were gathered.

RESULTS: Conversion rate was 10%, all of them due to no progression. The mean operative time was 192 minutes and the mean estimated blood loss was 152 ml, with a mean hospital stay of 3.6 days. Eight patients (20%) developed Clavien grade II complications, all related to abdominal wall infection (in a previous nephrostomy site in one case and in the incision for specimen retrieval in another case). In six cases a trocar site infection developed. There was one grade IVa complication, due to pulmonary infection and one grade V complication with death of the patient.

CONCLUSIONS: The laparoscopic treatment of the XGPN remains challenging and controversial. A high complication rate can be expected, especially from infectious causes.

Source of Funding: NONE
MP26-16 ASSESSING THE USEFULNESS OF DIAMETER-AXIAL-POLAR Nephrometry Score FOR Prediction OF OPERATIVE Parameters IN ROBOTIC PARTIAL NEPHRECTOMY

Young Eun Yoon*, Kyung Hwa Choi, Sang Woon Kim, Ji Yong Ha, Won Sik Ham, Koon Ho Rha, Young Deuk Choi, Woong Kyu Han, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: There were some suggestions of nephrometry score to evaluate objective assessment of anatomical tumor complexity. We analyzed the correlation of the brand new diameter-axial-polar (DAP) nephrometry score with warm ischemia time (WIT) and estimated blood loss (EBL) for patients undergoing robotic partial nephrectomy (RPN).

METHODS: A total of 101 patients underwent RPN between January 2008 and July 2010. Preoperative computed tomography (CT) or magnetic resonance imaging (MRI) was available for 99 patients, which were assigned a DAP nephrometry score. Univariable analysis and multivariable linear regression analysis were carried out for factors associated with WIT and EBL during RPN.

RESULTS: Mean age was 51.9 years (62 men/37 women) and 80 renal masses (80.8%) were malignant tumors. Mean tumor size was 3.4 ± 1.7 cm and mean DAP score was 5.9 ± 1.5. On univariable analysis, a longer WIT was associated with all of the D (p < 0.001), A (p < 0.001), P (p < 0.006) components and entire DAP sum (p < 0.001). EBL was associated with larger diameter (p = 0.032), longer axial distance (p = 0.011) and entire DAP sum (p < 0.001), but not with polar distance (p = 0.078). On multivariable linear regression analysis, all D (p = 0.002), A (p = 0.048) and P (p = 0.004) components showed significant correlation with WIT. But, only axial distance (p = 0.028) and polar distance (p = 0.036) were significantly associated with EBL.

CONCLUSIONS: As well as DAP sum, all components of DAP nephrometry predict WIT during RPN. Our data also suggest that DAP sum is correlated with EBL of RPN. DAP nephrometry may be used in the preoperative planning and counseling of patients undergoing RPN.

Source of Funding: none

MP26-17 RETROPERITONEAL LAPAROSCOPIC APPROACH IN UROLOGY DEPARTMENT OF IBN ROCHD HOSPITAL UNIVERSITY: A REPORT OF 133 CASES

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INTRODUCTION AND OBJECTIVES: Currently the laparoscopic extraperitoneal approach, after a difficult start has become an attractive alternative to laparoscopic trans-peritoneal procedures with a lot of benefits, shorter Operative times and better surgical outcomes. We reported the safety and efficacy of retroperitoneal laparoscopic approach in 133 patient in our hospital.

METHODS: We reported 133 patients cases including: 57 cases of simple renal cyst, 30 case of nephrectomy, 5 cases of renal hydatic cyst, 5 cases of UPJ, 3 cases of renal lithiasis, 5 cases of psoas absces and 27 cases of adrenalecomy. We performed a retroperitoneal laparoscopic approach in flank position using 3 to 5 trocars for all the patient.

RESULTS: All intervention was unrolling without incident except a case of conversion for a pyelonephretic kidney. The post-operative course was uneventful in all patients with a shorter hospital stay and faster recovery of activity.

CONCLUSIONS: Retroperitoneal laparoscopy is an interesting alternative to trans-peritoneal laparoscopy for a direct approach to the urinary tract without contact with the viscera with a short operative time and uneventful. The retroperitoneal approach offers significant benefits including the establishment safely trocars , especially if earlier intervention in the abdomen, the absence of any intraperitoneal complication, decreased postoperative pain and shorter laxation.

Source of Funding: university hospital IBN ROCHD casablanca morocco

MP26-18 LAPAROENDOSCOPIC SINGLE SITE PYELOPLASTY AND NEPHROLITHOTOMY PERFORMED SIMULTANEOUSLY

Yasuyuki Naitoh*, Akihiro Kawachi, Fumiya Hongo, Jintetsu Soh, Kazumi Kamoi, Tsuneharu Miki, Kyoto, Japan

INTRODUCTION AND OBJECTIVES: Laparoendoscopic single site surgery (LESS) for pyeloplasty was introduced to our department from 2008, and we have experienced 40 cases so far. Among them we report five cases of lithotomy performed simultaneously through the LESS port in patients with calculus in the distended renal pelvis.

METHODS: 5 patients with PUJO and renal stones underwent pyelolithotomy performed concurrently with LESS pyeloplasty. In 4 patients, a 2.5 cm incision was made in the umbilical region. In the fifth patient, the 2.5 cm vertical incision was made at a site 7 cm below the umbilical region because of an ectopic kidney in the pelvis with renal stones. After dissection of the PUJ, an
incision of about 1 cm was made along the presumed transection line of the renal pelvis. The pyelolithotomy was performed using a 26Fr rigid nephroscope through a SILS port. Dismembered pyeloplasty was performed after extraction of the renal stones was completed. An antegrade DJ stent was placed during the operation in all cases.

RESULTS: The mean operation time was 290 minutes (range: 225 to 373) and the mean lithotomy time was 36 minutes (range: 20 to 55). No intraoperative or postoperative complications were observed. For all 5 patients, discharge from the hospital was possible after a mean of 3.4 postoperative days (range: 3 to 4). Four of the patients became stone-free. In the remaining 1 patient with an ectopic kidney in the pelvis and 15 stones, 2 small stones remained. Postoperative ultrasound revealed that hydronephrosis improved in all patients. In all patients, resolution of the symptoms was confirmed.

CONCLUSIONS: Laparoendoscopic single site surgery is a safe and effective operative procedure for pelvi-ureteric junction stenosis accompanied by calculus in the renal pelvis.

Source of Funding: none

MP26-19 INDUCTION OF COLD ISCHEMIA IN PATIENTS WITH SOLITARY KIDNEY USING RETROGRADE INTRARENAL COOLING: UPDATE AND 3-YEAR FUNCTIONAL OUTCOMES

Philip Dorssey*, New Orleans, LA, Janet Colli, Memphis, TN, Benjamin R Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Renal hypothermia is commonly utilized during nephron sparing surgery to minimize ischemic tissue damage. We propose a method to induce renal hypothermia using continuous retrograde irrigation of iced saline via dual-lumen ureteral catheter. We will report results in an ex vivo porcine model followed by clinical outcomes in a series of patients with solitary kidney undergoing robotic-assisted laparoscopic partial nephrectomy (RALPN).

METHODS: Following our successful use of retrograde irrigation of saline to achieve renal cooling in a porcine model, a series of patients (n = 10) undergoing RALPN with a solitary kidney had concomitant intra-operative retrograde renal cooling to maximize renal preservation during surgery. A 10-Fr dual-lumen ureteral catheter was placed at initiation of anesthesia and retrograde infusion of ice-cold saline via a 10-Fr dual-lumen ureteral was initiated prior to renal artery clamping.

Following surgery, our cohort has been prospectively followed since their surgery, with serial serum creatinine and estimated GFR measurements as well as surveillance imaging maintained in our IRB approved database.

RESULTS: In our porcine study, cortical temperature reached the target temperature (≤20°C) within an average of 203 s of retrograde irrigation. In the clinical series, patients’ mean preoperative creatinine was 1.16 mg/dL (GFR = 60). At a median follow-up of 25 months (range 7–38 months), postoperative creatinine was 1.47 mg/dL (GFR = 41.94). Average clamp time was 19.4 min. All patients had negative surgical margins.

CONCLUSIONS: The results of our long-term follow up suggest retrograde irrigation is a technically feasible method to induce cold ischemia, which may provide an additional protective effect on renal function in patients who have a solitary kidney undergoing surgery via a minimally invasive approach.

Source of Funding: None

MP26-20 LAPAROSCOPIC DISMEMBERED PYELOPLASTY

Boris Komlyakov, Bakhman Guliev*, Ruslan Aliev, Saint-Petersburg, Russia Federation

INTRODUCTION AND OBJECTIVES: Laparoscopic pyeloplasty is minimally invasive management option for ureteropelvic junction obstruction (UPJO). We evaluate the postoperative and functional results of transperitoneal laparoscopic dismembered pyeloplasty of 60 patients.

METHODS: Between October 2009 and March 2013, 60 patients underwent laparoscopic dismembered pyeloplasty. All patients presented a primary UPJO with dilatation of renal calyx system with an enlarged renal pelvis. The mean age was 32 years (range 20 to 58), and of the 36 women and 24 men, 31 presented UPJO on the right side and 29 on the left side. All patients were subject to a preoperative evaluation including renal ultrasonography, diuretic renography and intravenous urography or CT scan that revealed the presence of severe hydronephrosis. Urinary stones were detected in the renal pelvis in 12 patients. We used four ports during laparoscopic pyeloplasty. First, 12 mm port was introduced at the level of the umbilicus. The peritoneal cavity was inspected by a 30-degree telescope, followed by placement of three other 5 mm ports.

RESULTS: All patients were treated laparoscopically, and no open conversions were needed. The mean operative time was 125 minutes (range 90–180 min). The mean estimated blood loss was negligible in all patients. The mean hospital stay was 6 days (4–8 d.). No intraoperative complications have occurred. Transient anastomotic leakage occurred in three patients and was successfully treated by conservative treatment. A persistent UPJO was detected at first follow-up visit in four patients and was treated by retrograde endopyelotomy in three cases and by performing an open pyeloplasty in another case. A mean follow-up period was 18 months (range 6–28) and demonstrated a 93.3% success rate after the initial operation.

CONCLUSIONS: Laparoscopically dismembered pyeloplasty is a safe and effective procedure for UPJO correction with a high overall success rate, less morbidity and lower complication rates.

Source of Funding: None

MP26-21 RETROPERITONEAL LAPAROSCOPIC PARTIAL NEPHRECTOMY: 10 YEAR SURGICAL EXPERIENCE AND OUTCOMES

Derek Prabharsath*, Eric Moskowitz, Andrew Fishman, Michael Grasso, Valhalla, NY

INTRODUCTION AND OBJECTIVES: Partial nephrectomy has become a standard in the management of small renal masses. We present our surgical experience and long term outcomes in those who underwent retroperitoneal laparoscopic partial nephrectomy performed over a 10 year period by a single surgeon.

METHODS: We retrospectively reviewed 226 consecutive cases of retroperitoneal laparoscopic partial nephrectomy between February 2002 and February 2012. A 3-port retroperitoneal approach was used routinely. Clinical, demographic, and peri-operative data were assessed. Oncological outcomes were retrospectively analyzed with long term follow up.

RESULTS: Two-hundred-eighteen patients underwent 226 partial nephrectomies during this ten year period. Mean age was 61.9 years and mean follow-up time was 46.4 months (0.2–126.2). Mean estimated blood loss and warm ischemia times were 233.2 ml (10–800) and 32.4 minutes (0–60), respectively.
Preoperative and postoperative GFR measured by the Cockcroft-Gault equation were 90.7 mg/dL and 83.3 mg/dL, respectively at a mean follow-up time of 30.1 months. A total of 254 tumors were removed. Mean tumor size was 2.6 cm (0.4–11.0). All pathological specimens revealed negative surgical margins. Final pathology revealed: clear cell (42.9%), papillary cell (19.7%), oncocytoma (13.0%), angiomyolipoma (7.5%), complex cysts (6.7%), chromophobe (5.5%), and miscellaneous (4.7%). There were 10 major complications (4.4%) including: persistent urinary leak (2.2%), pulmonary embolus (0.9%), and bleeding requiring selective embolization (1.3%). One patient (0.4%) experienced local and metastatic recurrence at a mean time of 11.9 months and 55.1 months, respectively after initial treatment. Cancer specific survival was 100 %. Eleven patients (4.9%) were deceased from non-cancer related events at a mean follow-up time of 94.1 month.

CONCLUSIONS: Retroperitoneal laparoscopic partial nephrectomy has become our first line therapy for patients with small renal masses given its low complication rate and good surgical outcomes. Our long term results show durable cancer specific survival and preservation of renal function.

Source of Funding: none

MP26-22 LAPAROSCOPIC NEPHROURETERECTOMY IN A PATIENT WITH UNUSUAL STONE LOCALISATION


INTRODUCTION AND OBJECTIVES: Open or laparoscopic surgery for stones of the upper urinary tract has very few indications such as failure or complications of the other techniques, stones grater than 2 cm, hard stones, anatomical abnormalities and complex stones. We presented a case with unusual stone formation wich is nearly filling all upper urinary tract that managed by transperitoneal laparoscopic nephroureterectomy.

METHODS: A 21 year old male patient presented with long standing right flank pain and palpable hard right kidney. Kidney-ureter-bladder (KUB) radiography and then non-enhanced three dimentional computerized tomography (3 D CT) scan revealed giant kidney Stones measuring 4.2×2.5 cm and 2.0×1.5 cm and proximal ureteral stones short axis < 1.0 cm causing ureteral obstruction and multiple ureteral stones wich are filling up urinary tract to iliac vessel crosswise (figure 1–2. Transperitoneal laparoscopic right nephroureterectomy was performed and a drain was replaced. The macroscopy of the specimen was white and cheesy (figure 3).

RESULTS: Total operating time was approximately 180 minutes with estimated blood loss of 200 ml. Histopathological examination of the specimen revealed chronic pyelonephritis and chronic ureteritis however there was not any granulomateus reaction. The patient had a smooth post-operative recovery. Drain was removed postoperatif 2nd day and patient discharged. After six weeks of surgery patient controlled with urinary ultrasonography and no pathological events found.

CONCLUSIONS: Since laparoscopic nephroureterectomy provides less operative blood loss, earlier oral intake, less consumption of analgesics as well as shorter hospital stay and convalescence, yt can be a good choose for the treatment of complex urinary stones.

Source of Funding: none

MP26-23 INITIAL OPERATIVE EXPERIENCE WITH ROBOTIC URETERAL RECONSTRUCTION DISTAL TO THE URETEROPELVIC JUNCTION

Gordon Fifer*, Matthew Raynor, Michael Woods, Eric Wallen, Raj Pruthi, Chapel Hill, NC

INTRODUCTION AND OBJECTIVES: The robotic platform has become commonplace in urologic surgery, and reconstruction of the ureteropelvic junction (UPJ) was one of its earliest uses. Yet despite the increased use of robotics, there are very few reports of robotic ureteral reconstruction for pathology distal to the UPJ. We are reporting our initial results with a relatively large series of patients with distal ureteral obstruction.

METHODS: A retrospective chart review was performed on 44 patients who underwent robot-assisted reconstruction of the ureteral distal to the UPJ for either benign or malignant obstruction between December 2009 and May 2013. The procedures performed included segmental ureterectomy; ureteroneocystotomy; psoas bladder hitch; Boari Flap; ureteroureterostomy; end-to-side ureteroureterostomy for duplicated system; ureterolithotomy; ureterolysis; and ureteral re-implant into orthotopic neobladder. Flexible endoscopy was performed concurrently in 22 cases. Preoperative, intraoperative, and postoperative characteristics were extracted and analyzed.

RESULTS: The etiology was benign, idiopathic, or iatrogenic in 34 patients, and 10 had a malignant cause. The average patient
was 54 years old with a BMI of 30. Twenty three patients had a nephrostomy tube in place at the time of reconstruction. The average total operative time was 234 minutes, with endoscopy use averaging an additional 25 minutes. Estimated blood loss averaged 81 ml. For the 19 patients with a known date of injury, the median time to repair was 91 days. The average length of stay was 1.7 days, with 29 patients discharged on POD 1. There were no intraoperative complications. Surgical margins were negative for all malignant cases. One patient required a single blood transfusion postoperatively; 1 patient was transferred to the SICU for less than 1 day for a transient desaturation event; and 1 patient had an elevated troponin requiring no interventions. During short term follow up, 1 patient required prolonged ureteral stenting, and 1 required ureteral balloon dilation.

CONCLUSIONS: Robotic reconstruction of the ureter distal to the UPJ is feasible, safe, and able to reproduce similar techniques to open surgery. It is also extremely flexible, allowing the surgeon to choose from a large variety of procedures to best suit the disease process in the patient being treated at the time of surgery. Additional studies with larger populations, extended follow-up time, and perhaps even randomization to compare against traditional open surgery will help to further determine the long term success of these operations.

Source of Funding: none

MP26-24 ROBOTIC PARTIAL NEPHRECTOMY: THE IMPACT OF WARM ISCHEMIA TIME

Mohamad Salkini*, AbdulRaouf Lamoshi, Morgantown, WV

INTRODUCTION AND OBJECTIVES: Robotic partial nephrectomy (RPN) is a technically challenging procedure. Preparing the renal hilum, tumor resection, hemostasis, and renorrhaphy should be accomplished within reasonable time. Robotic surgery found great acceptance as it always conveyed shorter warm ischemia time (WIT) compared to traditional laparoscopic approach. We present our current series of RPN to demonstrate the effect of warm ischemia on post operative kidney function.

METHODS: Seventy patients underwent RPN at our institute. We studied 42 patients whose kidney underwent RPN with WIT executed with hilar clamping.

RESULTS: Patient demographic, mean patient age was 56.4 yr (range: 34–83 yr), 17 males (48.6%) and 18 females (51.4%). Mean WIT was 20.26 min (SD 5.69) (range: 11- 34 min).

Mean estimated blood loss (EBL) was 299 ml (range: 50-2000 ml). Hospital stay length range is 1–6 days (mean 2.43). Mean overall tumor size was 3.19 cm (range: 2–7 cm). All patients had negative surgical margins except one (2.38 %).

The creatinine level of the patients with malignant pathology has been checked on the second post-operative day (short term reading) and within 3–6 months after surgery (long term reading). The mean preoperative creatinine was 1.13 mg/dL (range 0.52–2.5) and the early post-operative (48 hrs) creatinine 1.86 mg/dL (range 0.54 â€“ 3.4). The mean long term creatinine was 1.24 mg/dL (range 0.69–2.7 mg/dL).

WIT and EBL do not show significant correlation (P = .6983), warm ischemia time and hospital stay length do not show significant correlation (P = .79), and warm ischemia time and short term creatinine do not show significant correlation (P = .91).

CONCLUSIONS: WIT shorter than 34 min has no effect on EBL, early post-operative renal function and length of hospital stay.

Source of Funding: None

Table 1. Mean Perioperative Patient Parameters

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<th>Surgery Group</th>
<th>N</th>
<th>Duration of Surgery (min.)</th>
<th>Day of Oral Intake (Days)</th>
<th>Analgesia (mg Morphine Eq)</th>
<th>Day of Drain Removal (Days)</th>
<th>Day of Discharge (Days)</th>
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Table 2. Number and Cause for Conversion in Each Surgery Group

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<td>Stone migration in all cases</td>
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<td>Perinephric dense adhesions</td>
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MP26-25 A SINGLE SURGEON, SINGLE CENTRE, 5 YEARS EXPERIENCE IN RETROPERITONEOSCOPY: AN INDIAN SCENARIO

Venugopalan Ganapathy, Haris C H*, Thiruvananthapuram, India, Sudin S R, Kollam, India, Navin C Angus, Ginso V George, Sandeep Krishnan, Thiruvananthapuram, India, Suchindra P Unni, Kochi, India, Jibu K Pillai, Thiruvananthapuram, India, Jithunath M R, Thrissur, India
INTRODUCTION AND OBJECTIVES: Retroperitoneoscopy (RPS) has evolved in the recent past as an effective alternative to the conventional Transperitoneal laparoscopy in the management of upper urinary tract pathologies (UUTP). Our Objective is to study the perioperative patient outcomes of 156 RPS carried out for various UUTP in our institution and to address the merits and demerits of RPS.

METHODS: In the period from October 2008-January 2013, 156 RPS procedures were carried out on 156 patients for various UUTP. All these patients were retrospectively analysed for perioperative patient outcomes. Data are presented in mean and standard deviation; Student’s T-test used to compare mean between 2 groups.

RESULTS: The results are tabulated in table 1 and table 2. In our series, CROSSING VESSEL was present in 65% of PYELOPLASTY cases. Average Stone size in PYELOLITHOTOMY cases is 3.32 cms, in ureterolithotomy cases is 2.21 cms. Average Tumor size in RADICAL NEPHRECTOMY cases is 6.2 cms. Average Cyst size in DEROOFING cases is 7.37 cms. The merits of RPS are - Blood loss was minimal and blood transfusion was not required in any of these cases; No incidence of trocar related visceral injuries, pneumothorax, basilar atelectasis and paralytic ileus; Analgesia use was less; Early convalescence; No incidence of Port site herniation, intestinal obstruction, internal herniation in any of these cases with a mean follow up 21.6 months. The demerits are - Difficult in obese patients and tumor > 10 cm size.

CONCLUSIONS: Thus RPS proves to be an effective alternative to conventional Transperitoneal laparoscopy in the treatment of UUTP.

Source of Funding: None

MP27 ROBOTICS/LAPAROSCOPY: UPPER TRACT VI

MP27-01 LAPAROSCOPIC RADICAL NEPHRECTOMY FOR CLINICAL T1B AND T2A RENAL MASSES. DOES THE APPROACH MAKE A DIFFERENCE? COMPARISON OF LAPARO-ENDOSCOPIC SINGLE-SITE AND MULTIPORT LAPAROSCOPIC SURGERY

Omer Raheem, Michael Liss, La Jolla, CA, Reza Mehrzarin, Memphis, TN, Jason Woo, Sean Stroup, Ithaar Derweesh*, La Jolla, CA

INTRODUCTION AND OBJECTIVES: To compare outcomes of laparoendoscopic single-site surgery (LESS) and multiport laparoscopic (MPL) Radical Nephrectomy (RN) for clinical (c) T1b and T2a renal masses, focusing on discharge and pain parameters.

METHODS: Retrospective comparison of LESS- and MPL-RN between 7/2005 and 11/2012. 63 patients underwent LESS-RN (44 cT1b/19 cT2a); 133 underwent MPL (83 cT1b/50 cT2a) performed by a single surgeon. LESS transperitoneal access was obtained by peri-umbilical incision through which all trocars were inserted. LESS-RN recapitulated steps of MPL-RN; all patients were managed with standardized clinical care pathway. Variables were compared between MPL and LESS groups. Primary outcome was length of hospital stay (LOS).

RESULTS: 130/133 MPL and 62/63 LESS cases were successfully performed (median follow-up 24.7 months). No significant demographic differences were noted. For MPL and LESS groups: cT1b mean tumor diameter (cm) was 5.3 ± 0.8 and 5.4 ± 0.8 (p = 0.689); cT2a mean tumor diameter (cm) was 8.2 ± 0.8 and 8.3 ± 0.9 (p = 0.728); mean RENAL score was 10.0 ± 1.1 and 9.7 ± 1.2 (p = 0.12); mean OR time (min) was 126.3 ± 42.9 vs. 132.7 ± 38.5 (p = 0.314). No significant differences in blood loss (p = 0.49) and complications (p = 0.781) were noted. LESS-RN had significant reductions in LOS (2.14 ± 0.95 vs. 2.45 ± 1.01 days, p = 0.043), discharge pain-score (1.3 ± 1.1 vs. 2.2 ± 0.9, p < 0.001), and narcotic use (5.9 ± 5.4 vs. 10.7 ± 4.2 morphine equivalents, p < 0.001). No significant differences were noted for disease-specific survival (MPL 94% vs. LESS 97%, p = 0.678).

CONCLUSIONS: In this well-matched retrospective comparison, LESS- was comparable to MPL-RN for cT1b/cT2a renal tumors for perioperative parameters and may confer benefit in LOS and analgesic requirement. Prospective randomized evaluation is requisite.

Source of Funding: None

MP27-02 THE PRESENCE OF GLOMERULOSCLEROSIS IS NOT ASSOCIATED WITH WORSENED DECLINE IN RENAL FUNCTION FOLLOWING ROBOTIC ASSISTED PARTIAL NEPHRECTOMY

Michael Johnson*, Jonathan Mobley, Joel Vetter, R. Sherburne Figenshau, Sam Bhayani, Saint Louis, MO

INTRODUCTION AND OBJECTIVES: Pre-operative estimated glomerular filtration rate (eGFR), warm ischemia time, and the resected volume of marginal healthy tissue are known independent predictors for reduced renal function following minimally invasive partial nephrectomy. The aim of this investigation is to evaluate whether the pathological presence of renal damage manifested by glomerulosclerosis alters renal functional status after partial nephrectomy.

METHODS: Thirty-three patients with post-operative GS in the nonneoplastic renal parenchyma following RAPN were compared to 33 patients lacking GS (controls). This was a case control study with matching of cases by nephrometry score. The patients in both cohorts possessed a pre-operative eGFR greater than 60 ml/min per 1.73 m2 and were matched based on nephrometry scores and pre-operative eGFR. The change in creatinine and eGFR using the Chronic Kidney Disease Epidemiology Collaboration formula following RAPN were compared for each group.

<table>
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<th>Age [years]</th>
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<th>P-value</th>
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<td>2.39±1.99</td>
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<td>88.6±14.8</td>
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</table>

Source of Funding: None
RESULTS: The GS and controls were similar in age, tumor size, nephrometry scores, pre-operative creatinine, pre-operative eGFR, and warm ischemia times (Table 1). The mean increase in creatinine for the GS group was 0.11 mg/dL compared to 0.09 for the controls. The GS group experienced a mean decrease in eGFR of 9.4 ml/min, while the control’s eGFR decreased by 8.1 ml/min. There was no significant difference in the change in creatinine (p = 0.689) or eGFR (p = 0.636) in the two groups following RAPN.

CONCLUSIONS: Patients with glomerulosclerosis did not experience a worsened decline in renal function following RAPN when compared to controls. The presence of pathological renal damage (GS) is not associated with any change in eGFR.

Source of Funding: none

MP27-03 HAND-ASSISTED LAPAROSCOPIC LIVING DONOR NEPHRECTOMY (HALDN): A 10-YEAR SINGLE-CENTER EXPERIENCE IN ORIENTAL POPULATION

Yoishhide Higuchi*, Akihiro Kanematsu, Kimihiro Shimatani, Takeshi Hanasaki, Toeki Yo, Yukako Nakamichi, Yoshikazu Togo, Shukan Go, Toru Suzuki, Michio Nojima, Shingo Yamamoto, Nishinomiya, Japan

INTRODUCTION AND OBJECTIVES: Hand-assisted laparoscopic donor nephrectomy (HALDN) has evolved as a popular procurement method of kidney graft for its safety and minimal operative invasion. We have performed Hand-assisted laparoscopic donor nephrectomy (HALDN) since 2003 in our institute. The aim of this study is to evaluate the utility and safety of HALDN, in regard of life-threatening complications such as severe bleeding and function of transplanted kidney.

METHODS: We analyzed 90 consecutive living donors who underwent HALDN from February 2003 to March 2013. The data has been collected prospectively and included all consecutive donors operated with the HALDN. In this study we investigated the blood loss, complication rate and allograft outcome of HALDN in our institute.

RESULTS: Mean patient age was 57 years and 71 (78.9%) left kidneys were harvested. Eighty seven cases (96.7%) underwent retroperitoneal approach. Six of 90 (6.7%) cases required conversion to an open procedure. Mean laparoscopic operative time and estimated blood loss was 242 minutes and 228 mL, respectively. Mean warm ischemia time (WIT) was 5 minutes. No donor required blood transfusion. All kidneys had immediate onset of function. Grafts with plural vessels, (double renal arteries (N = 6)), tended to result in longer WIT, and longer Reperfusion-to-urine secretion time (RUT). There was no significant difference in laparoscopic operation time, blood loss and RUT without WIT according to BMI (Table 1). The incidence of complications was 20 / 90 (22.2%). According to Clavien grading, there were 15 (16.7%), 4 (4.4%), and 1 (1.1%) cases for grade 1, 2, and 3 complication, but there was no life-threatening morbidity. Two donor was reoperated due to ileus. Six patients experienced minor complications (liver disfunction, n = 2; urinary retention, n = 1; gastric ulcer, n = 1; subcostal pain, n = 1 Malfunction of Endo-TA, n = 1). One recipient experienced urinary leakage from graft at the site of sacrificed arterial branch.

CONCLUSIONS: The hand-assisted method for laparoscopic donor nephrectomy is a safe procedure with excellent control of bleeding and steady procurement of graft viability.

Source of Funding: none

MP27-04 R.E.N.A.L. NEPHROMETRY SCORE DOES NOT PREDICT SURGICAL COMPLEXITY

Nikhil Waingankar*, Arvin George, Mostafa Sadek, Louis Kavoussi, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: The R.E.N.A.L. Nephrometry score was developed primarily to be a standardized schema for anatomical classification of renal tumors, and secondarily to classify tumor resectability. The purpose of our study was to evaluate this scoring system’s ability to predict surgical complexity for laparoscopic partial nephrectomy (LPN).

METHODS: Nephrometry scores were calculated for 300 consecutive LPNs and added to our prospectively collected operative database. High complexity tumors (nephrometry sum 10–12) and low complexity tumors (nephrometry sum 4–6) that were resected with hilar clamping were compared for all standard perioperative data points using independent sample t-test for continuous data and Chi-square test for categorical data.

RESULTS: 73 low- and 31 high complexity tumors were resected with hilar clamping. Age, ASA, and clamp times were equivalent between the two groups. For low vs. high complexity tumors, no significant differences were found in EBL (261.5 vs 328.8 cc), OR time (144.7 vs 137.1 min), change in hematocrit (6.1 vs 6.9%), positive margins (1.4% vs 0%), intra- or postoperative transfusions (1.4 vs 0% and 1.4 vs 6.5%), complications (15.1% vs 25.8%), or length of stay (2.3 vs 2.6 days). All p-values > 0.05. While low complexity tumors had a significantly lower immediate postoperative change in Cr compared to high complexity tumors (0.15 vs 0.38, p = 0.005), this effect normalized on long term follow up.

CONCLUSIONS: Our study demonstrated no differences in perioperative values between low and high complexity tumors. While R.E.N.A.L. Nephrometry score remains an excellent way to anatomically classify tumors, the sum-based classification groups do not predict surgical complexity.

Source of Funding: none

MP27-05 THE INCREASED POSTOPERATIVE RENAL FUNCTION LOSS AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY WITH GREATER WARM ISCHEMIA TIME TENDS TO BE RECOVERED IN MID TERM FOLLOW-UP

Selcuk Erdem*, Abubekir Boyuk, Tzevat Tefik, Feyyaz Ural, Halim Issever, New Hyde Park, NY

INTRODUCTION AND OBJECTIVES: The R.E.N.A.L. Nephrometry score was developed primarily to be a standardized schema for anatomical classification of renal tumors, and secondarily to classify tumor resectability. The purpose of our study was to evaluate this scoring system’s ability to predict surgical complexity for laparoscopic partial nephrectomy (LPN).

METHODS: Nephrometry scores were calculated for 300 consecutive LPNs and added to our prospectively collected operative database. High complexity tumors (nephrometry sum 10–12) and low complexity tumors (nephrometry sum 4–6) that were resected with hilar clamping were compared for all standard perioperative data points using independent sample t-test for continuous data and Chi-square test for categorical data.

RESULTS: 73 low- and 31 high complexity tumors were resected with hilar clamping. Age, ASA, and clamp times were equivalent between the two groups. For low vs. high complexity tumors, no significant differences were found in EBL (261.5 vs 328.8 cc), OR time (144.7 vs 137.1 min), change in hematocrit (6.1 vs 6.9%), positive margins (1.4% vs 0%), intra- or postoperative transfusions (1.4 vs 0% and 1.4 vs 6.5%), complications (15.1% vs 25.8%), or length of stay (2.3 vs 2.6 days). All p-values > 0.05. While low complexity tumors had a significantly lower immediate postoperative change in Cr compared to high complexity tumors (0.15 vs 0.38, p = 0.005), this effect normalized on long term follow up.

CONCLUSIONS: Our study demonstrated no differences in perioperative values between low and high complexity tumors. While R.E.N.A.L. Nephrometry score remains an excellent way to anatomically classify tumors, the sum-based classification groups do not predict surgical complexity.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: The aim of this study is to investigate the effect of warm ischemia time (WIT) on early postoperative and follow-up renal functions in laparoscopic partial nephrectomy (LPN).

METHODS: Between February 2008 and March 2013, LPN was performed for 141 suspected renal tumors in our center. After excluding the operations without warm ischemia application (n = 16), 125 LPNs were included in this analysis. The cases were stratified into three groups according to WIT: Group 1 (n = 42, WIT < 20 min), Group 2 (n = 66, 20 min ≤ WIT < 40 min) and Group 3 (n = 17, 40 min ≤ WIT). The prospectively collected demographic, perioperative and renal functional outcomes were retrospectively compared between three groups. Glomerular filtration rates (eGFR) were calculated using 'Modification and Diet in Renal Disease-MDRD' formula. Appropriate tests were used in statistical analyses.

RESULTS: Between demographically similar three groups, preoperative tumor size were significantly lower in Group 1 (p = 0.008). The median operative times (p < 0.001) and estimated blood loss (p = 0.009) were significantly different between groups, with an increase in parallel to group order (Table 1). There was no difference between groups in terms of complication rates (p = 0.095). The postoperative Cr increase (ΔCr1, p < 0.001) and Cr decrease during follow-up (ΔCr3, p = 0.005) were significantly lower in Group 1. While postoperative eGFR decrease (ΔeGFR-1) was significantly different between groups (p < 0.001), this decrease was higher in Group 3 (Median: 59) and lower in Group 1 (Median: 78.5) After mid-term follow-up, eGFR increase in Group 3 (Median: 12) and Group 2 (Median: 6) were statistically different from Group 1 (Median: -1), with a meaning of recovery in renal functions (Figure 1).

CONCLUSIONS: In this limited laparoscopic partial nephrectomy experience, it is observed that warm ischemia time more than 20 minutes significantly reduces renal functions in postoperative period. However, renal functions tend to rise nearer to preoperative levels after mid-term follow-up. Nevertheless, the analyses with long-term follow-up in large series will clearly determine the effect of warm ischemia time on renal functions.

Source of Funding: None

MP27 ROBOTICS/LAPAROSCOPY: UPPER TRACT VI

MP27-06 PORT-SITE METASTASIS AFTER SURGERY FOR RENAL CELL CARCINOMA: A HARBINGER OF FUTURE METASTASIS

Joseph Song*, Eric Kim, Jonathan Mobley, Goutham Vemana, Youssef Tanagho, Joel Vetter, Sam Bhayani, Robert Figenshau, St Louis, MO

INTRODUCTION AND OBJECTIVES: Port site metastasis (PSM) is a rare occurrence following minimally invasive treatment for renal cell carcinoma (RCC). However, it has remained unclear what the prognostic implications may be as reports in the literature are heterogeneous in detail and follow-up. We sought to determine the clinical characteristics, cancer-specific outcomes, and long-term results of RCC patients with PSM.

METHODS: Between 1993 and 2013, 190 positive port side sentinel lymph node (PSLN) biopsies were performed in 145 patients with RCC at our institution. Among these, 15 patients (10%) were identified with PSM. We retrospectively reviewed their charts and clinical outcomes. This study was approved by the institutional review board.

RESULTS: The median age of patients was 54 years (range: 23–77 years). The median follow-up period of patients with PSM was 36 months (range: 6–173 months). The majority of patients (13/15, 87%) presented within one year of their PSLN biopsy. The most common method of detection of PSM was CT scan of the chest/pelvis (13/15, 87%), followed by chest X-ray (2/15, 13%). There were a total of 13 isolated PSMs identified in our series. The cancer-specific survival and disease-free survival were 78% at 5 years and 67% at 5 years, respectively. The Kaplan-Meier analysis demonstrated a significant survival advantage for patients with isolated PSM (p = 0.007). The 5-year cancer-specific survival for patients with isolated PSM was 85%.

CONCLUSIONS: Port site metastasis in RCC patients is a rare but important clinical condition. The current study provides evidence for the clinical benefit of PSM detection and treatment, with a 5-year cancer-specific survival of 85% for patients with isolated PSM. Further studies are necessary to determine the optimal management strategy for patients with PSM.
to clarify the significance of PSM on cancer-specific survival and broaden our understanding of this phenomenon.

**METHODS:** A MEDLINE search for published studies of RCC PSM was performed. Results were mined for information on contributing factors to PSM, stage, Fuhrman grade, pathology, PSM treatment method, follow-up protocol, and long-term outcomes. Corresponding authors of each publication were contacted to fill in details and provide long-term outcomes. We added one case from our recent experience.

**RESULTS:** 15 cases from 11 authors were found (table 1). Eight of the 11 authors were available for correspondence, and 9 cases were updated. Cancer-specific survival curves on these (fig 1) showed poor prognosis with a 22% 1-year survival rate from PSM diagnosis. 12/15 cases involved multiple metastases in addition to the PSM. Eight of the cases had no identifiable technical reason to explain PSM formation, such as specimen morcellation, absence of entrapment, and tumor rupture. These tumors were uniformly aggressive, Fuhrman grade of 3 or higher.

**CONCLUSIONS:** PSM after minimally invasive surgery for RCC is a rare occurrence with poor prognosis. In the majority of cases, PSM is not an isolated metastasis but is instead a harbinger of progressive disease. While technical factors can play a role in PSM formation, it appears that biological factors like high tumor grade also contribute to PSM.

**Source of Funding:** none

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**MP27-07 ROBOT-ASSISTED URETERECTOMY AND URETERAL REIMPLANT FOR MANAGEMENT OF DISTAL URETERAL MALIGNANCIES: SINGLE INSTITUTION EXPERIENCE WITH LONG-FOLLOW-UP**

Alonso Carrasco*, Matthew Gettman, George Chow, Matthew Tollefson, Rochester, MN

**INTRODUCTION AND OBJECTIVES:** Ureterectomy with ureteral reimplant has been shown to have equivalent oncologic outcomes to nephroureterectomy for management of upper tract urothelial carcinoma (UC) of distal ureter. We present our experience with Robotic-Assisted Ureterectomy and Ureteral Reimplant (RAUUR) in management of UC of the distal ureter.

**METHODS:** A retrospective chart review at Mayo Clinic was performed.

**RESULTS:** We identified 15 patients with mean age of 70 year at time of surgery. Mean operative time, blood loss, and length of hospitalization were, 249 minutes, 118 mL, and 2.7 days, respectively. Ten patients (67%) required reconstruction of the bladder hospitalization were, 249 minutes, 118 mL, and 2.7 days, respectively. Ten patients (67%) required reconstruction of the bladder (7 with psoas hitch and 3 with Boari flap). One patient was converted to open and 1 patient developed anastomotic stricture 5 months postop. There were 4 recurrences at mean follow-up of 22 months, all within the bladder (3) or contralateral renal pelvis (1).

**CONCLUSIONS:** The RAUUR with or without pelvic lymphadenectomy and complex bladder reconstruction can be safely performed with excellent intermediate term oncologic outcomes and preservation of ipsilateral renal function.

**Source of Funding:** None

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**MP27-08 COMPARATIVE ANALYSIS OF VASCULAR BULLDOG CLAMS USED IN ROBOTIC PARTIAL NEPHRECTOMY**

Brian Le, Richard Matulewicz, Samuel Eaton*, Kent Perry, Robert Nadler, Chicago, IL

**INTRODUCTION AND OBJECTIVES:** During robotic (RPN) and laparoscopic (LPN) partial nephrectomy, clamping of the vascular pedicle prior to excision of the tumor is the key to minimize blood loss and maintain adequate visualization. Multiple options for hilar control exist, including recently introduced robotic specific bulldog vascular clamps. The relative efficacy of these new clamps has not been assessed. We conducted a comparative analysis of robotic and laparoscopic vascular clamps focusing on clamp force and flow across a clamped model vessel.

**METHODS:** We compared ten different vascular clamps used in RPN and LPN: the Klein robotic, Klein laparoscopic short, medium straight, medium curved, and long, Aesculap short straight, short curved, long straight and long curved, and a laparoscopic Satinsky clamp. Force testing was done at 1 cm and 2 cm distances from the fulcrum and at the tip. To simulate a clamped vessel, a quarter inch penrose was clamped and the proximal end attached to a pressure flow monitor. Flow across the tubing at various pressures and leak point pressure (LPP) were recorded. Comparative analysis was conducted using descriptive statistics and t-tests.

**RESULTS:** The Klein robotic clamp exerted significantly less clamp force along the length of the clamp compared to the laparoscopic placed Klein, Aesculap and Satinsky clamps (p < 0.001). In our vascular model, the Klein robotic clamp had a LPP of 8.3 mm Hg vs. 36.3 mm Hg (Klein Lap) and > 170 mm Hg (Aesculap) (p < 0.001). At all pressures, the robotic clamp allowed more flow compared to laparoscopic placed clamps.

**CONCLUSIONS:** Robotic vascular bulldog clamps produce significantly less clamping force than laparoscopic bulldog or Satinsky clamps and thus allow more flow across the clamped segment. This difference appears to be intrinsic to the clamp itself. This may translate into poorer hemostasis intraoperatively.

**Source of Funding:** none
MP27-09  STATIN THERAPY MAY BE ASSOCIATED WITH INCREASED RISK OF LONG TERM RENAL DYSFUNCTION FOLLOWING HILAR CLAMPING IN ROBOTIC PARTIAL NEPHRECTOMY

Louis Krane*, Victor Romero, Ashok Hemal, Winston-Salem, NC

INTRODUCTION AND OBJECTIVES: Many theories and techniques have been described to improve long-term renal function in patients undergoing robotic assisted partial nephrectomy. Statins are known to improve endothelial function and their continuation at the time of surgery has been associated with improved renal functional outcomes. We evaluated the role of statins in long term renal function following robotic partial nephrectomy with hilar clamping.

METHODS: 176 consecutive patient undergoing robotic partial nephrectomy who had hilar clamping at a single institution were included in this analysis. Statin medications were evaluated from home medication lists and all were continued perioperatively. Chronic kidney disease stage progression was defined as increasing from stage I or II (GFR > 60) to stage III (GFR < 60) or higher. Patients who progressed from Stage III to Stage IV or higher were also included. GFR was calculated using the MDRD equation preoperatively, perioperatively (highest serum Cr at time of hospitalization) and at last follow-up.

RESULTS: Fifty three patients were on statin therapy and had hilar clamping at the time of the procedure. These patients did not have increased body mass index (p = 0.91), or tumor size (p = 0.76), and nephrometry score distribution (p = 0.24) was similar between the two groups. These patients did have a higher median age (65 vs 57 years, p < 0.001). Median follow up was 12 months (IQR 3–20). Cox proportion hazards evaluating risk of CKD progression including tumor size, ischemia time, statin usage and age (as a continuous variable), statin usage was not statistically significantly associated with improvement in renal function. In fact it was associated with a non-significant increased risk of progression of CKD stage (RR 2.65, 95%CI 0.88–8.02, p = 0.02). No other factors were statistically significantly associated with progression of CKD.

CONCLUSIONS: Statin therapy may not be renoprotective in patients undergoing hilar clamping at the time of robotic assisted partial nephrectomy. Further investigations into the role of these medications at time of renal ischemia is warranted.

Source of Funding: None

MP27-10  ROBOT-ASSISTED CYSTECTOMY WITH SIMULTANEOUS NEPHROURETERECTOMY: CASE SERIES FROM A SINGLE INSTITUTION

Helen Levey*, Justin Houman, Anees Fazili, Hani Rashid, Guan Wu, Rochester, NY

INTRODUCTION AND OBJECTIVES: Patients with concurrent urothelial carcinoma of the bladder and upper urinary tract may necessitate radical cystectomy with simultaneous nephroureterectomy. Our institutional experience with robot-assisted cystectomy (RAC) with concomitant nephroureterectomy (NU) represents one of the largest case series to date of this combined procedure.

METHODS: From February 2007 to January 2012, we performed 8 RAC with simultaneous unilateral NU. Four of these patients underwent a RAC with ileal conduit diversion, and four patients underwent RAC with a cutaneous ureterostomy. NU was completed first, with patient in the lateral decubitus position; and the patient was then re-positioned supine for the RAC component. Patient demographics, peri-operative data as well as pathological and surgical outcomes were analyzed.

RESULTS: All procedures were successfully performed robotically without conversion to laparotomy. There were 5 male and 3 female patients, with a median age of 75.5 years (range 59–89), median BMI of 26.3 (range 21–39), median pre-operative GFR of 48.5 (range 20–100), median ASA of 3 (range 2–4), and median Charlson Co-morbidity Index score of 8 (range 5–9). Intra-operatively, median EBL was 400 mL (range 200–1200), and median operative time was 431 min (range 260–480). Median lymph node yield was 13.5 nodes (range 4–47). Only one patient had an intra-operative complication, consisting of a recognized rectal injury that was primarily repaired. Median length of hospital stay was 8 days (range 5–28). Two patients had a planned immediate post-operative ICU admission, and no patient had an unplanned admission to the ICU. Five patients experienced a post-operative complication, although these were all low grade. No patients had a return to the operating room within 30 or 90 days. One patient required replacement of a dislodged ureteral stent in his cutaneous ureterostomy by Interventional Radiology at two months post-operatively. Surgical margins were ultimately negative in 7 patients. With a median follow-up of 14 months, no patient experienced a local recurrence of tumor, and only 1 patient experienced a metastatic recurrence, occurring at 16 months post-operatively.

CONCLUSIONS: In patients with concurrent urothelial carcinoma of the bladder and upper urinary tract, RAC with either ileal conduit diversion or cutaneous ureterostomy and concomitant NU is a technically feasible and safe procedure.

Source of Funding: None

MP27-11  OUTCOMES IN PARTIAL NEPHRECTOMY AT UNIVERSITY HOSPITAL COVENTRY AND WARWICKSHIRE, UK

Claire Webster*, Coventry, United Kingdom, Salil Umranikar, Solihull, United Kingdom, Husam Ibrahim, Anthony Blacker, Michael Wills, Coventry, United Kingdom

INTRODUCTION AND OBJECTIVES: Partial nephrectomy (PN) can be offered in many renal tumours where appropriate as part of a nephron sparing approach. PN is associated with less mortality, less morbidity from cardiovascular events and better long term renal function. There is currently no proven increase in recurrence rates in long term follow up. The procedure can be performed open, laparoscopically or robotically. We present our experiences and outcomes in PN in our unit.

METHODS: All PN procedures performed at our hospital were analysed. All patients had a standard work up and additionally a pre-operative arterial phase CT. Vascular control was achieved in all cases although clamping the vessels and introperative cooling was not routinely performed. The procedure was performed by 2 experienced surgeons. Patient demographics, operative data, histology, and follow up blood results were extracted.

RESULTS: There were 55 procedures performed; 30 male and 25 female patients; between the ages of 24 to 84. 50 of the procedures were performed laparoscopically, and 5 open, one of which was a conversion due to intraoperative bleeding. Two patients had absolute indications for PN (unilateral kidney), one relative (impaired renal function) and the remainder had normal contralateral kidneys. Tumour size ranged from 1.5–18 cm, and sizes of tumours offered a PN appears to have increased over time. 13 patients had positive margins, however no recurrences have been documented to date. There was an average haemoglobin drop of...
2.6 g/dl. Renal function was not affected immediately post operatively, and at three year follow up in most patients.

CONCLUSIONS: PN appears to be an effective alternative to radical total nephrectomy with regards to long-term outcomes. Partial nephrectomy in our study has preserved renal function in our patients. The overall rate of complications were comparable and positive margins have not been linked with cancer recurrences to date. Longer term outcomes are awaited.

Source of Funding: none

MP27-12 RETROPERITONEAL LAPAROSCOPIC LIVING DONOR NEPHRECTOMY: REPORT OF 151 CASES
Hongxian Zhang*, Xian Zhang, Lei Zhao, Lulin Ma, Beijing, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: To summarize our experience of 151 retroperitoneal laparoscopic living donor nephrectomies.

METHODS: A total of 151 donors underwent retroperitoneal laparoscopic living donor nephrectomy from Dec 2003 to Dec 2012. The operation was performed through 3 lumbar ports; after the kidney was liberated fully and the ureter was severed 7–8 cm under the lower pole of kidney, the renal artery and vein were blocked with Endo-cut or hem-o-lok separately and then severed. Endo-cut was used in 3 patients and hem-o-lok in 148 donors. Then the kidney was taken out quickly from the donor and infused with 4% kidney preserving fluid immediately.

RESULTS: The 151 operations were successful. Operation time was 86 min (54–180 min) and blood loss was 50 ml (20–200 ml), no patient needed blood transfusion. Warm ischemia time 3.6 min (2–8 min). 3 patients had hematoma of renal fossa after operation and they required no further treatment. Hospital stay after operation was 5 days (3.5–9 days). 141 of 151 donors were followed up for 61 months (10–96 months).

CONCLUSIONS: Retroperitoneal laparoscopic living donor nephrectomy is a safe and reliable method and it can replace the traditional open surgery. The modified RLDN can lower the learning curve of the surgery.

Source of Funding: none

MP27-13 PRONE VERSUS SUPINE LASIX RENAL SCAN TO ASSESS SURGICAL SUCCESS FOLLOWING LAPAROSCOPIC AND ROBOTIC ASSISTED PYELOPLASTY
Andrea G. Lantz*, Michael Ordon, Kenneth T. Pace, R. John Honey, Toronto, Canada

INTRODUCTION AND OBJECTIVES: Success following laparoscopic pyeloplasty (LP) for ureteropelvic junction (UPJ) obstruction is determined based on renal scan (RS) results and patient symptoms ± ultrasound. The upright or prone position during RS may facilitate drainage. This study reports on outcomes following LP and robotic-assisted laparoscopic pyeloplasty (RALP) and determines if patient position (supine vs. prone) alters the results of the postoperative RS and surgical “success”.

METHODS: A retrospective review of LP and RALP performed by one surgeon between 2005–2012 was performed. Follow-up consisted of RS ± ultrasound. The paired t-test was used to assess for a significant difference between mean T1/2 for supine vs. prone scans in each patient. Linear regression was used to determine if preoperative split renal function on the affected side or degree of preoperative hydronephrosis predicted difference in supine vs. prone T1/2.

RESULTS: 11 LP and 81 RALP were performed. 84 had follow-up data. There were 4 failures (4.3%). 38 patients had sufficient supine and prone RSs for analysis. The difference in T1/2 between supine and prone RS’s was significant (mean difference 10.18 ± 27.28 min, p = 0.03). Strict success increased to 65.8% from 44.7% and combined strict plus technical success increased to 78.9% from 63.1% on prone versus supine RS. Split function and degree of hydronephrosis were not predictors of difference in RS results.

CONCLUSIONS: LP and RALP have good technical results. Prone position for RS may facilitate drainage and may be a more accurate representation of post-operative outcome following pyeloplasty, particularly in equivocal cases.

Source of Funding: None

MP27-14 PURE RETROPERITONEAL LAPAROSCOPIC COMPLETE NEPHROURETERECTOMY AND BLADDER CUFF RESECTION FOR UPPER URINARY TRACT TRANSITIONAL CELL CARCINOMA
Fang Zhenqiang*, Ye Gang, He Fan, Shen Chongxing, Wang Xiangwei, Yi ShanHong, Jia Weisheng, Chongqing, China, People’s Republic of China

INTRODUCTION AND OBJECTIVES: Open nephroureterectomy and bladder cuff resection (OUN) remains the gold standard surgical treatment for upper urinary tract transitional cell carcinoma (UUT-TCC), but is currently being challenged by minimally invasive approaches. We reported a minimally invasive technique with a pure retroperitoneal laparoscopic complete nephroureterectomy and bladder cuff resection (LNU) and the comparative outcomes with ONU.

METHODS: We retrospectively reviewed the charts of 65 patients with UUT-TCC at the Second Affiliated Hospital of the Third Military Medical University between Jan 2008 and May 2012, of whom 29 underwent LNU and 36 underwent ONU. ONU was performed with two incisions via a flank approach combined with a lower abdominal incision. LNU was performed with only four small incisions (0.5–1.5 cm) with diamond-shaped distribution. The opened bladder wall was closed with absorbable suture threads. Data collected for this study includes patient gender, age, surgery time, estimated blood loss, histopathological reports, complication rates, and postoperative hospital stay. The follow-up was made every 3 months for the first 1 year and biannually thereafter.

RESULTS: All 65 patients in our study had intact extraction of pathologically confirmed UUT-TCC. There were no significant differences between the groups for mean age, sex, tumor laterality, tumor grade, and tumor stage. Surgical margins were negative for cancer in both groups. All 29 patients in LNU group were successfully performed through LNU. The patients in LNU group had a significantly less operative duration (217.5 vs 245.6 minutes, p = 0.078), less blood loss (186.4 ml vs 349.6 ml, p = 0.001), more rapid resumption of ambulation (2.6 vs 5.5 days, p = 0.000), oral intake (2.6 vs 4.1 days, p = 0.000), shorter hospital stay (7.6 vs 11.7 days, p = 0.000), and less analgesic requirements (31.6 mg morphine sulfate equivalent vs 180.1 mg, p = 0.000). There were no significant differences between the two groups for complications, bladder recurrence or distant metastases and mortality.

CONCLUSIONS: LNU with only four small incisions, which is associated with low morbidity and acceptable oncological safety, results in more minimally invasive, less blood loss, less
postoperative pain, quicker oral intake, shorter hospitalization and a more rapid recovery than ONU and should be accepted as a better operative choice for UUT-TCC.

Source of Funding: Supported by National Natural Science Foundation Project of China\&No. 81200506@ and Natural Science Foundation Project of CQ CSTC\&No. CSTC, 2009BB5154@

MP27-15 COMPARATIVE ASSESSMENT OF PERIOPERATIVE OUTCOMES FOR TRANSPERITONEAL LAPAROSCOPIC RADICAL NEPHRECTOMIES PERFORMED ON VERY LARGE TUMOURS (\geq 10 CM), DOES SIZE MATTER?

Simon Ouellet*, Michel Carmel, Sherbrooke, Canada, Arold Martel, Sherbrooke, Canada, Robert Sabbagh, Sherbrooke, Canada

INTRODUCTION AND OBJECTIVES: The role of laparoscopic radical nephrectomy (LRN) in the management of very large renal masses has yet to be determined. Moreover, no studies have considered the total size of the specimen removed. We report our experience managing renal masses \geq 10 cm with transperitoneal LRN.

METHODS: We retrospectively reviewed cases of LRN performed in the context of renal masses from June 2006 to December 2011 at our institution. LRNs were divided into two groups: tumours 10 cm or larger (n=24) and tumours smaller than 10 cm (n=124). Patient demographics, tumour characteristics, operative and perioperative outcomes were compared. Complication rate was assessed in relation to tumour and specimen size.

RESULTS: Mean pathologic tumour size was 11.8 cm (range 10.0–17.0 cm) and 5.8 cm (range 2.1–9.5 cm) for tumours \geq 10 cm and \<10 cm, respectively. No difference was found in demographic characteristics, operative and perioperative outcomes (estimated blood loss, rate of conversion to open radical nephrectomy, length of postoperative stay and complication rate), between both groups, except higher surgical time in the \geq 10 cm group (171 vs. 143 min, respectively, P=0.005). There was no difference in tumour and total specimen size between patients with and without complications. Due to its retrospective nature, the major limitation of this study is missing data regarding specimen size.

CONCLUSIONS: LRN can be performed safely with acceptable operative and perioperative outcomes by experienced laparoscopists for very large renal masses \geq 10 cm. Complication rates were unrelated to tumour and total specimen size.

Source of Funding: None

MP27-16 CAN THE R.E.N.A.L. NEPHROMETRY SCORE BE OPTIMIZED FOR PATIENTS UNDERGOING CRYOABLATION?

Peter Clark*, S. Duke Herrell, Nashville, TN, Jaime Landman, Irvine, CA, Stephen Savage, Charleston, SC, Stephen Strup, Lexington, KY, Chad LaGrange, Omaha, NE, David Schulsinger, Stony Brook, NY

INTRODUCTION AND OBJECTIVES: The R.E.N.A.L. Nephrometry Score was developed to standardize measures of renal mass complexity for patients undergoing surgical resection, but its performance in the context of thermal based ablation is poorly defined. We set out to determine if the R.E.N.A.L. score correlated with outcomes in patients undergoing renal cryoablation.

METHODS: We queried a multi-institutional, prospective IRB approved registry trial of 108 patients undergoing renal cryoablation from July 2010 to October 2012 with one mass and all R.E.N.A.L. data elements available. Measures of case complexity included the number of cryoprobes utilized (# Needles), need to perform more than two freeze thaw cycles (>2 Freeze/Thaw), or an adverse event of any grade (AE). Variables analyzed included R.E.N.A.L. score, and both patient and tumor related variables, including endophytic/mesophytic/exophytic (lesion class).

RESULTS: Patient demographics included 67 men (62%), median age 67 yo (IQR 61–72), and BMI 30.3 (IQR 26.4–34.8). Median tumor size was 2.5 cm (IQR 2.0–3.15), median R.E.N.A.L. score 7 (IQR 5–8) with individual component scores of 1/2/3 or A/P/X as follows: R=101/5/2, E=51/48/9, N=40/20/48, A=30/61/17, and L=55/22/31. 64 patients underwent a percutaneous approach, 43 laparoscopic, and one open. R.E.N.A.L. total score was not associated with AE, > 2 Freeze/Thaw or # Needles. Only laparoscopic approach was associated with AE (p=0.03). > 2 Freeze/Thaw was associated with non-Caucasian race (p=0.001) and upper pole location (p=0.037). # Needles was associated with larger size (p<0.001), higher R.E.N.A.L. N score (p=0.0027), lower pole location (p=0.013), lesion class (p=0.028), and higher BMI (p=0.04). Notably, other components of the R.E.N.A.L. score and total score were not associated. On multiple linear regression, size, N score, lower pole location, and lesion class remained independent predictors of increased # Needles. Since R score was not associated with # Needles, we explored alternative R scoring thresholds and found categorizing by \(R < 2\ cm, 2–4\ cm, and 4+\ cm\) was associated with # Needles required on univariate (p=0.0002) and multivariate analysis (p=0.02).

CONCLUSIONS: While some components of the R.E.N.A.L. score (N score) were associated with aspects of cryoablative case complexity, total score was not. Others were associated with # Needles only when modified, specifically smaller size criteria for R score and a broader definition of the E score. This suggests that adjustments to R.E.N.A.L. nephrometry may be needed to optimize its value for patients undergoing cryoablative.
**MP27-18 ROBOTIC ASSISTED RETROPERITONEOSCOPIC PARTIAL NEPHRECTOMY FOR SMALL RENAL MASS: EXPERIENCE OF CHI MEI MEDICAL CENTER**

Chien-Liang Liu*, Steven K Huan, Tainan, Taiwan

**INTRODUCTION AND OBJECTIVES:** Nephro-sparing surgery has been applied to manage appropriately selected renal tumor up to 7 cm. Robotic assistance has the potential to provide patient and physicians better access to minimally invasive nephro-sparing surgery.

**METHODS:** Between April 2012 and May 2013, 8 patients with small renal masses underwent robotic-assisted retroperitoneal laparoscopic partial nephrectomy. The perioperative data and oncological outcome were retrospectively reviewed.

**RESULTS:** The mean lesion diameter was 3.6 cm (range 1.8 to 6.0). The mean operative time was 205 minutes (range 120 to 262), and the mean blood loss was 75 mL (range 0 to 250). The mean warm ischemia was 24 minutes (range 19 to 28). The length of postoperative hospital stay averaged 4.3 days (range 3 to 67). The resected lesions included renal cell carcinoma in 6, Angiomyolipoma in 2. At 2 to 15 months of follow-up, no recurrence had been observed.

**CONCLUSIONS:** Robotic assisted retroperitoneoscopic partial nephrectomy is safe and feasible. The retroperitoneal space is adequate. Peri-operative outcome is satisfying. More case number and longer follow up for long term result are required.

**Source of Funding:** N/A

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**MP27-19 RENAL PARENCHYMAL NON-SUTURING TECHNIQUE USING TACHOSIL TISSUE SEALING SHEET IN LAPAROSCOPIC PARTIAL NEPHRECTOMY**

Hidehumi Kinoshita, Motoshiko Sugi*, Tadashi Matsuda, Hirakata, Japan

**INTRODUCTION AND OBJECTIVES:** Partial nephrectomy is an important technique for the small renal mass. To minimize the invasiveness of surgical therapy, laparoscopic partial nephrectomy (LPNx) is an ideal option. However, technical difficulty possibly prolonged ischemic time, and it may compromise the post-surgical renal function. This may be big limitation of this surgery. We tried to perform LPNx using TachoSil tissue sealing sheet in order to shorten the ischemic time by skipping the renal parenchymal suturing procedure.

**METHODS:** From August 2012 to December 2012, we performed 10 cases of LPNx with sealing seat. After removing the tumor using cold cut by scissors, half size of TachoSil was put on the surgical field, and attached to the cutting surface by pushing with gauze. Gauze pushing was kept till the sealing seat attaching was established. It took from 5 minute to 30 min (15 min twice).

**RESULTS:** Mean tumor size was 2.5 cm and all tumors were T1a. Mean RENAL nephrometry score was 6.7, and the number of cases with Low (4–6), Intermediate (7–9), and High (10–12) were 3, 7, and 0 cases, respectively. Calyceal suturing was performed in 4 patients out of 10. Mean ischemic time was 13.8 (range 7.9–22) minutes. Median blood loss was 89 mL. In all cases hemostasis was completed with TachoSil tissue sealing sheet without renal parenchymal suturing, except 1 case in which the first sealing was failed and after re-clamping the second try can obtain complete hemostasis.

**CONCLUSIONS:** Renal parenchymal non-suturing technique with TachoSil tissue sealing sheet can skip the challenging procedure of parenchymal suturing and shorten the ischemic time. TachoSil tissue sealing sheet may be beneficial in a laparoscopic renal surgery.

**Source of Funding:** none

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**MP27-20 ROBOTIC PARTIAL NEPHRECTOMY FOR COMPLETELY ENDOPHYTIC RENAL MASSES: A SINGLE INSTITUTION EXPERIENCE**

Riccardo Autorino*, Ali Khalifeh, Humberto Laydner, Dinesh Samarasereka, Idir Ouzaid, Luis Felipe Brandao, Robert J. Stein, Georges-Pascal Haber, Jihad Kaouk, Cleveland, OH

**INTRODUCTION AND OBJECTIVES:** Aim of this study was to analyze the outcomes of RPN for completely endophytic renal tumors.

**METHODS:** Medical records of patients who had undergone RPN for a completely endophytic (ie 3 points for the “E” domain of the RENAL score) enhancing renal mass at our Center from 2006 to 2012 were retrieved from our prospectively maintained RPN database and used for this analysis. Demographics, surgical and early postoperative outcomes were compared to those of patients with exophytic mass (ie 1 point for the “E” domain) and those of patients with mesophytic mass (ie 2 points for the “E” domain).

**RESULTS:** Overall, 65 patients (mean age 56 years; mean BMI 29.4 kg/m²; mean CCI 3.2) were included in the study group, accounting for 16.7 % of RPN cases over the study period. Main surgical outcomes were the following: mean operative time 175 min, mean EBL 225 ml, and mean WIT 21.7 min. Pathology showed a malignant histology in 48 cases (74%), mostly clear cell RCC. Two positive margins (3%) were found. Patient with a
CONCLUSIONS: Cryoablation and RAPN are safe alternatives to traditional surveillance and accept the need for potential recurrence. Cryoablation surveillance offers improved DFS, cryoablation offers good long-term CSS for patients who are willing to undergo careful and routine post-cryoablation surveillance and accept the need for potential retreatment of recurrent disease.

Source of Funding: None

MP27-21 RENAL CRYOABLATION VERSUS ROBOT-ASSISTED PARTIAL NEPHRECTOMY: SINGLE-CENTER EXPERIENCE

Youssef Tanagho, Eric Kim*, Sam Bhayani, Robert Figenshau, St. Louis, MO

INTRODUCTION AND OBJECTIVES: The AUA guidelines endorse partial nephrectomy as the preferred treatment for small renal masses, while considering ablative therapy for patients with significant comorbidities. We compared perioperative, renal functional, and oncologic outcomes between renal cryoablation and robot-assisted partial nephrectomy (RAPN) at our institution.

METHODS: A retrospective review was performed, evaluating 267 patients who underwent cryoablation (149 laparoscopic and 118 percutaneous) and 233 patients who underwent RAPN for enhancing small renal masses at our institution from July 2000 to September 2012.

RESULTS: Baseline patient and tumor characteristics between the cryoablation and RAPN groups differed significantly. Patients undergoing cryoablation had higher average age (69.3 vs. 57.4 years) and average Charlson comorbidity index (6.5 vs. 2.1). Tumors treated with cryoablation had smaller mean tumor size (2.5 vs. 2.9 cm) and were more likely to be located in the lower pole and posteriorly. The perioperative complication rate was 8.6% following cryoablation vs. 9.4% in the RAPN group (p = 0.75). Estimated glomerular filtration rate (eGFR) at last follow-up was 6.0% lower as compared to preoperative eGFR in the cryoablation group and 13.0% lower in the RAPN group (p < 0.01). In patients with pathologically proven renal cell carcinoma, 5-year Kaplan-Meier disease-free survival (DFS), cancer-specific survival (CSS), and overall survival (OS) was 83.1%, 96.4%, and 77.1% in the cryoablation group vs. 100%, 100%, and 91.7% in the RAPN group. Mean time to recurrence for the cryoablation group was 16.2 months (range 0.03–42.0). Cryoablation was associated with increased risk of recurrence on multivariate analysis (HR = 11.4, p = 0.01).

CONCLUSIONS: Cryoablation and RAPN are safe alternatives for the management of small renal masses. Both offer acceptable morbidity and excellent renal preservation. While RAPN offers improved DFS, cryoablation offers good long-term CSS for patients who are willing to undergo careful and routine post-cryoablation surveillance and accept the need for potential retreatment of recurrent disease.

Source of Funding: None

MP27-22 DOWNWARD NEPHROPEXY IS A USEFUL ADJUNCTIVE MANEUVER DURING ROBOT-ASSISTED URETEROUROTEROSTOMY

Zhihui Lee*, Daniel Parker, Elton Liukani, Christopher Reilly, Daniel Eun, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Although concomitant downward nephropexy (DN) during open ureteral reconstruction has been described with good results in a few case series, it has received little attention in the urological literature as an adjunctive maneuver during robotic ureteral reconstruction. The purpose of our report is to describe our technique and outcomes for DN during robot-assisted ureteroenterostomy (RUU).

METHODS: Five consecutive patients underwent RUU with concomitant DN for pathologies at the proximal and middle ureter by a single surgeon (DDE) between June 2009 and October 2012. Indications for RUU included two impacted stones, one primary transitional cell carcinoma of the ureter, one iatrogenic injury, and one idiopathic ureteral stricture refractory to conservative treatment. There were two proximal and three middle ureteral pathologies. Patients were placed in full flank position with the table in full flexion. After ureteral dissection, but prior to ureteral reanastomosis, an intra-Gerota dissection was performed such that the kidney was freed from its capsular attachments in a circumferential manner. The adrenal gland was then completely detached from the upper pole of the kidney. Finally, with the kidney only attached at the renal hilum and ureter, the kidney was mobilized caudally and pexed to the psoas fascia.

RESULTS: We estimate that DN provided 3–4 cm of additional ureteral mobilization. Tension-free anastomosis was achieved in all five patients. Mean age of patients at time of surgery was 61.4 ± 5.8 years, mean body mass index was 32.0 ± 5.3 kilograms/meter2, mean operative room time was 225.0 ± 38.2 minutes, mean estimated blood loss was 205.0 ± 71.8 milliliters, and mean length of excised ureter on pathologic analysis was 2.6 ± 0.5 centimeters. There was one intraoperative complication in which ligation and gallbladder laceration occurred during trocar placement. Mean length of hospital stay was 2.0 ± 0.8 days, and there were no postoperative complications. Mean follow up was 10.6 ± 5.6 months. There were no ureteral stricture recurrences.

CONCLUSIONS: Concomitant DN during RUU may assist in achieving a tension-free anastomosis for proximal and middle ureteral repairs.

Source of Funding: None

MP27-23 INFLUENCE OF INTRAOPERATIVE FLUID ON SURGICAL OUTCOMES FOR PARTIAL NEPHRECTOMIES

Eric Arnone*, Richard Ahn, Kristopher Attwood, Terry Creighton, Diana Mehedint, Eric Kauffman, Thomas Schwaab, Buffalo, NY

INTRODUCTION AND OBJECTIVES: The type and amount of fluids given intra-operatively has an effect on post-operative renal function and outcomes in renal transplantation. Data in the context of partial nephrectomy are scarce. We set out to investigate the influence of type and amount of intraoperative fluid on surgical outcomes for partial nephrectomies.

METHODS: The prospectively maintained IRB-approved kidney cancer database at Roswell Park Cancer Institute was queried. All patients with normal contralateral kidney and normal renal function who underwent elective open, laparoscopic or
RESULTS: Sixty-one patients met our strict definition of heminephrectomy out of 643 patients who underwent a laparoscopic or robotic partial nephrectomy for tumor. Heminephrectomy and non-heminephrectomy patients were similar in age, gender, BMI, ASA score, proportion of left versus right-sided tumors, solitary kidney status, preoperative creatinine and GFR. (all P > 0.1). The tumors in the heminephrectomy group were larger (5.1 vs 2.8 cm, p<0.001) and had a higher R.E.N.A.L nephrometry score (8.5 vs 6.5, p<0.001). Operative outcomes reflected the high complexity of performing a heminephrectomy. Estimated blood loss was greater (373 vs 267 ml, p=0.04), operative time was longer (214 vs 185 minutes, p<0.001), warm ischemia time was longer (25 vs 20 minutes, p=0.002), and the rate of intra-operative complications was greater (11% vs 4%, p=0.02) in the heminephrectomy group. On multivariable analysis adjusted for age, preoperative GFR, R.E.N.A.L. score, and warm ischemia time, heminephrectomy was a significant predictor of lower post-operative GFR (p<0.001).

CONCLUSIONS: Our strict definition of heminephrectomy performed for tumor will allow precise clinical and research communication about laparoscopic and robotic heminephrectomy patients and may aid in the prediction of outcomes after partial nephrectomy. Robotic heminephrectomy is a safe and effective method to resect large renal polar masses.

Source of Funding: None

MP27-25 ANALYSIS OF OPERATIVE METHODS AND CENTER-SPECIFIC PROPORTION IN MAJOR UROL OLOGICAL ONCOLOGY SURGERIES IN KOREA, BASED ON THE 2010 ANNUAL REPORT OF KOREAN UROLOGICAL ASSOCIATION.
Sunghyun Paick*, Sangrak Bae, Hyoungkeun Park, Yongsoo Lho, Hyeonggon Kim, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: We analyzed operative methods, regional distribution and center-specific proportion in major urological oncology in Korea using data from the 2010 annual report of Korean Urological Association (KUA).

METHODS: Nephrectomy, prostatectomy and cystectomy data were collected in 2010 annual report. Each surgery was divided into open, laparoscopic and robotic method. Regional distribution and center-specific proportion of each surgery were also analyzed.

RESULTS: In 2010, 4070 cases of nephrectomy, 3681 cases of prostatectomy and 756 cases of cystectomy was performed. In the operative method analysis, the respective proportions of open, laparoscopic and robotic methods were 46%, 44% and 10% in nephrectomy, 38%, 12% and 50% in prostatectomy, 81%, 11% and 8% in cystectomy. Concerning center-specific distribution, 35% of the nephrectomies, 43% of the prostatectomies and 34% of the cystectomies were performed at the four largest hospitals.

CONCLUSIONS: The MIS method was the main operative method in nephrectomy and prostatectomy. Over one-third were performed in the four largest hospitals. Major urological oncology surgeries were largely centralized.

Source of Funding: none
**MP28 URETEROSCOPY II**

**MP28-01 URETEROSCOPY FOR BENIGN ESSENTIAL HEMATURIA: A SYSTEMATIC REVIEW**

Nicholas Tadros*, Michael Conlin, Portland, OR

**INTRODUCTION AND OBJECTIVES:** The advent of ureteroscopy has revolutionized the treatment many urologic diseases, including benign essential hematuria (BEH). Also called laterализizing hematuria when it originates from one ureter, BEH is a diagnosis of exclusion when an obvious source cannot be determined through conventional radiologic and hematologic studies. This systematic review examines the treatment of BEH with ureteroscopic interventions.

**METHODS:** A review of the literature was conducted from 1977 to 2012 including studies that used ureteroscopy to diagnose or treat BEH. Demographics, follow-up, findings, treatment method and success rate were all extracted from each identified paper by one author and reviewed by the second. Quality analysis was performed independently by both authors.

**RESULTS:** 588 articles were reviewed and 15 included in the final analysis. No randomized controlled trials were found. All fifteen studies were case series. Nine studies were graded as good, five as fair, and one as poor. Follow-up ranged from 2 to 108 months. 307 patients underwent ureteroscopy for suspected BEH. 146 (73%) were diagnosed with a discrete lesion, 34 (11%) with a diffuse lesion, and 28 (14%) had no lesions seen on ureteroscopy. Of those diagnosed with discrete lesions, the most common was minute venous ruptures (35%), followed by hemangiomas (26%). Calculi and tumors made up 2% each. Fulguration was the most common treatment method used, followed by laser ablation. Of the 120 patients who underwent treatment for their discrete lesions, 115 (97%) who were treated endoscopically had resolution of their symptoms at follow-up. 16/34 (47%) patients had treatment for their diffuse lesions. Of these, 16 patients were treated endoscopically and 10 (53%) had resolution of hematuria. Interestingly, 10/14 (71%) of the patients with no lesions seen had resolution of their hematuria after ureteroscopy as well.

**CONCLUSIONS:** BEH is rare and can be difficult to diagnose, but ureteroscopic treatment can yield excellent results. In this systematic review, 95% of patients with discrete lesions and 53% of patients with diffuse lesions had resolution of their hematuria after ureteroscopic interventions. Remarkably, ureteroscopy alone was therapeutic in 71% of patients where no lesion was visualized.

**Source of Funding:** none

**MP28-02 HIGH DEFINITION FLEXIBLE CYSTOSCOPY: IS IT WORTH THE COST?**

Nicholas J Kuntz, Andreas Neisius, W. Neal Simmons, Muhammad W Iqbal, Richard H Shin*, Ramy Youssef, Michael N Ferrandino, Glenn M Preminger, Michael E Lipkin, Durham, NC

**INTRODUCTION AND OBJECTIVES:** As endoscopic technology continues to advance, high definition (HD) scopes have become the new standard in many surgical arenas. Olympus (Center Valley, Pennsylvania) has recently introduced the first HD flexible cystoscope. We assessed the optical characteristics of the Olympus HD flexible cystoscope and compared it to a standard definition digital cystoscope, fiberoptic flexible cystoscope and a rigid scope with a HD camera.

**METHODS:** The following Olympus cystoscopes were assessed in vitro using a bench top approach and standard industry testing targets and protocols: 1) HD, flexible cystoscope (CYF-VH); 2) digital, flexible cystoscope (CYF-V2); 3) fiber-optic (FO), flexible cystoscope (CYF-5/5A); 4) rigid cystoscope with a zero degree lenses (OES Pro). The Olympus HD camera head (OTV-S7PRO-HD) was used for the latter two scopes. Image resolution was determined using the USAF-1951 test target, at 30 mm distance through a saline media. Distortion was measured using the multi-frequency grid distortion target, at 50 mm distance through saline media. All subjective elements were confirmed by multiple observers. The Gretag Macbeth color checker target was used to quantify color reproducibility by calculating a correlation coefficient to actual RGB values, such that 1.00 represents perfect color reproduction. Cost data was obtained for comparative analysis.

**RESULTS:** Image resolution for the HD cystoscope was 16 line pairs/mm (Table 1). This was nearly double the resolution of the non-HD digital flexible scope (8.98 line pairs/mm). Distortion was 25.3% in the HD scope. This was comparable to the non-HD scope (23.7%), but much improved from the FO scope (32.4%). Overall, the distortion for all the flexible scopes was much lower than for the rigid scope. Color reproducibility coefficient was comparable for all the scopes. The prices are

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**Table 1. Comparison of Olympus Cystoscope Optical Characteristics and Price**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CYF-VH (HD)</th>
<th>CYF-V2 (non-HD)</th>
<th>CYF-S5A (FO)</th>
<th>OES Pro (Rigid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (line pairs/mm)</td>
<td>16.00</td>
<td>8.98</td>
<td>5.66</td>
<td>20.16</td>
</tr>
<tr>
<td>Distortion (%)</td>
<td>25.3</td>
<td>23.7</td>
<td>32.4</td>
<td>7.19</td>
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<tr>
<td>Color Reproduction</td>
<td>RED: 1.40</td>
<td>1.27</td>
<td>0.75</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>YELLOW: 1.07</td>
<td>1.04</td>
<td>0.74</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>BLUE: 1.44</td>
<td>1.17</td>
<td>0.74</td>
<td>1.29</td>
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<tr>
<td></td>
<td>AVERAGE: 1.10</td>
<td>1.17</td>
<td>0.75</td>
<td>1.14</td>
</tr>
<tr>
<td></td>
<td>*List Price</td>
<td>$23,000</td>
<td>$18,100</td>
<td>$10,000</td>
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<tr>
<td></td>
<td>Camera Head</td>
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<td><strong>$21,000</strong></td>
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<tr>
<td></td>
<td>Light Cord</td>
<td>Included</td>
<td>Included</td>
<td>$500</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>$23,000</td>
<td>$18,500</td>
<td>$31,500</td>
</tr>
</tbody>
</table>

*Not including video tower (camera box, light source, monitor, and cart) printer or image capture. **List Price for HD camera head.
listed in Table 1. The HD scope costs $4500 more than the standard digital scope.

**CONCLUSIONS:** The HD flexible cystoscope has excellent objective optical characteristics, including image resolution, which approaches the quality of the rigid device. These optical characteristics may improve office based procedures for identification of bladder and urethral lesions, with a modest additional cost. Future in vivo studies are needed to validate these objective findings.

**Source of Funding:** none

**MP28-03 BALLOON DILATION OF THE URETER: A CONTEMPORARY REVIEW OF OUTCOMES AND COMPLICATIONS**

Nicholas Kuntz, Andreas Neisius, Matvey Tsivian, Momin Ghaffar, Richard Shin*, Muhammad W Iqbal, Ramy Youssef, Durham, NC, Nishant Patel, Roger Sur, San Diego, CA, Michael Ferrandino, Glenn Preminger, Michael Lipkin, Durham, NC

**INTRODUCTION AND OBJECTIVES:** Ureteroscopy is a well-established treatment for symptomatic ureteral and renal stones. Ureteral balloon dilation may be necessary to allow passage of endoscopic instruments or access sheaths. Herein, we assessed the outcomes and complications associated with ureteral balloon dilation during ureteroscopic procedures.

**METHODS:** A retrospective chart review (2000–2012) was performed on patients who received balloon dilation of the ureter prior to endoscopic treatment of upper tract stones. An 18 French Uromax™ balloon dilator was used in all cases. Patients with prior ureteral strictures, radiation therapy or urothelial cancer were excluded. The primary outcomes assessed were stone-free rates, operative complications, and balloon failure and stricture rates. Stone-free was defined as no residual stones at follow-up imaging. Complications were divided by intraoperative (Satava classification) and post-operative (Clavien-Dindo classification). Balloon failure was defined as inability to access the stone despite balloon dilation and required a second procedure. Ureteral stricture diagnosis required new onset of hydronephrosis on follow-up imaging without evidence of obstructing stone and a confirmatory functional study or endoscopic finding.

**RESULTS:** There were 151 patients that fulfilled study criteria. Demographics are included in table 1. The average follow-up was 12 months. The stone free rate was 72%, with a median time to first post-operative imaging of 2.8 months. There were 8 (5%) intra-operative ureteral perforations. Of these, 7 were managed with a ureteral stent, 1 with a PCN tube, and 4 patients required endoscopic re-treatment (Satava 2b). The post-operative complication rate was 7% (n = 11) and included the Satava 2b patients. There were only 6 (4%) failed balloon dilations. A single ureteral stricture attributed to balloon dilation was identified and this was seen in a poorly functioning pelvic kidney.

**CONCLUSIONS:** In this contemporary review, balloon dilation of the ureter prior to endoscopic treatment of stone disease was associated with a high success rate and few complications. The use of ureteral balloon dilation may reduce the need for secondary procedures for patients undergoing ureteroscopy for the treatment of proximal ureteral and intra-renal stones.

**Source of Funding:** none

**Table 1. Demographics, and Outcomes of Patients Receiving Balloon Dilation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Median (IQR) / Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>151</td>
</tr>
<tr>
<td>Age, years (years)</td>
<td>51 (42-60)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>117 (77)</td>
</tr>
<tr>
<td>Black</td>
<td>19 (13)</td>
</tr>
<tr>
<td>Other</td>
<td>15 (10)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>98 (65)</td>
</tr>
<tr>
<td>Female</td>
<td>53 (35)</td>
</tr>
<tr>
<td>Max stone diameter, mm</td>
<td>7 (6-10)</td>
</tr>
<tr>
<td>Multiple stones</td>
<td>54 (36)</td>
</tr>
<tr>
<td>Stone-free</td>
<td>90 (72)</td>
</tr>
<tr>
<td>Imaging modality</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>29 (25)</td>
</tr>
<tr>
<td>IVP</td>
<td>61 (52)</td>
</tr>
<tr>
<td>KUB with tomograms</td>
<td>17 (15)</td>
</tr>
<tr>
<td>Time to post-op imaging, months</td>
<td>2.8 (2.1-4.5)</td>
</tr>
<tr>
<td>Prior endoscopic procedures</td>
<td>25 (17)</td>
</tr>
<tr>
<td>Indications for balloon</td>
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</tr>
<tr>
<td>Not specified</td>
<td>11 (7)</td>
</tr>
<tr>
<td>Unable to pass scope</td>
<td>37 (25)</td>
</tr>
<tr>
<td>Unable to pass access sheath</td>
<td>77 (51)</td>
</tr>
<tr>
<td>Narrowing on retrograde</td>
<td>6 (4)</td>
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<tr>
<td>Tight ureter orifice</td>
<td>16 (11)</td>
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<tr>
<td>Multiple locations of dilation</td>
<td>40 (26)</td>
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<td>Access sheath used</td>
<td>120 (79)</td>
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<td>JJ Stent</td>
<td>145 (96)</td>
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<td>Intracorp complications (Satava)</td>
<td>8 (5)</td>
</tr>
<tr>
<td>Overall Post-Operative (Clavien) Complications</td>
<td>11 (7)</td>
</tr>
<tr>
<td>Balloon Failure</td>
<td>6 (4)</td>
</tr>
<tr>
<td>Follow-up, months</td>
<td>12.0 (3.4-45.7)</td>
</tr>
</tbody>
</table>
MP28-04 A NOVEL STONE MANAGEMENT DEVICE DURING ENDOLITHOTRIPSY FOR URETERAL STONES: FIRST MULTI-INSTITUTIONAL EXPERIENCE
Nicola Macchionne, Milan, Italy, Francesco Sanguedolce*, London, United Kingdom, Stephan Hruby, Salzburg, Austria, Fabrizio Longo, Milan, Italy, Stefonas Kachrillas, Junaid Masood, Noor Buchholz, London, United Kingdom, Emanuele Montanari, Milan, Italy

INTRODUCTION AND OBJECTIVES: Stone migration during ureteroscopic lithotripsy leads to the need for additional procedures for residual calculi. This is the first multi-centre study evaluating in the clinical practice the efficacy of the XenX (Xenolith Medical, Israel) - a device designed to combine guide-wire and stone retention functionalities. 

METHODS: Between March and May 2013, 16 patients recruited across 3 European stone centres underwent ureteroscopy and laser fragmentation using the XenX - a 0.038 inch guideewire and retention combination device - for the treatment of 1 cm (mean size) ureteral stones. Demographics, complication rates and surgical outcomes were prospectively collected; similarly, subjective evaluation with a Likert-like 5-grade scoring system (1 = very bad; 5 = very good) was provided by the surgeons with regards to XenX properties, such as pushability satisfaction, ease of deployment, full expansion and coaptation to ureter walls, kink resistance, stone retention capabilities, device retrieval, ease of stenting, device radiopacity, and ease of basketing. 

Stone-free condition was defined as the absence of residual fragments; it was evaluated intra-operatively by fluoroscopy or endoscopy (flexible ureteroscopy), at day-1 post-op by US-KUB or X-ray KUB, and at 1-month follow-up by NCCT scan (available in 8 patients).

RESULTS: There were 12 male and 6 female, with a mean age of 48 yo (range: 22–77 ys); all patients had a single, unilateral ureteral stone (8 right and 10 left sided). Mean stone size was 8.6 mm (range 4–15 mm), located in 81.25% of the cases in the proximal ureter. Mean operative time was 32 minutes (S.D. 14 mins) and mean hospital stay was 2.69 days (range 1–4 days).

No complications have been encountered. SFRs and evaluation modalities are reported in table 1. 

Median operators’ evaluations for XenX were “Good” for all the domains surveyed.

CONCLUSIONS: This preliminary study shows that XenX is an innovative device which might combine effectively and safely the stone retention and the guide-wire functionalities in just one instrument. Larger and comparative studies are needed to confirm these results.

Source of Funding: none

MP28-05 URETEROSCOPY AND LASER LITHOTRIPTY OF LARGE RENAL STONE BURDEN > 2.0 CM
Jessica M. Yih*, Cleveland Heights, OH, Robert M. Kohut, Edward E. Cherullo, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Neither PCNL (percutaneous nephrolithotomy) nor SWL (shock wave lithotripsy), currently the guideline recommended first and second line treatments for large renal stones, is ideal in terms of efficacy or potential morbidity. We assess the outcomes of treating large ureteropelvic junction (UPJ) and intrarenal stone burden using retrograde flexible ureteroscopy (URS) and laser lithotripsy in an adult population at a single institution.

METHODS: A retrospective review was conducted of patients who underwent URS with laser lithotripsy to manage UPJ or intrarenal stone burdens > 2.0 cm. Treatment success was defined as intraoperative visual clearance of stone bulk and no residual stone fragments > 4 mm as seen on post-operative imaging.

RESULTS: 43 patients (mean age 52.7±14.4, 52.3% men) who were treated between January 2005 and July 2012 were evaluated. Mean stone burden was 30.7±13.0 mm with mean Hounsfield units of 919.9±368.8. Mean number of treatments was 1.4±0.6. Treatment success was achieved in 26 (60.4%) patients with URS; another 2 patients achieved success following staged SWL. Most remaining patients had residual stone fragments only in the lower pole and were asymptomatic. There were no differences in mean stone burdens and Hounsfield units of stones between those who were and were not treated successfully. Overall effectiveness quotient (EQ) was 0.245, and overall stone-free rate (SFR) was 60.4%. With re-evaluation of definition of auxiliary procedures to exclude those considered routine practice, EQ was calculated at 0.440. Larger stone burdens of > 3.0 cm (n = 17) and > 4.0 cm (n = 12) resulted in lower EQ (0.232 and 0.194 respectively) and lower SFR (58.8% and 50%), with re-evaluated EQ at 0.42 and 0.39. There was 1 intraoperative complication of ureteral injury and 3 minor post-operative complications.

CONCLUSIONS: Acceptable treatment outcomes can be achieved using URS with laser lithotripsy on large stone burdens. Residual lower pole stone burden can be expected; however, consideration for further treatment should not be based solely on account of residual burden, as many patients will asymptomatic. We expect advances in technology to further push the limits of URS.

Source of Funding: none

MP28-06 A CRITICAL COMPARISON OF THE PERFORMANCES AND LIMITATIONS OF THREE OF THE LATEST MODELS OF FLEXIBLE URETEROSCOPES
Razvan Multescu*, Bogdan Geavlete, Petrisor Geavlete, Bucharest, Romania

INTRODUCTION AND OBJECTIVES: A continuous struggle to improve durability, visibility and maneuverability of the flexible ureteroscopes was undergone during the last decades. We aimed to comparatively study three of the latest models of flexible ureteroscopes using both subjective and objective parameters. 

METHODS: Three models of flexible ureteroscopes (Karl Storz Flex-Xc, Olympus URF-Vo and Wolf Cobra) were evaluated during 90 procedures, 20 therapeutic for pyelocalyceal lithiasis and 10 diagnostic for each one. The ease of insertion, maneuverability and visibility during each procedure were scored from 1 to 5 and compared, while the irrigation flow and maximal deflection was measured in an ex vivo setting, with an empty
working channel and with accessory instruments in place. Instruments durability was also reviewed.

RESULTS: All models demonstrated good maneuverability, with a slight advantage for Flex-Xc. During diagnostic procedures, failure to access the entire pyelocalyceal system occurred in 2 cases for URF-Vo, both due to thin caliceal infundibulum, and in 1 case for Cobra, due to complex caliceal architecture. Regarding visibility, while the performances of the digital models were relatively similar, fiberoptic Cobra achieved a lower score. Loss of deflection and irrigation when using various ancillary instruments was similar for all endoscopes, but Cobra offered supplementary flow through a secondary channel. Mean deflection loss was 5% for URF-Vo, 9% for Flex-Xc and 10% for Cobra. The visual quality of the two digital models remained unchanged during the study, but in the fiberoptic ureteroscope 58 optic fibers were broken.

CONCLUSIONS: The latest models of flexible ureteroscopes prove to be effective instruments for upper urinary tract endoscopic interventions, with an advantage regarding visibility for the digital ones. There is still room for improvement, already made possible by the technological advances.

Source of Funding: none

MP28-07 COMPARATIVE STUDY OF THE TREATMENT OF RENAL STONES WITH FLEXIBLE URETERORENOSCOPY IN OBESE, MORBIDLY OBESE AND NORMAL WEIGHT PATIENTS
Steeve Doizi*, Sixtina Gil Diez De Medina, Olivier Traxer, Paris, France

INTRODUCTION AND OBJECTIVES: According to the EAU Guidelines 2013, shock wave lithotripsy (SWL) is the first line treatment for kidney stones < 10 mm, and for stones up to 20 mm with flexible ureterorenoscopy (URS). For stone size more than 20 mm, percutaneous nephrolithotomy (PNL) and URS are the two therapeutic options. However, technical difficulties and success rate may vary for SWL and PNL in obese patients. Flexible URS seems to be a treatment of choice for kidney stones in obese patients.

The objective was to compare flexible ureterorenoscopic treatment of renal stones, stratified for stone size and location, between Obese Patients (OP), Non-Obese Patients (NOP) and Normal Weight Patients (NWP).

METHODS: This was a retrospective monocentric study that included patients whose BMI was known between 2006 and 2008. The OP group (BMI ≥ 30 kg/m²) included a subgroup: the MOP group (BMI ≥ 40 kg/m²), which was compared to the NWP control group (BMI < 25 kg/m²). Overweight patients were not included. Flexible URS was performed with Ho: YAG laser by one single surgeon. Success was defined by the stone free status (no or ≤ 2 mm residual fragments) evaluated by kidney-ureter-bladder radiography, CT scan or endoscopic procedure at 3 months.

RESULTS: A total of 327 procedures were performed: 97 in 79 OP including 14 in 13 MOP compared 230 procedures in 160 NWP. The overall success rate was 68 % for OP, 71, 4 % for MOP and 67, 4 % for NWP, p = 0,9. The success rate decreased as the stone size increased, there was no significative difference between the three groups. Whatever the location and stone size (< 10 mm, 10–20 mm, > 20 mm) there was no statistical difference. Post-operative morbidity was similar in both groups and occurred in 2,4 % of cases.

CONCLUSIONS: Flexible URS has similar outcomes in OP, MOP, NWP independently of stones size and location and is a safe procedure.

Source of Funding: None

MP28-08 EXTENDED OPERATIVE TIME FOR URETEROSCOPIC STONE REMOVAL: DOES IT IMPACT MORBIDITY?
Patrick Mufarrij*, Washington, DC, Jessica Lange, L. Spencer Krane, Kyle Wood, Winston-Salem, NC, Dean Assimos, Birmingham, AL

INTRODUCTION AND OBJECTIVES: Improved technology and increasing surgical experience has broadened the indications for ureteroscopic stone removal to now include large renal and ureteral stones. Such cases typically require more operative time. We sought to determine whether this could influence perioperative morbidity.

METHODS: Consecutive cases performed by a single surgeon at a tertiary, academic medical center between January 2011 and May 2012, registered in a prospective data base were reviewed. Subjects were divided into 2 groups based on total operative time, ≤ 2 hours (group 1) and > 2 hours (group 2). Complications were classified using the Clavien-Dindo system. Univariate, multivariate, and Chi square analyses were performed.

RESULTS: There were 70 patients in group 1 and 125 in group 2. Mean patient ages were similar (50 ± 15 (s.d) years for group 1 and 52 ± 16 (s.d) years for group 2, p = 0.32). Gender ratios were not different. A higher percentage of group 2 had American Society of Anesthesiologists Physical Status Classifications of 3 or 4, 64% versus 47%, p = 0.02. Group 2 patients had significantly larger stones based on largest single stone dimension, 11.1± 8.6 (s.d) mm versus 6.6 ± 2.9 (s.d) mm, p < 0.001. Stone free rates, strictly based on official radiology reports, were significantly higher for group 1 regardless of imaging modality (CT or KUB/
ultrasound), 56% versus 32.3%, p = 0.004. The stones seen on postoperative imaging in both groups were either small fragments or thought to be parenchymal calcifications based on correlations with endoscopic findings. The occurrence of complications were similar in both groups, 5.7% group 1 versus 5.6% group 2, p = 0.53. The spectrum of complications in each group included 3 type I and 1 type IV for group 1 and 2 type I, 3 type II, 1 type IV, 1 type V for group 2. There was no statistical difference between the two groups with regards to each specific Clavien-Dindo complication classification I-V (p = 0.56 (I), p = 0.23 (II), p = 0.89 (III), p = 0.89 (IV), p = 0.68 (V)).

CONCLUSIONS: Lengthy ureteric stone removing procedures can be performed with limited risk for morbidity even in higher risk patients.

Source of Funding: none

MP28-09 HOW ACCURATE IS ENDOSCOPIC INTRAOPERATIVE ASSESSMENT OF KIDNEY STONE SIZE?
Nishant Patel*, San Diego, CA, Ben Chew, Vancouver, Canada, Bodo Knudsen, Columbus, OH, Michael Lipkin, Durham, NC, Roger Sur, San Diego, CA

INTRODUCTION AND OBJECTIVES: Endoscopic treatment of renal calculi relies on surgeon assessment of residual stone fragment size for either basket removal or for the passage of fragments post-operatively. We therefore sought to determine the accuracy of endoscopic assessment of renal calculi size.

METHODS: Four board certified endourologists participated in an ex vivo artificial endoscopic simulation. A total of 10 pebbles were measured (mm) with electronic calibers and placed into separate labeled opaque test tubes to prevent visualization of the stones through the side of the tube. Endourologists were blinded to the actual size of the stones. A flexible digital ureteroscope with a 200-240 micron core-sized laser fiber in the working channel as a size reference was placed into the test tube to estimate the stone size (mm). Accuracy was determined by comparing the mean measurements to the true measurements.

RESULTS: See table

CONCLUSIONS: This ex-vivo simulation study demonstrates that endoscopic assessment is relatively reliable when assessing stone size. On average, there was a slight tendency to over-estimate stone size by 0.2 mm. These findings could be generalized to state that endourologists are accurately able to assess residual stone fragment size intra-operatively.

Source of Funding: none

MP28-10 INITIAL CLINICAL EXPERIENCE WITH A BALL TIPPED HOLMIUM: YAG OPTICAL FIBER FOR FLEXIBLE URETEROSCOPY
Bodo Knudsen*, Columbus, OH, Shubha De, Cleveland, OH, Manog Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: We report our initial experience during 98 consecutive flexible ureteroscopy procedures utilizing a ball-tipped fiber (Flexiva TracTip, Boston Scientific) for Ho: YAG laser lithotripsy.

METHODS: The ball-tipped fiber was utilized in 98 consecutive flexible ureteroscopic procedures. Pulse energy, frequency, and total energy was recorded for each procedure. The condition of the fiber and whether the ball-tip remained intact was recorded. The fiber tip length was measured with a micrometer after the procedure.

RESULTS: The ball-tipped fiber was utilized in 98 consecutive flexible ureteroscopic procedures. Pulse energy, frequency, and total energy was recorded for each procedure. The condition of the fiber and whether the ball-tip remained intact was recorded. The fiber tip length was measured with a micrometer after the procedure.

CONCLUSIONS: The ball-tipped fiber allows for easy first pass through a flexible ureteroscope. While no catastrophic fiber failures occurred with deflection, the ball-tip burnt back in 49% of the procedures with higher total energy transmission and hard stone composition increasing this rate.

Source of Funding: None

MP28-11 BEST STENT LENGTH PREDICTED BY SIMPLE CT MEASUREMENT, RATHER THAN PATIENT HEIGHT
Kirsten Foell*, Andrea G. Lantz, Michael Ordon, Jason Y. Lee, Kenneth T. Pace, R. John D’A. Honey, Toronto, Canada

INTRODUCTION AND OBJECTIVES: The objectives of this study were to determine if endoscopically measured ureteral length can predict proper stent positioning, and to determine if patient or radiological parameters correlate with measured ureteral length.

METHODS: During stent placement, ureteral length was measured directly with the open-ended ureteral catheter used for retrograde pyelography: ureteral length was measured by noting which 1-cm marking was emanating from the UVJ (ureterovesical junction), with the tip of the catheter fluoroscopically positioned at the UPJ (ureteropelvic junction). Based on the measured ureteral length, a 22, 24 or 26 cm stent was chosen to be at least the length of the ureter and, for ureters >26 cm, a 26 cm stent was chosen. A stent was considered ideally positioned if the proximal end was fully curled in the renal pelvis with the distal end fully curled in the bladder, without crossing the midline. Rates of ideal stent position were compared between patients with stent lengths exactly matching their measured ureteral lengths, and those with stent lengths differing by at least 1 cm. Spearman correlation was used to correlate measured ureteral length with patient height, L1-L5 height (on CT), and ureteral length (from UPJ to UVJ) measured on CT (axial and coronal).

RESULTS: Of 73 ureters in 70 patients, 50 (68.5%) of ureters were in male patients and 33 (45%) were right-sided. Stent length exactly matching ureteral length was associated with significantly higher rates of ideal stent fit [100% in ureters with stent length matching

<table>
<thead>
<tr>
<th>True stone size (mm)</th>
<th>Endo 1</th>
<th>Endo 2</th>
<th>Endo 3</th>
<th>Endo 4</th>
<th>Endo Mean</th>
<th>True stone size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
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<td>5</td>
<td>4</td>
<td>4</td>
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</tr>
</tbody>
</table>

NR = Not recorded secondary to technical reasons.
ureteral length (n = 18) vs. 71% in mismatched stents and ureters (n = 55), p < 0.001]. Patient height was reasonably correlated with lumbar vertebral height on CT [Spearman correlation coefficient (rho) = 0.76], though both were poorly correlated with the endoscopically measured ureteral length (rho = 0.30 for both patient and CT lumbar heights). However, the ureteral length measured on CT correlated well with the directly measured ureteral length (rho = 0.64 coronal and rho = 0.63 axial images). Ureteral length measurements on CT were well correlated between measurements on axial and coronal images (rho = 0.89).

CONCLUSIONS: Stent lengths matching directly measured ureteral lengths are associated with high rates of ideal stent position. Ureteral length measured endoscopically correlated relatively well with CT measurements, either coronal or axial, but poorly with patient height. Further studies are needed to prospectively choose stent length based on CT measurement alone, and assess the adequacy of stent position.

Source of Funding: None

MP28-12 USE OF PERCSYS ACCORDION™ TO AVOID URETERAL STONE FRAGMENT MIGRATION DURING LASER ENDOLITHOTRIPSY: INITIAL RESULTS OF AN OPEN RANDOMIZED CONTROLLED TRIAL
Christian Villeda Sandoval*, Daniel Olivera Posada, Mario Ramirez Bonilla, Francisco Rodriguez Covarrubias, Carlos Mendez Probst, Mexico City, Mexico

INTRODUCTION AND OBJECTIVES: Proximally migrated ureteral stone fragments after endolithotripsy may cause ancillary procedures or radiographic studies for surveillance. This augments total costs for patients and institutions. PercSys Accordion™ is an innovative tool designed to prevent migration. The objective of this study is to determine the utility of Accordion Percsys™ in preventing ureteral stone fragments migration during ureteroscopic endolithotripsy.

METHODS: An open randomized controlled trial was designed. Patients with >5 mm single urethral stones treated with semirigid ureteroscopy and holmium laser endolithotripsy were included in the study. Patients with anatomical alterations were excluded. They were randomized to use PercSys Accordion™ or not using it during the procedure. Stone fragment migration was registered and measured radiographically at the end of the procedure as primary end-point.

RESULTS: Twenty patients have been recruited, including 11 women and 9 men. Ten patients had endolithotripsy with PercSys Accordion™. Ureteral stones localization was 8 distal, 9 mid and 3 proximal. The larger diameter of stones was 11.7 ± 6.7 mm (min:7–max:30). There were 8 stone fragments migrations with PercSys Accordion™ and 7 without it. There was no statistical difference in registered stone migrations or the longitude of migration. Only one clinically significant migration was registered with PercSys Accordion™ that required an ancillary procedure, and none without it. As secondary end-points, there was no difference in total irrigation used during the procedure and there were 2 registered problems during Accordion deployment: one had the tip bended and had to be changed and the second could not surpass an impacted stone.

CONCLUSIONS: The initial experience with PercSys Accordion™ did not show an advantage in terms of ureteral stone migration. However, our sample is still small and more data must be gathered.

Source of Funding: PercSys Accordion™ were provided by Percsys.

MP28-13 RECURRENT SYMPTOMS FOLLOWING SURGICAL MANAGEMENT OF URETEROPELVIC JUNCTION OBSTRUCTION WITH A NORMAL ENDOSCOPIC EVALUATION: ASSESSMENT AND OUTCOMES
Dominic Lee*, Richard E. Link, Houston, TX

INTRODUCTION AND OBJECTIVES: Surgical management of ureteropelvic junction obstruction (UPJ) is associated with very high long-term success. However, data is lacking on patients with recurrent symptoms presenting with normal endoscopic evaluation. We report our experience in the management of this difficult cohort of patients.

METHODS: Following IRB approval, patients between January 2008 and August 2012 who presented with recurrent symptoms (flank pain or hypertension) following definitive surgical management for UPJ were evaluated. Data were collected retrospectively from medical records. All patients had baseline nuclear medicine (NM) renal scanning to assess differential function of affected renal units at the time of presentation. All cases subsequently underwent evaluation with retrograde ureteropyelography, flexible diagnostic ureteroscopy, UPJ calibration with an 18 Fr balloon catheter and provocative stenting with a 6 Fr double J stent. Patients were assessed at 2 weeks postoperatively and underwent office stent removal followed by reassessment in clinic for symptom status before considering further operative management.

RESULTS: We identified 18 patients who had undergone an average of 1.4 UPJ procedures (range 1 to 4) including pyeloplasty in 18 (open 10, robotic 7, laparoscopic 1), retrograde cutting balloon endopyelotomy in 6, and retrograde balloon dilation in 1. The mean age of our cohort was 38.5 years (range, 19–62 years) with mean follow-up of 15.8 months (range 2 to 43 months). Mean time from original UPJ management to symptom recurrence was 83 months (range 2-452), mean Lasix T1/2 and differential renal function on NM renal scan was 15 mins (range 9–31 mins) and 47 % (range 24–100%), respectively. Of the 18 patients, 12 (67%) achieve pain free status following endoscopic evaluation alone and 2 (11%) were rendered symptom free following repeat robotic dismembered pyeloplasty. Of the 4 patients (22%) with persistent pain after a negative endoscopic assessment, all were referred to a pain specialist. Two (50%) ultimately requiring simple laparoscopic nephrectomy for definitive symptom control.

CONCLUSIONS: Our findings support endoscopic evaluation with retrograde ureteroscopy and balloon calibration for patients with recurrent symptoms before embarking on revision pyeloplasty. 2/3rd of these patients in our cohort achieve pain free status with an endoscopic approach, alone.

Source of Funding: None

MP28-14 IS PROLONGED OPERATION TIME A PREDICTOR FOR THE OCCURRENCE OF COMPLICATIONS?
Sophie Knipper*, Christian Tiburtius, Christopher Netsch, Andreas Gross, Hamburg, Germany

INTRODUCTION AND OBJECTIVES: Ureteroscopy (URS) has recently become one of the most common methods for the treatment of nephroureterolithiasis. However, the operation requires an anesthetic and has the potential risk for the development of ureteral strictures or stenosis. We evaluated whether the frequency or severity of complications depended on the duration of the procedure.
MP28-15 THE CLINICAL RESEARCH OFFICE OF THE ENDUROLOGICAL SOCIETY URETEROSCOPY GLOBAL STUDY: INDICATIONS, COMPLICATIONS, AND OUTCOMES IN 11885 PATIENTS

Jean de la Rosette*, Amsterdam, Netherlands, John Derestadt, London, Canada, Petrisor Geavlete, Bucharest, Romania, Francis Keeley, Bristol, United Kingdom, Tadashi Matsuda, Osaka, Japan, Margaret Pearle, Dallas, TX, Glenn Preminger, Durham, NC, Olivier Traxer, Paris, France

INTRODUCTION AND OBJECTIVES: To assess the current indications for ureteroscopy (URS) treatment, outcome in terms of stone-free rate, and intra- and post-operative complications using the modified Clavien grading system.

METHODS: The Clinical Research Office of the Endourological Society (CROES) collected prospective data as part of the URS Global Study for consecutive patients treated with URS at centers around the world for 1 year. URS was performed according to study protocol and local clinical practice guidelines. Stone size and location were recorded and postoperative outcome and complications, graded according to the modified Clavien grading system, reported.

RESULTS: Between January 2010 and October 2011, 11,885 patients received URS at 114 centers in 32 countries. 1882 had only renal stones, 8676 had only ureteral stones and 1145 patients had both types of stone. Fragmentation was performed principally using a laser device (49.0%) or a pneumatic device (30.3%); no device was used in 17.9% of the patients. A high stone free rate (85.6%) was achieved. Intra-operatively the avulsion rate was 0.1% (12 cases), the conversion rate was 0.1% (11 cases) and a perforation happened in 122 (1.0%) cases. The large majority of patients did not receive any further treatment for renal or ureter stones (89.4%). Post-operative complication rate was low (3.5%). The most frequent complication was fever (1.8%); a blood transfusion was required in 0.2% of patients. The majority of complications were Clavien grade I or II (2.8% of patients).

CONCLUSIONS: URS is an established minimal invasive treatment for urinary stones with a high success rate and low morbidity. Recent advances have expanded the indication for urinary stones, which now ranges from treatment of smaller sized distal ureter stones by semirigid URS to larger sized renal pelvis stones treated by flexible URS.

Source of Funding: None

MP28-16 A NEW STONE OCCLUSION DEVICE (INNOVEX) PARALLEL TO NTRAP IN URETEROSCOPIC HO: YAG LITHOTRIPSY FOR UPPER URETERAL CALCULI

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INTRODUCTION AND OBJECTIVES: To evaluate the efficacy and safety of the newly developed stone occlusion device (Innovex) in preventing retropropulsion of upper ureteral calculi during laser lithotripsy.

METHODS: A prospective randomized trial of 80 patients with upper ureteral calculi was conducted. Group I consisted of 41 patients using Innovex. Group II consisted of 39 patients using the NTrap, a well studied and extensively used occluder. All patients underwent ureteroscopic Ho: YAG laser lithotripsy and operational parameters were compared in-between.

RESULTS: Neither group had obvious complications. There were no difference in operation time (P > 0.05), intraoperative success rate (100%, respectively), postoperative stone-free rate (P > 0.05) between the 2 groups.

CONCLUSIONS: This new device (Innovex) is clinically parallel to the effectiveness and safety of NTrap while costing merely the half and is clinically valid for extensive use. However more investigations were warranted to confirm the efficacy and to contribute to device modification.

Source of Funding: None

MP28-17 COMPLETELY STANDARDIZED FLEXIBLE URETERORENOSCOPY FOR TREATING RENAL CALCULI: A SINGLE-CENTER EXPERIENCE

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INTRODUCTION AND OBJECTIVES: To report efficacy/safety of flexible ureterorenoscopy (FURS) for treating renal calculi.

METHODS: Retrospective analysis of the first 41 consecutive procedures performed by a single surgeon over 15 months (January 2012-March 2013) on 36 patients with 46 stones (renal pelvis/lower-/mid-/upper calyx: 25/12/7/2; mean size 16.1 ± 0.73 mm (range 8–30 mm)). Two procedures were performed on solitary kidneys, one on horseshoe-pelvic and one on kidney with ureteral transposition. Mean operation time was 137.0 ± 38.6 min (range 70–210 min). All procedures were completely standardized. Patients were pre-stented. Semi-rigid ureteroscope was performed over a guidewire (Zebra® or Sensor®). A 12 F Flexor® Ureteral Access Sheath was inserted over the wire. The wire was removed and pyelography was performed. An Uretero-Renoscope-Fiberscope Flex-X2® or ViperTM Flexible Ureteroscope was used. A 1.9 F Zero Tip™ Nitinol Stone Retrieval Basket was used for calyceal stone relocation. Ho: YAG laser (Calcuson) delivered via a 230/365 nm fiber was used at 4.8–10.2 W. An irrigation pump (ENDOMAT LC) was used at a maximum rate of 150 ml/min. After lithotripsy, all
fragments were removed through the sheath. Stone free status was confirmed by inspection of all calyces intraoperatively. A wire was placed through the sheath. The sheath was removed with simultaneous ureteral inspection. A 6–7 F Percuflex® Plus Ureteral Stent was placed over the wire and an 18 F Foley catheter was inserted. All procedures were performed under radiologic imaging. Catheter was removed next day and patients were discharged. Stents were removed two weeks later on outpatient basis. KUB was performed for final assessment.

RESULTS: Stone free rate was 91.6% (33/36). Three procedures were marked as “failures”: ureter could not be accessed (n = 2); early termination of the procedure due to perforation (n = 1). The latter case underwent second procedure to remove remaining stone. Four patients required second procedure due to large stone burden. Safety was assessed by reporting complications within 6 weeks postoperatively according to the modified Clavien-Dindo system. There were 3 complications. Two cases of febrile urinary tract infection required prolonged hospitalization/readmission for intravenous antibiotic treatment (grade II), and one case of immediate postoperative sepsis necessitated admission to ICU (grade IV-a). Overall complication rate was 9.7%.

CONCLUSIONS: FURS is a safe and efficient method for treating renal calculi.

Source of Funding: None

MP28-18 URETERIC STENT INSERTION AND DOCUMENTATION OF REMOVAL; IS IT CONTRIBUTING TO ‘FORGOTTEN’ STENTS

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INTRODUCTION AND OBJECTIVES: Ureteric stent insertion is a common urological procedure. They are inserted to relieve ureteric obstruction. However they are associated with morbidity such as irritative lower urinary tract symptoms. The aim of the audit was to study the reasons for insertion and documentation of removal. It would also identify “forgotten” stents that were still in-situ.

METHODS: 12 months retrospective data was collected from the theatre stent register and hospital electronic records. Patients who died with stents in-situ were excluded (n = 17).

RESULTS: In total 264 stents were inserted. The main reason for insertion was renal calculi (66%) with neoplastic obstruction accounting for 21% (Fig 1). The time stents were in-situ varied, with most removed within 1–3 months (41%), whilst 4% of stents were in for more than 6 months (Fig 2). 202 stents (77%) had a documented plan such as a removal time-frame or appointment prior to removal (Fig. 3). Only 36% (n = 94) were documented as removed in the register.

CONCLUSIONS: Ureteric stents are used for a variety of reasons. The majority were in for less than 3 months, however 37 stents with an unknown removal date were presumed to be ‘forgotten’. This is of concern due to the increasing risk of late complications the longer stents are in-situ. The lack of documentation could be contributing to the forgotten stents. In this audit documentation was poor with only 36% having the removal date documented. The register is therefore not highlighting stents that need to be removed and current practice should be improved. There are many ways to try and improve the detection of ‘forgotten’ stents. For example stents cards could be given to patients with clear instructions for follow-up and removal of their stent. This shares the responsibility between the healthcare professional and the patient.

Source of Funding: None

FIG. 1. Indication for ureteric stent insertion

FIG. 2. Chart showing length of time stents in-situ.

FIG. 3. Documented plan for removal of stent.

MP28-19 USE OF A 1.3 F NITINOL STONE RETRIEVAL BASKET FACILITATES EXTRACTION OF RENAL AND URETERAL CALCULI TO RENDER PATIENTS STONE FREE

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INTRODUCTION AND OBJECTIVES: Advances in ureteroscopy and stone basket design have resulted in highlighting ureteroscopic surgery as a first line therapy for surgical stone management. However, retrieval of small stones and stone fragments continue to challenge urologists in rendering patients truly stone-free. A novel 1.3 F nitinol stone retrieval basket was designed to capture even the smallest calculi and facilitate stone clearance from the ureter, renal pelvis, and calyces. We report on our experience with this basket for the treatment of urinary calculi, and compare the use of this device to other methods of optimizing ureteroscopic stone management.

METHODS: A prospective evaluation of 43 patients undergoing ureteroscopic holmium: YAG laser lithotripsy was performed at a single institution. A 1.3 F nitinol stone retrieval basket was used to facilitate extraction of small calculi or
stone fragments. Patient demographics and perioperative parameters were assessed.

RESULTS: 43 patients (29 male, 14 female), with a mean age of 54.9 years (range 24–77 years) were treated for renal calculi (n = 20), ureteral calculi (n = 12), or a combination of renal and ureteral calculi (n = 11). The mean aggregate stone diameter/burden was 1.12 cm (range 0.6–2.2 cm), mean number of stone fragments retrieved was 12 (range 3–42). A single basket was used in 38 (88%) cases and two baskets were used in 5 (12%) cases. Baskets were used in conjunction with a flexible ureteroscope and ureteral access sheath in 39 (91%) cases and with a semirigid ureteroscope in 4 (9%) cases. No complications were encountered from use of the basket. All patients were determined to be stone free based on visual inspection via the ureteroscope. Ninety three percent (40/43) of patients were rendered completely stone free based on visual inspection via the ureteroscope. Ninety three percent (40/43) of patients were rendered completely stone free based on subsequent radiologic imaging studies. Of the three patients with residual calculi, one patient was a renal calculus had one residual fragment <3 mm each.

CONCLUSIONS: The use of a 1.3 Fr nitinol stone retrieval basket appears to be safe and efficacious in facilitating ureteroscopic laser lithotripsy and stone extraction. This basket is most advantageous for clearing lower pole small (≤3 mm) fragments that may otherwise persist and potentially increase in size. While this basket is more fragile than larger diameter baskets, judicious use can result in minimizing further treatment by rendering patients stone free following a single procedure.

Source of Funding: None

MP28-20 ASSESSING DIFFICULTY OF URETEROSCOPIC STONE EXTRACTION USING PREOPERATIVE CT IMAGING

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INTRODUCTION AND OBJECTIVES: Ureteroscopy with laser lithotripsy is the main surgical modality used in current practice, for the removal of ureteral stones that cannot pass freely on their own. Despite high success rates, many patients return with residual stone fragments that may result in stone growth, recurrent symptoms, and need for additional interventions. Failure to adequately treat ureteral stones may result from various factors that contribute to the difficulty of stone extraction. The aim of this study is to use preoperative CT imaging to identify specific factors that may give insight into the difficulty of stone removal, and risk of residual stone burden.

METHODS: We retrospectively reviewed the records of 141 consecutive ureteroscopic procedures for upper tract calculi. Of these patients, 59 qualified for further analysis based on the requirement of preoperative CT imaging and post-operative imaging in the form of CT, KUB, or ultrasound. Only patients receiving ureteroscopy as treatment were included. Using univariate and multivariate logistic regression analysis, we identified independent predictors of residual stone burden.

RESULTS: Based on our retrospective analysis of 59 patients undergoing ureteroscopic stone extraction, the presence of renal calculi in addition to the ureteral stone of interest was an independent predictor of residual stone burden (p value < 0.001, OR = 133.99). Female gender was the only other significant independent factor in this study (p value = 0.038, OR = 14.48). Changes in kidney/ureteral anatomy such as tortuosity, ureteral thinning, hydronephrosis, and ureteral edema identified in pre-op imaging were combined into a single anatomy score, and were not found to be a significant factor. Stone features such as size, location, and HU were also not significant in the case of residual stone burden. In our study, use of Rigid +/– flexible vs. only Flexible ureteroscopy technique did not show any difference in the residual stone burden, however all the patients who received only rigid ureteroscopy had no residual stone burden.

CONCLUSIONS: In our preliminary analysis, presence of renal calculi and female gender was the only significant predictor of residual stone burden. We plan to do a prospective study with a larger cohort to further support our analysis.

Source of Funding: none

MP28-21 NEW URETERAL ACCESS SHEATHS: A DOUBLE-STANDARD

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INTRODUCTION AND OBJECTIVES: Next generation ureteral access sheaths (UAS) have a split-tip inner dilator to facilitate single wire placement, which then lies outside the UAS as a safety. Our objective was to appraise UAS function, relating to ease of placement, ease of use and safety.

METHODS: Two traditional UAS were tested; Boston Scientific Navigator-HD (N-HD, 10/12 Fr) and Cook Flexor (CF, 9.5/11.5 Fr). Two split-tip UAS were tested; Coloplast Retrace (CR, 10/12 Fr), Cook Flexor-Parallel (CF-P, 9.5/11.5 Fr).

Dimensions were measured using digital calipers (Niko 01407A, China). Ease of placement was evaluated by testing the coefficient of friction (through 2.5 mm hole in biologic tissue), tip bending and sheath buckling forces. Ease of use was evaluated by testing the ease of inner dilator removal and the compression force on the outer dilator that resulted in UAS kinking. Radiopacitity was evaluated using C-arm fluoroscopy. Perforation forces through aluminum foil and sheath tip shear forces in biological tissue measured safety. A new UAS was used for each trial. All measurements were performed using a motorized sliding stage and continuous force measures recorded via digital force gauge (Mark-10, NY).
June 2012 was conducted. This review identified 382 consecutive patients with upper urinary tract calculi who underwent Polyscope and laser lithotripsy by a single surgeon (Yue Cheng). The procedure number, operative time, stone-free rate, repeat using number of the multilumen catheter, and perioperative complications were documented.

**RESULTS:** The mean stone size was 11.5 mm (range: 4–28), and the mean total stone burden was 17.5 mm (range: 15–46). 87 patients (22.3%) had a stone burden >20 mm, and 295 patients (77.7%) had a stone burden less than 20 mm. 267 patients underwent one procedure, 115 patients underwent two treatments. The average number of procedures was 1.3. The mean operative time per procedure was 68.4 min (range:31–146). Of all the 497 procedures, 121 multilumen catheters were used. The mean repeat using number of a multilumen catheter was 3.8 (range:2–6).

The overall stone-free rate was 86.9%. The stone-free rates after the first and the second procedures were 73.4% and 86.9%, respectively. The mean postoperative hospital stay was 1.8 d (range: 1–4). Highest clearance rates were observed for proximal ureteral stones (100%) and renal pelvic stones (88.7%), while the lowest clearance rates were observed for lower calyx stones (76.7%) and multiple calyx stones (77.8%). No major intraoperative complications such as ureteral avulsion and renal rupture were identified.

**CONCLUSIONS:** The modular flexible ureteroscopy with holmium laser is an effective and safe treatment for renal calculi, meanwhile decreasing the high maintenance costs of integrated flexible ureteroscope.

**Source of Funding:** none

### MP28-22 MODULAR FLEXIBLE URETEROSCOPY AND HOLMIUM LASER LITHOTRIPSY FOR TREATMENT OF UPPER URINARY TRACT CALCULI: A SINGLE-SURGEON EXPERIENCE OF 382 CASES

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**INTRODUCTION AND OBJECTIVES:** Since Marshall first reported the use of a flexible cystoscope to visualize a ureteric stone, the last two decades has witnessed remarkable technical advancements in flexible ureteroscope, which has revolutionized the treatment of upper urinary tract urolithiasis. However, the conventional integrated flexible ureteroscopes are fragile and costly, and the ongoing maintenance and repair costs are expensive. The Polyscope is a disposable, modular design flexible ureteroscope, which consists of a single-use flexible multilumen catheter and a separate, reusable optical fiber. To further evaluate the clinical value of this instrument, we present our experiences of modular flexible ureteroscopy with holmium laser lithotripsy for treatment of upper urinary tract calculi.

**METHODS:** A retrospective review of 575 procedures performed at our institution for upper urinary tract calculi from June 2009 to June 2012 was conducted. This review identified 382 consecutive patients with upper urinary tract calculi who underwent Polyscope and laser lithotripsy by a single surgeon (Yue Cheng). The procedure number, operative time, stone-free rate, repeat using number of the multilumen catheter, and perioperative complications were documented.

**RESULTS:** N-HD had a larger outer diameter than manufacturer specifications (13.02 F). The CR had the longest (51 mm) and most flexible tip (0.942 lb, p < 0.001). Tip perforation forces, were similar in magnitude between all sheaths. N-HD had the least frictional resistance (0.14 lb, p < 0.001). N-HD had the highest buckling force (1.014 lb) compared to the CF (0.827 lb) and the two split-tip UAS (CR 0.41, CF-P 0.445 lb) (p < 0.001). Removal of the inner dilator was more difficult with the split-tip sheaths (CF-P 1.39, CR 1.97 lb) compared to traditional UAS (N-HD 0.190, CF 0.194 lb p < 0.001). There were no significant differences in kinking forces or radiopacity.

**CONCLUSIONS:** Split-tip UAS (Retrace and Flexor-P) have unique physical characteristics compared to traditional UAS. This suggests that a different technique for placement and utilization will be required. As such, randomized clinical trials to evaluate the relative safety and efficacy of split-tip UAS to traditional UAS are warranted.

**Source of Funding:** none

### MP28-23 RISK FACTORS FOR URETERIC STRICTURES FOLLOWING SEMI-RIGID URETEROSCOPIC LASERTRIPSY: RESULTS FROM MULTICENTRE STUDY

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**INTRODUCTION AND OBJECTIVES:** Incidence of ureteric strictures is less than 2% with the use of narrow semi-rigid and flexible ureteroscopes for lasertripsy of stones. In this study we analysed effects of various factors that may influence the development of strictures in modern day semi rigid ureteroscopy.

**METHODS:** We analysed data from 1209 patients at 2 centres over 10 years. Appropriate OPCS codes and electronic records were used to obtain hospital data retrospectively. This was cross-referenced with database to identify patients who developed post-operative ureteric strictures and underwent appropriate interventions. Chi-square test was used for statistical analysis.

**RESULTS:** Between January 2001 and January 2011, 1209 ureteroscopic procedures were performed for ureteric stones. Mean age was 49.7 yrs (Range 21–86) and mean follow up was 2 years. Eleven ureteric strictures (0.9%) were subsequently treated. Risk factors identified included stone in upper third of ureter, recurrent UTI’s and impaction of stone.

There was a greater frequency of occurrence of stricture, impaction and recurrent UTI in the upper ureter compared to the middle ureteric groups (p = 0.0002, X2). Similarly, there was more impaction in the upper ureteric compared to the middle ureteric group (p = 0.001, X2).

**CONCLUSIONS:** Lasertripsy for treatment of stones is fairly safe in this modern era. Ureteric stricture formation following lasertripsy is rare but combination of impaction and recurrent UTIs seem to contribute towards the development of strictures especially in upper ureter. Prospective auditing of ureteroscopic
procedures with risk factors may help in counselling of patients about likelihood of ureteric strictures.

Source of Funding: None.

**MP28-24 RETROGRADE INTRARENAL SURGERY (RIRS) IN THE TREATMENT OF RENAL STONES IN SOLITARY KIDNEY**

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**INTRODUCTION AND OBJECTIVES:** With the ever-growing progress in minimally invasive procedures and recent enthusiasm for the “natural orifices surgery”, retrograde intrarenal surgery (RIRS) is used for the majority of renal calculi. As a matter of fact this procedure is considered a viable and attractive alternative to PCNL and ESWL in patients, with solitary kidney, affected by renal stones. Herein we report our series of 29 RIRS performed in patients with solitary kidney and renal stones.

**METHODS:** In this prospective study we enrolled 29 patients with solitary kidney affected by renal stones. 16 patients underwent a pre-procedure stent placement because developed previous acute renal failure and/or ureterospasm. Mean age was 55,75 ±12.3 years; mean BMI was 23.8 ±2.51 kg/m²; mean stone diameter was 1.3 ±0.4 cm. 7 patients underwent previous treatments for renal stones. In 22 cases a 12–14 F ureteral access sheath (UAS) was placed, in S 9.5–11.5 F UAS while in the remaining 2 patients ureter was not negotiable and the procedure was carried out sheetless. At the end of the procedure, a 6Fr JJ stent is routinely placed. At baseline and 1 month after the procedure patients underwent plain abdominal CT scan. End-points were: evaluation of stone free rate (SFR) and renal function 1 month after the treatment.

**RESULTS:** All 15 patients with renal stones smaller than 1 cm of diameter have been treated with a single procedure while a second stage was necessary in 5/14 patients with renal stones larger than 1 cm. Mean operative time was 75.2 ±12 min (including also 2nd look procedures). Creatinine was not increased significantly (0.2 ±0.03 mg/dl; p=0.06. Fever >38°C appeared in 3/29 of patients. Primary SFR was 79.3% (23/29); secondary SFR 93.1% (27/29). Of note, all patients were asymptomatic and free of upper urinary tract infection and/or obstruction regardless the presence of significant residual fragments. We defined stone clearance as no fragments or a single fragment less than or equal to 4 mm in diameter on standard radiograph and sonography at 3 month follow-up.

**CONCLUSIONS:** In select patients, large, complex upper urinary tract calculi can be treated safely and efficiently with retrograde endoscopic techniques. Staged, retrograde, flexible ureteroscopy is an alternative to percutaneous therapy with acceptable efficacy and low morbidity.

Source of Funding: none

**MP28-25 URETEROSCOPIC TREATMENT OF LARGE, COMPLEX, NON-INFECTION STONE BURDENS GREATER THAN 2.0 CM**

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**INTRODUCTION AND OBJECTIVES:** In this study, we address complex upper urinary tract calculi with retrograde ureteroscopy in a select group of patients. We define the safety and efficacy of retrograde endoscopic lithotripsy in treating large, non-infectious stone burdens greater than 2 cm.

**METHODS:** A total of 145 patients with 164 large (2 cm or greater diameter on standard imaging) upper urinary tract stone burdens were chosen for retrograde ureteroscopy. Patients were treated with small diameter fiberoptic ureteroscopes and holmium laser lithotripsy by a single surgeon. Second-look ureteroscopy was performed in patients in whom there was a high index of suspicion of significant residual fragments. We defined stone clearance as no fragments or a single fragment less than or equal to 4 mm in diameter on standard radiograph and sonography at 3 month follow-up.

**RESULTS:** Our study included 103 male patients and 42 female patients with an average age of 55 years (range 16 to 86). The mean stone diameter was 29 mm (range 20 to 70 mm) and included 36 partial staghorn stone burdens (mean diameter 37 mm) and 10 bilateral simultaneous stone burdens. Overall, 266 retroscopies were performed on 164 stone burdens (1.6 procedures per stone burden), clearing 143 stone burdens (87%).

Highest clearance rates were observed for proximal ureteral stones (97%), and renal pelvic stones (94%), while the lowest clearance rates were observed for lower pole renal calculi (83%), and staghorn calculi (81%). Three patients progressed to percutaneous therapy due to infectious material encountered at the time of ureteroscopy or inaccessible stone burdens because of infundibular stenosis. There were five minor post-operative complications, including 4 fevers and one patient with gross hematuria and clot retention, and no major intra-operative complications.

**CONCLUSIONS:** In select patients, large, complex upper urinary tract calculi can be treated safely and efficiently with retrograde endoscopic techniques. Staged, retrograde, flexible ureteroscopy is an alternative to percutaneous therapy with acceptable efficacy and low morbidity.

Source of Funding: none

**MP28-26 PREVENTING FLEXIBLE URETERORENOSCOPE DAMAGE: HOW WE DID IT**

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**INTRODUCTION AND OBJECTIVES:** Flexible ureterorenoscopy is mainly done for diagnostic purposes and for laser stone treatment. The scopes get damaged with regular wear-and-tear, laser damage and during URS cleaning/maintenance. We wanted to look at our scope damages prospectively over a period of one year with steps taken to minimize scope damage in our hospital.

**METHODS:** The department has 4 Flex X2 Storz flexible ureterorenoscopes. All patients who had flexible ureteroscopy and lasertripsy (FURSL) for renal or ureteric stones had a rigid ureteroscopy first. This was to map the ureteric anatomy and dilate the ureteric orifice and distal ureter. An access sheath was used for all renal stones where possible with nitinol extraction devices for stone retrieval. For lower pole stones a smaller diameter laser fibre was used and a disposable fibre was used for larger stones.

**RESULTS:** A total of 178 ureteroscopies were done over a one-year period from March 2012-March 2013 and the data was collected prospectively. Of these 162 had flexible ureteroscopy (120 for laser
stone fragmentation and 42 for diagnostic URS (+/- biopsy). Of 120 patients who had flexible URS 59 (49%) had access sheath used. The stone location was in mid ureter (18), proximal ureter (13), PUJ (11), Lower pole (31) and upper and mid pole in 4 patients each. Additionally, thirty-six patients had multiple stone procedures (15 combined ureteric and renal; 13 multiple renal location stones) and 8 patients had bilateral stone procedures. The mean stone size was 9 mm (3–40 mm), mean stone burden was 12.8 mm (3–84 mm), the mean stone number was 1.8 (range:1–10 stones) with a mean operating time of 56 min (30–160 min).

During this 12 months only 2 scope repairs were needed of which one was from laser damage and one from loss of deflection with wear-and-tear giving an average use of 89 cases per scope.

CONCLUSIONS: A combination of the use of rigid URS before flexible URS in all cases along with the use of access sheath, nitinol extraction devices, small diameter/disposable laser fibre and trained hospital staff helps in minimizing scope damage.

Source of Funding: Nil
high rate of ‘infective’ stones in this series, coupled with the concordance with the isolation of potential urease-producing urinary bacteria, illustrates the role of preoperative antibiotics for stone sterilization, as well as in the post operative period to minimize infective complications.

Source of Funding: None

MP29-03 SUPINE PCNL: AN EFFECTIVE AND Safe APPROACH FOR RENAL STONES MANAGEMENT – AN EARLY EXPERIENCE

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INTRODUCTION AND OBJECTIVES: Percutaneous Nephrolithotomy (PCNL) is traditionally performed with the patient in prone position. We report our initial experience with PCNL in supine position as regards efficacy & safety.

METHODS: 54 patients with large > 3 cm renal pelvic stones did PCNL in supine position (ipsilateral table side was raised by 20 degrees) from January 2010 to December 2011. Procedure started by standard Cystoscopy followed by retrograde insertion of an open end ureteric catheter over a guide wire and left in situ till end of procedure. At end of procedure a 22 French catheter was left indwelling as a PCN and ureteric catheter removed on second day.

RESULTS: Stone clearance rate = 95%, the remaining 5% had residual stones that were not amenable for retrieval either due to escape into inaccessible sites or due to long procedure time > 2 hours. Second look PCNL was done in 1 patient only 4 days postoperatively uneventfully and in the remaining patients, residual stones were considered insignificant and were cleared spontaneously over follow-up period of 4–6 weeks. No reported cases of adjacent organ injury or major perioperative complications.

CONCLUSIONS: PCNL in supine position is an effective and safe modality of renal stones management. Though our inclusion criteria didn’t include more complex cases but as in our first cases we wanted to standardize technique, we can extent indications in further studies.

Source of Funding: None.

MP29-04 PERCUTANEOUS NEPHROLITHOTOMY: CRITICAL ANALYSIS OF UNFAVORABLE RESULTS

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INTRODUCTION AND OBJECTIVES: To identify the risk factors of unfavorable results of percutaneous nephrolithotomy (PCNL).

METHODS: A total of 602 patients were subjected to 616 PCNL procedures. Patients were divided into two groups according to the results of treatment.

Source of Funding: None.

MP29-05 PCNL RENAL TRACT ACCESS BY UROLOGISTS- OUR EXPERIENCE

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Group 1 with favorable results includes patients who became stone free after a single PCNL procedure without major complications. Group 2 with unfavorable results includes three subgroups: a) Patients who developed major complications, b) Those who required second major intervention to complete stone removal, and c) Patients with residual stones > 4 mm at 3 month. Risk factors for unfavorable outcome were studied by univariate and multivariate analyses.

RESULTS: Unfavorable results were documented in 176 patients (28.6%) due to major complications in 40 (6.5%), need for second intervention in 124 (20%), and presence of residual stones > 4 mm at 3 month in 12 (1.9%). The remaining 440 patients (71.4%) were considered of favorable outcome. Independent risk factors of unfavorable outcome on multivariate analysis were staghorn stones, multiple stones and stone largest diameter > 50 mm.

CONCLUSIONS: To optimize the results of PCNL, urologists should consider careful patient selection. Patients with staghorn stones, multiple stones or large stone burden are more susceptible to unfavorable outcome.

Source of Funding: none.
INTRODUCTION AND OBJECTIVES: In modern practice of collecting system access during percutaneous nephrolithotomy (PCNL), high-pressure nephrostomy tract balloon dilators have largely replaced rigid serial dilators. Similarly, there is a shifting trend from radiologist-obtained to urologist-obtained PCNL tract. Since the introduction of this procedure in our practice, the tract is performed routinely by a urologist. Our results are discussed.

METHODS: Between July 2011 and May 2013, 17 patients underwent Prone PCNL. Their medical notes were retrospectively reviewed. Patients’ demographics, stone load characteristics and renal tract-access complications were the recorded parameters.

RESULTS: During 23 consecutive months, 11 women and 6 men (average age: F: 50, M:57) underwent PCNL for staghorn (56%), partial staghorn (28%), lower pole (11%) and pelvic-only (5.5%) calculi. In all cases the patient was in the prone position, the subcostal route for access to the stone was chosen and nephrostomy tract balloon dilators were employed. The renal tract was successfully accessed under fluoroscopic-guidance by a urologist (89%); in one case (5.5%) the contribution of ultrasound guidance, operated by an interventional radiologist, was required to gain access. Injury to the renal pelvis (5.8%) occurred in one patient, while postoperative pain complicated the recovery of 4 patients (23%); pain being an issue in our practice since the introduction of a subcostal local anaesthetic block, at the end of the procedure.

CONCLUSIONS: Our experience substantiates the evidence that urologist-obtained access is safe and effective for PCNL, while its cost-effectiveness becomes a relevant parameter in the current financial climate. The contribution of intervention radiologists in the management of difficult cases cannot be underestimated.

Source of Funding: None

MP29-06 PERCUTANEOUS NEPHROLITHOTOMY (PCNL) IN AN ELDERLY POPULATION. IS IT SAFE?
Ross Vint*, Sarath Nalagatla, Airdrie, United Kingdom

INTRODUCTION AND OBJECTIVES: To study the early and late complication rates associated with percutaneous nephrolithotomy in the over-70 s in a single surgeon cohort.

METHODS: Over a 3 year period data was collected prospectively on all PCNLs performed and those over 70 were selected for this study. Data was collected on stone characteristics and operative events. Early complications and length to discharge was collected and late complications assessed at follow-up clinic.

RESULTS: Out of 101 total PCNLs there were 17 performed in patients over 70 (mean age =77, range 72–83). 4/17 Patients had a complete staghorn calculus. Average size of non-staghorn stones was 24 mm (14–50). 4/17 Systems were punctured under direct vision from a flexible ureteroscope. All patients had a fully prone position from start to finish including ureteric cannulation using flexible cystoscope. 11/17 had complete clearance with 4/17 patients requiring further treatment with ESWL or FURS.

Complications post-operatively consisted of 2/17 with pyrexia requiring antibiotics. No patients had signs of severe sepsis or septic shock. One patient had a peri-nephric collection that did not require radiological or surgical drainage. 1 patient without FURS visualization required a transfusion of 2 units. There were no other reported intra-operative, early or late complications. Follow-up ranged from 4 months to 3 years.

CONCLUSIONS: Percutaneous Nephrolithotomy in elderly patients is both feasible and safe with both stone clearance results and complications comparable to younger populations.

Source of Funding: None

MP29-07 STANDARD-TRACT COMBINED WITH MINI-TRACT IN PERCUTANEOUS NEPHROLITHOTOMY FOR RENAL STAGHORN CALCULI
Yanbo Wang*, Ning Xu, Min Liu, Chunxi Wang, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To compare the safety and efficacy of standard-tract combined with mini-tract to single standard-tract in percutaneous nephrolithotomy (PCNL) for renal staghorn calculi.

METHODS: The records of 216 patients with staghorn calculi (110 [50.9%] had complete and 106 [49.1%] had partial) who were performed PCNL were reviewed retrospectively. 58 patients received standard-tract combined with mini-tract PCNL (group A) and 158 patients underwent single standard-tract PCNL (group B). Both groups had comparable demographic data. Operation time, stone free rate, blood transfusion rate, hospital stay and complications were analyzed.

RESULTS: Postoperative Clavien score in the two groups was similar. The rate of blood transfusion and perioperative bleeding requiring superselective embolisation were not statistically significant between the groups (P=0.357, 0.463, respectively). Mean operation time was comparable between groups instead of longer in the standard-tract combined with mini-tract group. The stone free rate was significantly higher (89.7% vs 78.5%, P=0.044) in group A than in group B. The rate of second PCNL was higher in group B.

CONCLUSIONS: The standard-tract combined with mini-tract results in higher success rates with no increase in the incidence of complications, and should be the first option for renal staghorn calculi.

Source of Funding: None.

MP29-08 RENAL ACCESS BY SONOGRAPHER VERSUS UROLOGIST DURING PERCUTANEOUS NEPHROLITHOTOMY
Yanbo Wang*, Zihua Lu, Jinghai Hu, Haifeng Zhang, Chunxi Wang, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the percutaneous access outcomes and complications following percutaneous nephrolithotomy (PCNL) that was obtained by sonographer or urologist at a single academic institution.

METHODS: A retrospective chart review of 259 patients who underwent PCNL was performed. Patients were stratified according to percutaneous access by sonographer (group I) or urologist (group II) in 174 and 85 patients, respectively. Demographic, stone, operative variables, percutaneous access complications and stone-free rates were compared between groups.

RESULTS: The major complication rate and minor complication rate, mean blood loss and rates of blood transfusion were comparable between groups. Compared with urologist, sonographer preferred to choose subcostal rib puncture instead of intercostal rib puncture. The lower calyx was the most frequent site of target calyx puncture in group I (165 cases, 94.8%), while the percentage of lower calyx in group II was 82.3% (72 cases) (P=0.001). The overall stone-free rates were significantly higher in group II than that in group I (90.6% vs 79.9%, P=0.003). In group I, 23 cases (13.2%) needed post-operative ESWL, while, the percentage of post-operative ESWL in group II was only 4.7% (4 cases) (P=0.035).

CONCLUSIONS: PCNL can be safely and successfully obtained by both sonographer and urologist. Intracostal and lower calyx access in our study has poor stone-free rates and sonographer
MP29 PERCUTANEOUS NEPHROLITHOTOMY & URETEROSCOPY

MP29-09 PERCUTANEOUS NEPHROLITHOTRIPSY (PCNL) IN CHILDREN
Mohammad Reza Darabi Mahboub*, Mashhad, Iran, Mohammad Aslzare, Alireza Ghoreifi, Mashhad, Iran

INTRODUCTION AND OBJECTIVES: Renal stone disease remains a significant health problem in the adult population, with the incidence of urolithiasis estimated to be as high as 12% but the true incidence in childhood is not known and varies by region. The stone formation in children commonly occurs in upper urinary tract that needs interventional procedures such as PCNL, ESWL and open nephrolithotomy. PCNL was first applied to the pediatric population in the 1980s using adult-size instruments but since then the mini-perc technique using an instrument with only 11 F compared with the 24- to 34-F sized instruments. Despite advances in the equipment of PCNL in children, including small sized nephrosopes and amplatz sheets, there are limited papers in this area compared with adults.

METHODS: From March 1997 to June 2012 during 14 years, 38 children aged from 18 months to 15 years, underwent PCNL to treat their urinary tract stones. The patients were 12 males and 26 females with mean age of 8.6 years. CBC, BUN, Cr, FBS, U/A, U/C was done for all patients and also sonography and intravenous urography was done to determine their kidney function and anatomical status. The parents of all patients were informed about the type of procedure and its complication and failure rates and PCNL was done after giving informed consent. All patients underwent general anesthesia during surgery. Under fluoroscopic guidance a 30% concentration dye was injected through the catheter and PCN needle was inserted into the kidney and guide wire was placed. The tract was dilated to 28 F and then 28 F amplatz sheet was placed and nephroscopy was done. After washing the kidney and renewed fluoroscopy, nephrostomy was placed as needed. If the patients became stone free and hemorhage and pelvic rupture didn’t occur tubeless PCNL was done. No major complication developed, despite urinary tract infection and fever in 7 patients and non significant hematuria in 10 patients only less than 6 millimeters particles remained. 33 patients from the all 38 became stone free and in other 5 patients only less than 6 millimeters particles remained. No major complication developed, despite urinary tract infection and fever in 7 patients and non significant hematuria in 10 patients which were all cured by medical therapy.

CONCLUSIONS: PCNL is more effective with less complication than ESWL and open surgery for treatment of urolithiasis in children, and in patients that ESWL have not been indicated or failed PCNL is the choice treatment.

Source of Funding: None

MP29-10 MASSIVE HEMORRHAGE AFTER PERCUTANEOUS NEPHROLITHOTOMY: HOW TO SAVE THE KIDNEY WHEN ANGIOEMBOLIZATION HAS FAILED OR IS UNAVAILABLE?
Alireza Aminsharifi*, Shiraz, Iran

INTRODUCTION AND OBJECTIVES: To describe the management protocol in cases with massive hemorrhage after percutaneous nephrolithotomy (PCNL) with a failed angioembolization or when angioembolization is not available.

METHODS: Between October 2006 and December 2012, 8 cases with massive hemorrhage after PCNL for whom angioembolization had failed, or it was unavailable or could not be afforded by the patient, underwent open surgical exploration through a midline transperitoneal or a flank retroperitoneal approach. In both approaches, kidney mobilization outside the Gerota’s fascia, temporal renal pedicle clamping and partial nephrectomy or renorrhaphy were done in a stepwise manner. (Figure 1)

RESULTS: Median patients’ age was 31 years (range 16–59 years). All patients had one access during their PCNL which was in the lower pole in 7 of them. We did a partial nephrectomy in 2 and renorrhaphy in 6 of the patients with a successful outcome. No patients needed any additional procedures to control hemorrhage. Median operative time was 2.25 hours and median warm ischemia time was 26 minutes (range 24–42 minutes). Creatinine levels remained stable in the perioperative period in all patients. After a median follow up period of 21 months, the involved renal unit, in all cases, remained functional in the postoperative intravenous urography.

CONCLUSIONS: Massive hemorrhage after PCNL when angioembolization failed or was not feasible due to any reason could be controlled by partial nephrectomy or renorrhaphy with the same principles as that used for surgical exploration in patients with high grade renal trauma (Figure 2).

Source of Funding: none
SUPINE PCNL is equally safe and effective in patients in supine position.

CONCLUSIONS:

Operative complications were found. Mean postoperative hospital stay was 3.8 days for patients in prone position and 3.6 days for patients in supine position.

CONCLUSIONS: Supine PCNL is equally safe and effective in the therapy of staghorn stones as prone PCNL, and is providing significantly shorter procedure times and more comfort for patients with obesity and cardio-respiratory problems.

Source of Funding: none

EVALUATION OF SAFETY AND EFFICACY PERCUTANEOUS NEPHROLITHOTRIPSY IN TREATMENT OF ANTERIOR DIVERTICULAR RENAL STONES

Daryush Irani, Nasim Irani*, Reza Haghpahah, Shiraz, Iran

INTRODUCTION AND OBJECTIVES: Although in posterior diverticular renal stones, percutaneous nephrolithotripsy (PCNL) is advised, in anterior ones, laparoscopic approach is suggested. We reviewed the outcome of patients undergoing PCNL for anterior diverticular renal stones.

METHODS: A total of 18 patients with mean age of 32 y/o underwent PCNL for anterior diverticular renal stones from Feb 2010 till Mar 2012. Their diagnosis were confirmed preoperatively with spiral CT scan without and with IV contrast injection (8 were upper pole, 6 were midpole and 4 were lower pole).

RESULTS: All 18 patient were discharged from hospital without any need for blood transfusion. There were no significant postoperative complications.

CONCLUSIONS: In patients with symptomatic anterior calyceal diverticular renal stones, PCNL is a rapid, effective and safe procedure with little morbidity and can be used as an alternative to time consumptive and complicated laparoscopy for treatment of such stones.

Source of Funding: none

THE EVALUATION OF SAFETY AND EFFICACY OF MULTIPLE TRACKS PERCUTANEOUS NEPHROLITHOTOMY UNDER SPINAL ANAESTHESIA

Seyed Habibollah Mousavi-Bahar*, Abdolmajid Iloon Kashkouli, Babak Borzouei, Hamadan, Iran

INTRODUCTION AND OBJECTIVES: We performed PCNL in 80 consecutive patients who were candidate for PCNL under general or spinal anesthesia in complete supine position with guide of fluoroscopy. Patients with uncontrolled coagulopathy, skeletal deformity, ectopic kidneys and morbid obesity were excluded from study. The intra-operative and postoperative anesthetic and surgical outcomes were evaluated.

RESULTS: The mean age of the patients was 34.0 ± 15.2 years and mean stone size was 30.3 ± 8.4 mm. Mean access time was 62.2 ± 21 minutes and the mean operative time was 67.3 ± 24.8 minutes. Three patients had staghorn calculi with mean size of 4.8 ± 1.3 cm and mean operative time of 130 ± 30 minutes. Five patients had proximal ureteral stone that completely were crushed and removed in supine position (mean stone size 18.3 ± 5.4 mm).

CONCLUSIONS: Complete supine pcnl is safe, feasible with suitable efficacy and less complication that can be used instead of prone position.

Source of Funding: Deputy of Research, Yasuj University of Medical Sciences, Yasuj, Iran
INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) has changed a major open surgery to a minimally invasive operation with minimal patient discomfort and less complication as well as shorter hospitalization, but patients are still suffering from general anesthesia and related complications. The present study came to address the outcome of multiple tracks PCNL under spinal anesthesia.

METHODS: During a prospective study in Shahid Beheshti Hospital, the Urology & Nephrology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran from May 2002 to July 2012, among more than 565 PCNL under spinal anesthesia, 54 consecutive patients who underwent PCNL with multiple tracks were enrolled into the study.

RESULTS: Stone burden was staghorn in 13 (24.1%) and larger than 2 cm in 36 (66.7%) patients. The mean operation time was 58.7 ± 8.9 minutes. Access by two tracks was performed in 45 (83.3%) and three tracks in 9 (16.7%). The complete stone free rate was 95.6%. There were no significant intraoperative problems in 47 (87.4%) of the patients. Operation associated complications occurred only in 4 (7.4%) and anesthesia associated in 2 (3.7%) patients. 22 (48.9%) of cases with two tracks and 2 (22.2%) of three tracks were managed in tubeless manner without any significant complication. At least in 22 (48.9%) of patients with two tracks and 6 (66.7%) of three tracks, one intercostals access was performed without significant complications.

CONCLUSIONS: Multiple tracks PCNL under spinal anesthesia is feasible, safe and well tolerated in particular for elderly and those who cannot tolerate general anesthesia.

Source of Funding: None.

MP29-15 COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY: A SINGLE SURGEON’S EXPERIENCE
Nathaly Francois*, Springfield, IL

INTRODUCTION AND OBJECTIVES: The aim of this study is to report a single surgeon’s experience of the complication rates of percutaneous nephrolithotomy with regards to stone size and access location.

METHODS: After receiving IRB approval, a prospective database of 264 patients from 2009–2012 who underwent percutaneous nephrolithotomy (PCNL) for stone removal by a single surgeon was analyzed. Multiple data were gathered from these patients and included upper vs. lower pole puncture, whether or not supracostal access was necessary and complications resulting from surgery. Stone free status and need for additional procedures were also recorded. When comparing the groups on categorical variables, chi-square tests of independence or Fisher’s exact tests, as appropriate, were used. Independent groups t-tests were used to compare the groups per mean age. Wilcoxon rank-sum tests were used to compare the groups based on estimated blood loss and the number of days in the hospital.

RESULTS: There were no statistically significant differences in the rates of renal injury (1.3% vs. 0.5%, p = 0.5), pneumothorax (4.2% vs. 3.0%, p = 0.7), bleeding (4.0% vs. 3.8%, p = 1.0), or other complications (6.6% vs. 9.2%, p = 0.48) between patients with total stone burdens ≤ 2 cm or total stone burdens ≥ 2 cm. There was no statistically significant difference in the rate of renal injury (1.0% vs. 0.7%, p = 1.0), pneumothorax (0.0% vs. 4.4%, p = 0.09), bleeding (3.1% vs. 5.1%, p = 0.532), or other complications (7.3% vs. 10.2%, p = 0.532) between patients with lower pole vs. upper pole access.

CONCLUSIONS: Percutaneous nephrolithotomy is standard for treatment of renal calculi of > 2 cm in size, and upper pole puncture is often necessary for adequate access. Literature has shown this stone size and access are often accompanied by a higher risk of complications. Our study, which assessed a single surgeon’s experience in these scenarios, illustrated that when considering stone size greater than or less than 2 cm and upper vs. lower pole access, the complication rates did not show statistically significant differences.

Source of Funding: None.

MP29-16 COMPARATIVE STUDY OF RESULTS AND COMPLICATIONS OF PERCUTANEOUS NEPHROLITHOTOMY (PNL) WITH NEPHROSTOMY AND WITHOUT NEPHROSTOMY (TUBELESS)

INTRODUCTION AND OBJECTIVES: To compare the results, complication, successes and outcome of tubeless PNL operations with the standard PNL technique in a selected number of patients.

METHODS: A total of (100) patients with renal calculi. It included (50) patients with renal calculi who were scheduled for standard PNL in which the nephrostomy tube was fixed and (50) patients with renal calculi who were scheduled for Tubeless PNL. The procedure was done at Urology Department, Al-Azhar University in the period between January 2009 to October 2011. Randomized comparison between tubeless and standard PNL was done.

RESULTS: Of the 100 cases, 50 patients with renal calculi underwent Tubeless PNL (group A) and 50 patients with renal calculi underwent standard PNL in which the nephrostomy tube was fixed (group B). Ureteric catheter was fixed in 48 cases (96%) and JJ-Stent in 2 cases (4%) in group A while Ureteric catheter was fixed in 46 cases (92%) and JJ-Stent in 4 cases (8%) in group B. The length of hospitalization are 1–4 days in group A (mean 2 days) and 2–10 days in group B (mean 4.43 days). The Stone free rate was 35 (70%) in group A and 31 (62%) in group B. There is aminal extravasation in 5 cases (10%) in group A and 10 cases (20%) mild to moderate extravasation in group B.

CONCLUSIONS: Tubeless percutaneous renal surgery is a safe and effective procedure that provides an alternative to the standard percutaneous renal surgery. Tubeless PNL can be used if there is no significant perforation, no significant bleeding, and Single percutaneous tract and there is no residual stone need a 2nd look with the potential advantages of decreased postoperative pain, analgesia requirement, and hospital stay.

Source of Funding: none.

MP29-17 THE HISTORY OF PERCUTANEOUS NEPHROLITHOTOMY
Katherine Hall*, Priyadarshi Kumar, Moeketsi Mokete, Preston, United Kingdom

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) has long been regarded as the gold standard treatment for large or complex urolithiasis. This paper aims to look at the origin and development of PCNL and developments for the future.
METHODS: A comprehensive review of the medical literature and historical texts was performed.

RESULTS: The first description of percutaneous access to the kidney was by Thomas Hillier of London in 1865. He repeatedly drained an obstructed system in a four-year-old child. Unfortunately the child died a few years later and no contemporaries followed his lead. The next recorded venture into minimally invasive renal access was in 1941 by Rupel and Brown. They inserted a paediatric cystoscope via a nephrostomy tube as part of an open procedure, in order to extract a renal stone. In 1955, William Goodwin again described percutaneous access, antegrade nephrostomy and nephrostomy tube insertion as a way of draining a hydrourephrotic kidney. Nephrostomy remained a means for renal drainage alone until 1976, when Fernstrom and Johansson described three cases of removal of a kidney stone via a nephrostomy tract, under radiological guidance. Alken developed modern day PCNL during the next decade including devising metal dilators in order to gain access to the kidney.

In the 1990s, Valdivia described PCNL with the patient supine. Galdakao further modified this technique in 2007, with the patient in the lithotomy position, allowing simultaneous retrograde uretero-reno-scropy and PCNL. We have recently seen the development of mini and micro PCNL. New innovations include the “all seeing needle”, an optical puncture system allowing direct visualisation during puncture and robotic-assisted percutaneous access to the kidney.

CONCLUSIONS: PCNL has come a long way in the last 150 years from origins in draining a young boy’s kidney, to the modern, yet still evolving, gold standard treatment for large or complex urolithiasis.

Source of Funding: none

MP29-18 EXPERIENCE OF MINI-PERCUTANEOUS NEPHROLITHOTOMY FOR PROXIMAL URETERAL STONES OF PATIENTS WITH REPEATED EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FAILURE
Jingjing Guan*, Yanbo Wang, Xuesong Li, Yangyang Li, Zhengyi Lv, Xiaoming Yang, Qianqian Zhao, Changchun, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To evaluate the efficacy and safety of mini- percutaneous nephrolithotomy (PCNL) for proximal ureteral stones of patients with repeated Extracorporeal Shock Wave Lithotripsy (ESWL) failure.

METHODS: We retrospectively reviewed the outcomes of 105 patients who underwent mini-PCNL between May 2008 and May 2013 in our department. All patients had operation time more than 3 times of ESWL failure. Mean stone size was 19.8 mm (1.5-3.2). Percutaneous access (16-Fr sheath) was established by placement of an access needle into the intended calyx under the ultrasound guidance in the prone position. The Lumenis 60 w lithotriptor was used to fragment the stone. The ureteral stents and nephrostomy tube were placed at the end of the procedure. Success rate, operative time, median drop in hemoglobin, post-operative hospital stay, stone-free rate and complications were assessed.

RESULTS: Mini-PCNL operations were performed successfully in all patients. Mean operation time was 32 min (18-55). Mean postoperative hospital stay was 4.2 days. The stone-free rate in all patients was 98.1%. All cases were followed up for 1 month. No major complications like hemorrhage, perforation or organic injury occurred during the operation or postoperatively.

CONCLUSIONS: Mini-PCNL is a safe and effective therapy for proximal ureteral stones of patients with repeated ESWL failure.

Source of Funding: none

MP29-19 LOCKED DEFLECTION DURING FLEXIBLE URETEROSCOPY: AN UNDERREPORTED COMPLICATION
Scott Hubosky*, Nir Kleinmann, Demetrius Bagley, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Flexible ureteroscopy (URS) is widely utilized with a well known safety profile. Complication rates are well defined and relatively low in experienced centers. One case report exists describing a scenario in which a flexible ureteroscope became entrapped in a patient due to locked deflection or inability to straighten the ureteroscope requiring an open incision to safely remove the instrument. Although rare, this is a potentially devastating complication which is poorly understood and likely underreported. The objective was to determine the incidence and outcomes of cases involving locked deflection during flexible URS.

METHODS: An anonymous online survey was undertaken targeting all active members of the endourological society. Members were asked if they ever experienced a situation involving locked deflection of a flexible ureteroscope while in the patient. Of those experiencing the problem, further questions were asked, including indication for URS, method of ureteroscope removal, any adverse patient outcomes and if the incident had been reported to the patient, hospital, or FDA. Furthermore, responders experiencing locked deflection were asked what they perceived as the mechanism for causing the locked deflection and if any explanations were given by the manufacturer or third party repair service.

RESULTS: A total of 236 responses were noted out of a possible 2424 members surveyed. Locked deflection was noted by 7/236 (3%) and the indication for URS was nephrolithiasis in 6/7 and upper tract neoplasm treatment in 1/7. Successful removal was noted in 4/7 utilizing some form of retrograde manipulation while a percutaneous approach was used in 2/7. Open surgery was required in 1 case due to ureteral avulsion, which was the only case in which a long term adverse outcome was observed. The event was reported to the patient in 3/7, the hospital in 3/7, and the FDA 0/7. Respondents perceived the etiology of locked deflection to be improper ureteroscope processing in 2/7, scope damage from wear in 3/7 while 2/7 felt improper surgical technique in URS was involved.

CONCLUSIONS: Locked deflection during flexible URS is relatively rare but indeed underreported. The mechanisms for locked deflection are poorly understood but clearly require the attention of both endourologists and manufacturers given the potential for ureteral avulsion. The ideal solution for those encountering this problem has yet to be elucidated.

Source of Funding: none

MP29-20 PREOPERATIVE STENTING ENABLE US TO REMOVE RENAL STONES WITH FLEXIBLE URETEROSCOPY AT FIRST ATTEMPT
Shohei Ishida*, Toru Kimura, Takashi Kato, Yuta Sano, Fumitoshi Sakamoto, Tomonori Komatsu, Yoshikazu Tsuji, Tsuneo Kinukawa, Nagoya, Japan
MP29 PERCUTANEOUS NEPHROLITHOTOMY & URETEROSCOPY

INTRODUCTION AND OBJECTIVES: Lithotripsy with flexible ureterorenoscope (fURS) and Ho:YAG-laser can be performed safely and effectively for renal stones. However, ureteral stenosis sometimes make it difficult to approach renal stones at first attempt. Placement of a preoperative stent may enhance stone clearance by dilating the ureter to facilitate both access and stone removal. The aim of this study is to evaluate effectiveness of fURS and preoperative stenting for renal stones.

METHODS: From January 2010 to March 2013, we retrospectively reviewed the records of patients treated with fURS for renal stones at our institution, and analyzed about the age of patient, stone characteristics (size, number, operating time, presence of ureteral stent before and after fURS, and stone-free rate. Stone-free is defined as no stones or less than 2 mm fragment after fURS.

RESULTS: There were 77 patients (46 men, 31 women), and 146 renal stones were treated with fURS. The median age of patients was 60 years old. The median stone size was 8 mm (2–30 mm). The mean operating time was 108 minutes (18–214). The rate of presence of ureteral stent before fURS was 71.4% (55/77). The totally success rate of fURS was 92.2% (71/77). Preoperative stenting group tend to reduce operating time, despite total amount of stones is larger than preoperative no stenting group. We could approach for renal stones with fURS first attempt in all patients in preoperative stenting group. However, 5 patients, who were all in preoperative no stenting group, we could not approach renal stones at first attempt due to ureteral stenosis and finished with ureteral stenting.

CONCLUSIONS: Flexible ureteroscopic lithotripsy for renal stones can be performed with a high success rate. Preoperative stenting is an effective and safe method in managing for renal stones with fURS.

Source of Funding: none

MP29-21 THE WALLSTENT®: 23 YEARS OF EXPERIENCE IN THE TREATMENT OF BENIGN URETEROENTERIC ANASTOMOTIC STRICTURES AFTER BRICKER Deviation

Thijs Campschroer*, Tycho Lock, Utrecht, Netherlands

INTRODUCTION AND OBJECTIVES: Stenosis of the ureter ileal (UI) anastomosis following Bricker deviation is seen in 4–10% of all cases. Many minimal invasive techniques (balloon dilatation, double-J-stenting or laser endoureterotomy, cold and hot knife incision) have been described, but long-term results are disappointing with failure rates up to 80%. Especially in unfit patients (ASA ≥2) positioning of a Wallstent® under local anaesthesia is an attractive alternative. We describe our experience with the Wallstent® in benign obstruction and compare results with data available from a literature search.

METHODS: From 1989, of all patients with benign UI-strictures and end-to-side anastomosis, we retrospectively collected data on clinical history, complications, auxiliary measures and patency rates and compared these with available data from literature.

RESULTS: A total of 47 patients underwent 54 Wallstent® procedures (mean age: 63 yrs). Placement of the Wallstent was possible in 100% of the patients and without auxiliary treatment the patency remained well in 14 patients (mean follow-up time 46 months). In 16 patients due to stent obstruction (hyperplastic reaction or encrustation) or migration a second treatment (laser vaporization and/or balloon dilatation) was performed with success. Combined (primary and secondary) patency rates were therefore 58.8% (30/51 Wallstents®, mean follow-up time 55.4 months), comparable with patency rates between 36 and 100% described in literature with a wide variety in number of cases and much shorter follow-up period.

CONCLUSIONS: To our knowledge this is the longest follow-up and largest series of Wallstent® stenting in benign UI obstructions. We proved that in selected cases, in experienced hands, to preserve quality of life, placement of a Wallstent could lead to a permanent desobstruction in approximately 6 out of 10 patients with UI anastomotic stricture.

Source of Funding: none

MP29-22 TUL-ASSISTED PCNL (TAP): IMPACT OF URETEROSCOPY IN THE MODIFIED SUPINE POSITION FOR MANAGEMENT OF UPPER URINARY TRACT STONE DISEASE

Kae Ante-Sugihara*, Noritaka Ishito, Yumiko Yamashita, Tomoko Sako, Shuei Yokoyama, Yoichi Shiotsuka, Takaharu Ichikawa, Yasuo Yamamoto, Hitoshi Takamoto, Kurashiki, Japan

INTRODUCTION AND OBJECTIVES: Percutaneous nephrolithotomy (PCNL) is the gold standard treatment for large stone burdens and staghorn calculi. The modified supine position supports a versatile approach to the upper urinary tract, and is beginning to be accepted by urologists. This approach allows for simultaneous percutaneous and ureteroscopic access to facilitate stone clearance. In our hospital, we use ureteroscopy and add PCNL (TUL-assisted PCNL: TAP) in the modified supine position only if judged necessary intraoperatively. This study presents our experience with this technique.

METHODS: We retrospectively reviewed the records of all patients who were scheduled for ureteroscopy in our hospital during the period from 2007 to 2012. Patient demographics, stone characteristics, the number and type of procedures performed, and the success and complication rates were recorded. Data were analysed using descriptive statistics, Fisher's exact probability test, and the t-test. A p value of < .05 was considered significant.

RESULTS: Thirty-three patients were scheduled for ureteroscopy and possible PCNL in the modified supine position over a 4-year period. Eighteen (55%) were managed only ureteroscopically (TUL group), whereas 15 (45%) required a percutaneous approach (TAP group). Mean age (61±12 vs. 58±15 years, p = .60) and BMI (25.0±3.8 vs. 24.3±4.0, p = .59) did not differ significantly between TUL- and TAP groups, respectively. The number of patients with urinary tract infection was higher (p = .05) in TAP group (5 [33%]) than in TUL group [1 [6%]]. There was no significant difference between TUL- and TAP groups in the average stone size (1.6±0.7 cm vs. 2.1±1.4 cm, p = .21) and average operative times (117±42 min vs. 146±47 min, p = .07). Overall, 15 (83%) patients were ultimately rendered stone free following ureteroscopy, whereas 15 (100%) patients were stone free following nephrostomy placement. There were no severe complications.

CONCLUSIONS: Ureteroscopy in the modified supine position can be performed safely and effectively to treat calculi that might otherwise require a more invasive percutaneous approach. It is now our practice to offer this approach to patients with characteristics that place them at high risk for morbidity when using PCNL in whom stone characteristics may dictate an on the table’ decision. Further prospective research investigating specific patient and stone characteristics will be useful for assessing which procedure will be most efficacious in treating stone disease.

Source of Funding: none
MP29-23 COMPARISON OF OPTICAL RESOLUTION AMONG 2 DIGITAL AND STANDARD FIBEROPTIC URETERORENOSCOPES USING AN IN VITRO MODEL

Kikuo Nutahara*, Mitaka, Japan, Junichi Matsuzaki, Yokohama, Japan, Soichi Mugiya, Hamamatsu, Japan, Akiyoshi Yamaguchi, Hokuoka, Japan

INTRODUCTION AND OBJECTIVES: Olympus URF-V has incorporated a digital camera at the distal tip, which allows images to be obtained without a moire. Olympus URF-Y0001 is a new digital ureterorenoscope which has smaller distal end and insertion tube outer diameters than URF-V (Table 1). We compared two digital ureterorenoscopes with a standard fiberoptic ureterorenoscope (URF-P5) for optical resolution.

METHODS: The two digital flexible ureterorenoscopes, Olympus URF-Y0001 and Olympus URF-V, were compared with a standard flexible scope, Olympus URF-P5, using an in vitro model. Each scope was positioned 2, 5, 10, 15 and 20 mm above a resolution chart. We measured the optical resolution of each scope through three solutions with progressively increasing concentrations of sheep blood.

RESULTS: The optical resolutions of URF-Y0001, URF-V and URF-P5 were 7.94, 7.94, and 3.16 lp/mm in the saline at 10 mm distance, respectively. At 15% concentration, the resolutions of URF-Y0001, URF-V and URF-P5 were 7.08, 7.71, 2.82 lp/mm at 10 mm distance, respectively. Two digital flexible scopes performed equivalently in objective distances 2, 10, 15 and 20 mm (Fig 1 and 2).

CONCLUSIONS: In spite of the smaller distal end and insertion tube outer diameters, the URF-Y0001 offers almost same visibility compared with that of the URF-V. The results of this study suggest that digital flexible ureterorenoscopes offer improved resolution compared with that of a fiberoptic ureterorenoscope.

Source of Funding: none

Table 1. Flexible Ureterorenoscopes

<table>
<thead>
<tr>
<th>Scope</th>
<th>Distal end outer diameter (Fr.)</th>
<th>Insertion tube outer diameter (Fr.)</th>
<th>Active deflection up/down (°)</th>
<th>Imager</th>
</tr>
</thead>
<tbody>
<tr>
<td>URF-Y0001</td>
<td>8.3</td>
<td>8.4</td>
<td>70/75/75</td>
<td>CCD</td>
</tr>
<tr>
<td>URF-V</td>
<td>8.5</td>
<td>9.9</td>
<td>180/275</td>
<td>CCD</td>
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<td>8.4</td>
<td>180/275</td>
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</table>

FIG. 1. Resolution of each scope in the saline.

FIG. 2. Resolution of each scope at 15% concentration.

MP29-24 APPLICATION OF FLEXIBLE URETEROSCOPY IN UPPER URINARY DISEASES

Yan Zejun*, Cheng Yue, Xie Guohai, Ningbo, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To assess the clinical application of flexible ureteroscopy in upper urinary diseases.

METHODS: We reviewed 64 patients undergoing the flexible ureteroscopy for diseases in urinary system from February 2010 to February 2012 retrospectively. 37 cases of calculi (less than 20 mm) in upper urinary tract were treated by retrograde flexible ureteroscopy with Holmium laser. 8 cases of calculi were in upper ureter, and 29 were in renal pelvis and renal calyx. All the 37 cases received KUB, IVP and CT before the surgeries. Further examinations such as KUB, IVP and CT were received 2 weeks and 1 month later to evaluate the treatment. Flexible ureteroscopy was performed for diagnosis of 16 cases of space-occupying lesion or hematuria. All the 16 cases received B ultrasound, KUB, IVP or CT before the surgeries. We got biopsy during surgery for the occupying lesions, then chose a best therapeutic regimen according to the pathology result. 11 cases of multiple renal calculi (bigger than 25 mm) were selected to be treated by single channel percutaneous nephrolithotomy (PNL) combined with flexible ureteroscopy lithotripsy using holmium laser. All the 11 cases received KUB, IVP and CT routinely before the surgeries. The evaluation of calculi evacuation was performed 3 days later by KUB or CT scan after operation.

RESULTS: We succeeded in inserting the ureteroscopy in 36 calculi cases. 1 was failed in inserting because of ureteral stricture. 34 cases of calculi were successfully found and treated. Mean time for the lithotripsy was 41 min (32–72 min). The rate of lithotripsy was 91.9%(34/37). 2 cases were failed to find the calculi because of bloody vision. 30 cases had no residual calculi 2 weeks later according to KUB or CT. The rate of evacuation was 81.1% (30/37). 33 cases had no residual calculus 1 month later according to KUB or CT. The rate of evacuation is 89.2% (33/37). Successfully diagnostic flexible ureteroscopy identified occupying lesions and hematuria in 15 cases: tumors (7 cases), polyp of ureter (5 cases), blood clot (1 cases), varicoce vein in renal pelvis (1 cases), no obvious abnormality (1 cases). 1 case failed to insert the flexible ureteroscopy because of ureteral stricture. The achievement ratio was 93.75% (15/16). 11 cases of multiple renal calculi were treated by PNL combined with flexible ureteroscopy lithotripsy and Holmium laser. The stone-free rate was 81.8% (9/11). 2 cases (13.3%) had a residual 6 mm and 4 mm calculi.

CONCLUSIONS: Flexible ureteroscopy is an effective and minimally traumatic diagnostic and therapeutic technique for upper urinary tract diseases.

Source of Funding: none
INTRODUCTION AND OBJECTIVES: The aim of this study was to evaluate the efficacy and safety of retrograde intrarenal surgery (RIRS) for the treatment of renal stones and to analyse the predictive factors for stone-free.

METHODS: We retrospectively reviewed the records of patients who underwent RIRS for renal stones from January 2010 to January 2013 at our three centres. Out of 198 cases of RIRS 12 had bilateral renal stone. Size of stones ranges from 8 mm to 22 mm. 18 to 60 years of age group. All patients were given regional anesthesia. Ureter was dilated up to 14 FR. An access sheath 10/12 was kept up to upper ureter. Stones were fragmented with 20 watt Holmium laser. We collected data. Stone free and success were defined as no visible stones or clinically insignificant residual stones less than 3 mm on postoperative imaging; predictive factors for stone-free were evaluated.

RESULTS: Out of the 198 RIRS cases; 77 stones were located in the upper pole, 78 in mid pole, 91 in lower pole, 59 in renal pelvis. 116 patients had solitary stone, 48 had two stones, 22 had three or more stones. 12 patients had bilateral renal stone. 140 cases had primary stone and 58 cases had secondary stone due to ESWL or PCNL. 6 patients were obese. Pre RIRS stenting was required in 28 cases, in whom primary ureteric dilatation was not feasible. Stent was kept for three weeks in all the patients. Stone free rate (SFR) was 76% immediately and 80% after 1 month. SFR was lower in lower pole. Over all complication rate was 6%.

CONCLUSIONS: RIRS is safe and effective treatment for renal stones. The stone free rate of RIRS was particularly high for renal stones with a small burden. Lower pole stone having low success rate. So RIRS should be considered in selective patients. RIRS is good for obese patient in whom we can stage the procedure for large stones.

Source of Funding: *
We retrospectively queried patients within the Mar-
kidney stone patients within a large claims dataset of privately
studies, in appropriate patients to determine directed therapy for

INTRODUCTION AND OBJECTIVES:
D. Kim Chantala, Davis P. Viprakasit*,
E. Will Kirby, David C. Johnson, James E. Ferguson,
Nicholas Kuntz, Richard Shin, Jonathan Hanna,
Michael Ferrandino, Glenn Preminger, Michael Lipkin,
Durham, NC

INTRODUCTION AND OBJECTIVES: Clinical guidelines rec-
 recommends the use of metabolic testing, specifically 24-hour urine studies, in appropriate patients to determine directed therapy for
 stone prevention. Recent reports, however, suggest that many patients with risk factors do not undergo appropriate testing. We sought to determine the utilization of 24-hour urine studies in kidney stone patients within a large claims dataset of privately insured patients.

METHODS: We retrospectively queried patients within the Marketscan® Commercial Claims and Encounters Databases between 2001 and 2010. A cohort of patients with at least one year of data prior to kidney stone diagnosis and a minimum of five years of continuous follow-up data was selected for analysis. Urine studies including urinary calcium, citrate, oxalate, uric acid, creatinine, pH and sodium were evaluated individually and as a complete group. Kidney stone surgery was considered only once per six month period. Patients undergoing stone surgery over multiple six month periods were defined as recurrent stone formers.

RESULTS: Of 68,268 kidney stone patients, 16,404 (24%) patients underwent at least one individual urine study and 3,503 patients (5%) underwent at least one complete urine study within the study period. Ordering of individual urine testing included urine creatinine (86%), calcium (47%), uric acid (44%), oxalate (42%), citrate (40%), sodium (36%) and pH (27%). In 11,133 recurrent stone patients, 4,432 (40%) underwent at least one individual urine study and 1,530 (14%) underwent at least one complete urine study. Patients under the age of 20 and those from the West and Northeast United States had higher rates of urine evaluation. Urine testing was significantly higher with increasing number of stone surgery periods (p < 0.0001). However, only 51.5% of patients with five or more stone surgery periods underwent any urine studies.

CONCLUSIONS: Our findings suggest that based on claims data 24-hour urine testing is underutilized in kidney stone patients. Though results varied some with patient demographics, overall a majority of patients with evidence of recurrent stones within our cohort did not undergo guideline recommended urine studies. Further analysis is required to determine the significance in rates of stone recurrence in these patients.

Source of Funding: None

MP30-03 MANAGEMENT OF STRUVITE STONES USING COMBINED ENDUROLOGICAL AND MEDICAL TREATMENT: PREDICTORS OF UNFAVORABLE CLINICAL OUTCOME

Muhammad Iqbal, Ramy Youssef*, Andreas Neisius,
Nicholas Kuntz, Richard Shin, Jonathan Hanna,
Michael Ferrandino, Glenn Preminger, Michael Lipkin,
Durham, NC

INTRODUCTION AND OBJECTIVES: The standard of care for the management of struvite stones is complete surgical removal. In addition, medical therapy with low dose antibiotics and/or urease inhibitors has been shown to reduce the incidence of residual struvite stone growth. Historically residual struvite stones have been associated with significant morbidity and mortality. Yet, there has not been a report on the medical management of struvite stones in almost 20 years. We report on the outcomes of the surgical and medical management of struvite stones in a contemporary series.

METHODS: A retrospective review of patients treated with percutaneous nephrolithotomy (PNL) for struvite stones at Duke University medical center between January 2005 and September 2012 identified a total of 75 patients. Of these, 43 patients had adequate follow up and were included in this analysis. Stone activity, defined as either stone recurrence or stone related events, and predictors of activity were evaluated after combined surgical and medical treatment.

RESULTS: The study included 43 patients with either pure (35%) or mixed (65%) struvite stones with a median age 55 ± 15 y (range, 21–89). The stone free rate after PNL was 42%. Stone recurrence occurred in 23% of patients. Postoperatively, 30% of patients had a stone related event, while 60% of residual stones remained stable with no growth after a median follow up of 22 months (range, 6–67). Kidney function remained stable during follow up. Independent predictors of stone activity included the presence of residual stones > 0.4 cm², preoperative large stone burden (> 10 cm²) and the presence of medical co-morbidities (p < 0.05).

CONCLUSIONS: Struvite stones can be treated safely with PNL followed by medical therapy. The majority of patients with residual fragments demonstrated no evidence of stone growth on medical therapy. With careful follow up and medical management, kidney function can be maintained and stone morbidity can be minimized. Initial large stone burden, residual stones after
surgery and associated medical co-morbidities may have deleterious effect on stone recurrence or residual stone related events.

Source of Funding: none

**MP30-04** CLINICO-METABOLIC CHARACTERISTICS OF OLDER PATIENTS WITH URINARY STONE DISEASE

Won Tae Kim*, Sang-Cheol Lee, Cheongju, Korea, Republic of; Hoon Jang, Daejeon, Korea, Republic of; Yong-June Kim, Seok-Joong Yun, Wun-Jae Kim, Cheongju, Korea, Republic of

**INTRODUCTION AND OBJECTIVES:** Epidemiologic studies have revealed that the peak age of urolithiasis is third and fourth decades of life. In the present study we investigated the clinical and metabolic differences according to age in urolithiasis patients.

**METHODS:** We performed a retrospective analysis of 760 patients with urolithiasis with complete metabolic evaluations. Patients were categorized in 2 groups according to the initial age of urinary stone development. Data from clinical and metabolic parameters for patients over 50 years old (group, n = 273) were compared with those < 50 years (young group, n = 487).

**RESULTS:** Mean age was 35.5 ± 0.4 years for young group and 58.3 ± 0.3 years for old group. Female patients were more common in old group than in young group (49.8% and 31.0%, P < 0.001). In young group, previous stone history and family history of urolithiasis were common (P < 0.001 and 0.014), while the incidence of diabetes and hypertension was significantly prevalent in old group (both P < 0.001, respectively). In old group, mean values of serum glucose, creatinine, total glyceride (TG) and low density lipoprotein (LDL) were high (P = 0.000, 0.007, 0.004, and 0.038, respectively) in both sex. The incidence of hypercalcemia and hyperuricosuria were significantly higher in young male group (P = 0.031 and 0.016), while the incidence of obesity (body mass index, BMI over 25 kg/m²) was higher in old female group (P = 0.001).

**CONCLUSIONS:** Our results revealed that urinary stone disease in old group might be related to the chronic illness with age such as decreased renal function, DM, HTN or metabolic syndrome rather than those of certain primary urinary metabolic abnormalities as seen from young group.

Source of Funding: none

**MP30-05** PREDICTION OF URIC ACID STONE COMPOSITION BY HOUNSFIELD UNITS: TECHNIQUE AND STONE SIZE IMPACTS PREDICTIVE VALUES

Sangtae Park*, Glencoe, IL

**INTRODUCTION AND OBJECTIVES:** While uric acid stone composition can be well predicted by measuring its Hounsfield unit (HU) on CT and urine pH, HU are not routinely reported by radiologists nor measured by urologists. Consequently, many uric acid stone formers undergo unnecessary surgical treatment, and this could be prevented in many cases by correctly predicting stone composition. We hypothesize that HU of uric acid stones, the positive predictive value for uric acid composition in HU measures the coronal axis was 85%, whereas the positive predictive value for uric acid composition in HU measures the coronal axis was 76%. Upon stratification by stone size, stones < 5 mm had significantly exaggerated HU on coronal reformatted images versus axial images, whereas HU measures were highly correlated in the coronal and axial axes for stones > 10 mm (Correlation coefficient = 0.87).

**CONCLUSIONS:** While uric acid stones represented 10% of stone formers in our medical center, HU is not routinely reported by radiologists. Consequently, >50% of uric acid stones underwent surgical management between 2008 and 2010. It behooves urologists to measure HU before recommending management of stones, and our study indicates that the most accurate HU is obtained from the axial images, particularly in the larger stones.

Source of Funding: none

**MP30-06** SURVEY OF PRACTICE PATTERNS FOR THE TREATMENT OF UPPER URINARY TRACT STONES IN NEW ENGLAND

Vik Uberoi*, David Wang, Boston, MA

**INTRODUCTION AND OBJECTIVES:** The surgical management of renal and ureteral stones is often dependent on the urologist’s preference, training background, and type of practice. A shift towards ureteroscopy with laser lithotripsy has been noted in academic centers, whereas extracorporeal shock wave lithotripsy (ESWL) remains a mainstay in the private sector. We sought to determine the practice patterns of urologists in the New England area with regard to surgical management of nephrolithiasis.

**METHODS:** A survey was constructed regarding training background, practice description, ownership of ESWL machine, and 5 clinical scenarios with computed tomography images of patients with stones. The case scenarios were: 1) 1 cm calculus in the renal pelvis, 2) 1.5 cm lower pole renal calculus, 3) 5 mm distal ureteral stone without hydronephrosis, 4) 7 mm proximal ureteral stone with mild hydronephrosis, and 5) bilateral 1 cm stones (right lower pole, left renal pelvis). The survey was sent to the 445

<table>
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<tr>
<td>ESWL</td>
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<tr>
<td>---</td>
</tr>
<tr>
<td>Case 1</td>
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<tr>
<td>Case 2</td>
</tr>
<tr>
<td>Case 3</td>
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<tr>
<td>Case 4</td>
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<td>Case 5</td>
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</table>

ESWL = Extracorporeal Shock Wave Lithotripsy, URS = Ureteroscopy, Laser Lithotripsy, PCNL = Percutaneous Nephrolithotomy
members of the New England section of the AUA with valid email addresses.

RESULTS: The overall response rate was 17% (75/445). 44% of respondents were in academics and 12% were fellowship trained in endourology. Ownership of ESWL machine was reported in one third of all responders (80% of private urologists and 20% of academic urologists). 46% believed usage of ESWL had decreased in the last 5 years, and 46% believed usage had remained the same. Only 8% of respondents stated that ESWL had increased in use. 66% of respondents believed that ureteroscopy (URS) had increased in the last 5 years, and 31.5% believed it had remained the same. 2.7% believed that URS had decreased. The case scenario results are listed in Table 1. Interestingly, 88% of private urologists preferred ESWL in case 1 compared to 25% of academic urologists. 72% of academic urologists preferred URS compared to 9% of private urologists. There was no difference seen with respect to ESWL usage based on ownership of ESWL machine.

CONCLUSIONS: Most urologists in New England feel that the use of URS is increasing and the use of ESWL is decreasing or remaining the same. The usage of each treatment modality is dependent most on the clinical scenario. In our case scenarios, private urologists were more likely to choose ESWL compared to academic urologists. However, ownership of ESWL machine did not affect the choice of treatment.

Source of Funding: none

MP30-07 EFFECT OF POMEGRANATE SUPPLEMENTATION ON SERUM AND URINE MARKERS OF INFLAMMATION, OXIDATIVE STRESS AND 24 HOUR URINE IN PATIENTS WITH RECURRENT NEPHROLITHIASIS

Jonathan Henning*, Lincoln, NE, Mark Newton, Miriam Zimmerman, Chad Tracy, Iowa City, IA

INTRODUCTION AND OBJECTIVES: There is an abundance of literature linking oxidative stress and nephrolithiasis. Animal studies have demonstrated that pomegranate may play a role in stone prophylaxis. We sought to evaluate differences between recurrent stone formers (RSF) and controls with regards to oxidative stress and to determine the effect of pomegranate supplementation on risk factors for nephrolithiasis.

METHODS: Recurrent stone formers, not on any medical therapy, were collected prospectively from our metabolic stone clinic and matched to controls with no prior stone history. Subjects submitted urine & blood samples prior to and after receiving 1 g extract daily may confer some modest benefit in improving urinary citrate and lowering SS CaOx. The correlation between increasing levels of PON1 with lower SS CaOx may help explain the reduced risk of calcium oxalate stone formation with pomegranate shown in prior animal studies.

Source of Funding: POM Wonderful Corporate Office

Gregory Roberts*, Darren Beiko, Kingston, Canada, Dedan Opondo, Jean de la Rosette, Amsterdam, Netherlands, Hassan Razvi, London, Canada

MP30-08 A GLOBAL UROLITHIASIS MANAGEMENT SURVEY BY THE CLINICAL RESEARCH OFFICE OF THE ENDOUROLOGICAL SOCIETY (CROES): DO UROLOGISTS FOLLOW THE “GOLDEN RULE”?;

INTRODUCTION AND OBJECTIVES: Many clinical decisions—especially treatment decisions for urolithiasis—are based on a combination of evidence, experience, patient preference and physician experience. We do not know if there is dissonance between recommendations experts make to their patients and what experts would choose for themselves if they were the actual patient. We recorded endourologists’ attitudes and perceptions of treatment options for various clinical stone scenarios with no obvious management consensus, and determined if these recommendations were similar to how they would choose to be treated themselves.

METHODS: In 2012, the Clinical Research Office of the Endourological Society (CROES) sent an email invitation to all members of the Endourological Society to participate in this 2-part global survey study. All members who accepted the invitation were sent two identical surveys, six months apart, containing 10 clinical stone scenarios to which there is more than one reasonable management option. The initial survey asked the respondents to select the single best initial procedure they would recommend for a patient. The second survey was sent out 6 months later to eliminate recall bias, and asked the respondents to select the single best initial procedure they would choose for themselves if they were the actual patient. Descriptive statistics were performed on the responses from urologists who participated in both surveys. All statistical analysis was done using R-statistical programming software version 2.12.2.

RESULTS: Initially, 205 members of the Endourological Society accepted the invitation to participate in the study. The response rate for the first survey was 83% (N = 172/205). The response rate for the second survey was 81% (N = 167). 157 (76.6%) urologists responded to both Round 1 and Round 2. Academic urologists made up 117 (74.5%) of respondents and 123 (78.3%) completed a fellowship in endourology. There was a past medical history of urolithiasis in 27 (17.5%) respondents. Absolute consensus was lacking between experts for each scenario, however there was no statistically significant differences between what endourologists
recommend for their patients and their personal choice of treatment; in fact, there was almost congruency.

CONCLUSIONS: This positive and encouraging global CROES study shows that the “Golden Rule”—Do unto others as you would have them do unto you—is being followed by members of the Endourological Society.

Source of Funding: none

MP30-09 COMPARISON OF STONE COMPOSITION AND URINARY RISK FACTORS BETWEEN ELDERLY AND YOUNGER COHORT WITH NEPHROLITHIASIS

Yaniv Shilo*, Pittsburgh, PA, Ilia Beberashvili, Zerifin, Israel, Julie M. Riley, Jocelyn Kim, Stephen V. Jackman, Timothy D. Averch, Pittsburgh, PA

INTRODUCTION AND OBJECTIVES: Several studies have reported the relationship between age and stone composition. Our aim was to review the distribution of stones composition and urinary risk factors in elderly patients and compare it to a younger cohort of patients.

METHODS: We have reviewed the 24 hour urine analysis of 1013 patients in our stone clinic and have identified 491 patients with stone composition results.

Patients were divided into two groups: older and younger than 65 years.

Stones composition and urinary risk factors were compared between the groups.

We excluded women and men with 24 hour urine creatinine collection of less than 600 mg and 800 mg, respectively and patients younger than 18 years.

The independent contribution of age to the probability of kidney stone formation was assessed by multiple logistic regression analysis using adjustments for 24 h urine volume, BMI, gender and urinary creatinine to body weight ratio.

RESULTS: Mean age in the elderly group was 70.4 y and 48.5 y in the younger group. Gender distribution in the elderly group was 134 men and 96 women compared to 131 men and 130 women in the younger group. Mean BMI was 29.6 in the elderly and 30.6 in the younger group.

Stones composition differences between the groups are listed in table no. 1.

On 24 hour urine analysis the elderly group had statistically significant lower PH, calcium, uric acid, sodium and phosphorous compared to the younger group.

The elderly group was associated with 2.2-fold higher odds (95% CI: 1.11-4.50) for uric acid stone formation. In contrast, the odds ratio for apatite stone formation in the elderly group was lower (OR-0.37, 95% CI: 0.18-0.73) than in the younger group.

No associations were found between age and oxalate nor brushite stone formations.

CONCLUSIONS: Elderly patients have different distribution of stones in comparison to younger patients. The age as well as the different pattern of urinary risk factors in the elderly might explain the lower risk for formation of apatite stones, but higher risk for uric acid stones compared to younger patients.

Source of Funding: none

MP30-10 STONEDIAGNOSTIC IN THE URO DYNA-CT COMPARED TO STANDARD NON-CONTRAST CT

Marie-Claire Rassweiler*, Stefan Haneder, Joachim Brade, Benjamin Meister, Maurice-Stephan Michel, Axel Haecker, Manuel Ritter, Mannheim, Germany

INTRODUCTION AND OBJECTIVES: With the introduction of the Uro Dyna-CT (Siemens Healthcare, Germany) we have the opportunity of interventional cross sectional 3D-imaging during endourological interventions. We developed new examination protocols to optimize the image quality for hard contrast imaging and reduce the radiation exposure in the Uro Dyna-CT. It is very important to know the size and localization of stones in order to plan the right therapeutic procedure. During interventions for stone therapy (PCNL, URS, SWL) the detection of residual stones is very important. The imaging modality with the highest sensitivity for stone depiction is the computer tomography (CT). We compared the measurement accuracy of stones in the Non-Contrast CT to the Uro Dyna-CT.

METHODS: We assed 5 stones of different compositions (A: 60% calcium-monohydrate + 40% calcium-dihydrate, B: 60% carbonate-apatite+40% magnesium-ammonium C: 10% carbonate-apatite+20% calcium-monohydrate+70% calcium-dihydrate, D: 40% calcium-monohydrate+60% calcium-dihydrate, E: uric acid). We first measured the stone size manually with a digital caliper. Afterwards the stones were put in small plastic jars and were scanned in the Uro Dyna-CT with the standard stone and low dose protocols. At last a non-contrast CT (Siemens SOMATOM Emotion) of the stones was performed.

An experienced uroradiologist measured the stone size in three planes in each imaging modality in a blinded manner. A paired t-test of the aggregated values was performed and the manual technique for stone measurement was compared to the standard and Uro Dyna-CT stone protocols.

RESULTS: Stone size measurement with the Uro Dyna-CT is highly accurate. Statistical analysis indicate equal quality compared to standard non-contrast CT. The low dose protocol still enables good stone depiction, but size measurement is less accurate.

<table>
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<td>&lt;0.001</td>
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<td>standard stone protocol</td>
<td>Low dose protocol</td>
<td>Non-contrast CT</td>
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<td>p-value</td>
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</table>
CONCLUSIONS: Intraoperative stone depiction with the Uro Dyna-CT can be compared to a standard non-contrast CT regarding the accuracy of stone size measurement.

Source of Funding: none

MP30-11 CORELATION BETWEEN GUY’S STONE CLASSIFICATION AND PERCUTANEOUS LITHOTRIPSY OUTCOMES

Norberto Bernardo*, Horacio Sangunetti, Buenos Aires, Argentina, Maximiliano Lopez Silva, Javier Garcia Villalba, Bu, Argentina, Osvaldo Mazza, Buenos Aires, Argentina

INTRODUCTION AND OBJECTIVES: Currently, percutaneous lithotripsy (PL) is the gold standard treatment for kidney stones. There are multiple classifications in regard to complications and outcomes but Guy’s Stone classification was made to predict the results. The objective of the investigation is to assess the relation between guy’s stone classification and percutaneous lithotripsy outcomes, performed in a University Hospital in Argentina.

METHODS: Medical histories of patients who underwent PL from 2008 to 2012 in the Jose de San Martin Hospital, Argentina, were reviewed. The variables registered were: age, sex and Guy’s grade, based on complementary studies and surgical findings. We define stone free patients those who evolve with no stones or asymptomatic ones with stones smaller than 4 mm. evaluated by CT. The need of auxiliary procedures for residual stones was also taken into account. Statistical analysis was performed. Chi-Squared-Test., Odds Ratios (OR) with confidence intervals (CI) of 95% were calculated by logistic regression.

RESULTS: An amount of 193 patient were included, 53, 89% female, aged 45, 59–15. We classified 56 patients as Guy I (29, 04%), 46 patients as Guy II (23, 82%), 47 patients as Guy III (24, 34%) and 44 patients as Guy IV (22, 80%). The Stone free rate (STR) was 96, 43% (n = 54) for Guy I; 84, 78% (n = 39) for Guy II; 76, 59% (n = 36) for Guy III and 50% (n = 22) for Guy IV (p < 0, 0001).

Taking as reference Guy I group, the OR to require an auxiliary procedure was: 4.85 for Guy II (CI = 0,95-24,60; p = 0,05), 8,25 for Guy III (CI = 1,73-39,44; p = 0,008) and 27 for Guy IV (CI = 5,84-124,70; p = 0,0001). Auxiliary procedures performed were: extracorporeal shock wave lithotripsy 12, 44%, ureteroscopy 1, 03% and percutaneous lithotripsy 13, 47%.

CONCLUSIONS: A statistically significant association was observed between guy’s stone classification and Stone free rate. Thus Guy IV group shown 27 more risk of auxiliary procedures than Guy I.

Source of Funding: none

MP30-12 THE CONCORDANCE OF ULTRASOUND AND CT SCAN IMAGES FOR KIDNEY STONE DISEASE

Dan Greene*, Shubha De, Carl Sarkissian, Manoj Monga, Cleveland, OH

INTRODUCTION AND OBJECTIVES: AUA Guidelines recommend following all endoscopic procedures, ultrasound imaging (+ x-ray) be performed. Our objective was to identify sensitivity and specificity of stone detection by US at our center, and the effects of BMI, stone size and position.

METHODS: Kidney stone patients having undergone an ultrasound followed by CT scan within 30 d were reviewed to account for stone passage between studies. Discrepancies between modalities were assessed, using CT as the gold standard. Sensitivity and specificity were calculated using SPSS.

RESULTS: Reviewing 198 patients, stone size positively correlated with sensitivity (> 4 mm 75.00%; 0 ≤ 2 mm 26.40%; 2 ≤ 4 mm 26.10%). Sensitivity was lowest for upper pole stones (25.71%) compared to mid (53.85%) and lower pole (56.36%). Specificity was found to be lowest for stones > 4 mm (89.89%) when compared to smaller stones sizes ranging from 0 ≤ 2 mm (97.56%) and 2 ≤ 4 mm (96.39%). Specificity was greatest for intrapolar stones (95.24%) and lowest for lower pole stones (91.95%).

Increasing BMI lowered sensitivity, while increasing specificity in upper and lower pole stones, and stones > 4 mm.

CONCLUSIONS: In comparison of 200 patients US and CT scans, we identified a specificity of 90–96%, decreasing with smaller stones and lower pole placement. Sensitivity was lowest for upper pole stones.

Source of Funding: none

MP30-13 UPPER URINARY TRACT STONES PRESENTING TO THE EMERGENCY DEPARTMENT IN THE UNITED STATES: TRENDS IN HOSPITALIZATION AND CHARGES

Khurshid Ghani*, Detroit, MI, Florian Roghman, Montreal, Canada, Jesse Sammon, Detroit, MI, Vincent Trudeau, Montreal, Canada, Ramesh Kumar, Shyam Sukumar, James Peabody, Mani Menon, Detroit, MI, Quoc-Dien Trinh, Montreal, Canada

INTRODUCTION AND OBJECTIVES: We examined trends in visits, hospitalization and charges for patients with upper urinary
tract stones presenting to the emergency department (ED) in the United States using the Nationwide Emergency Department Sample (NEDS).

METHODS: All visits with a primary diagnosis (ICD-9-CM codes) of kidney calculus (592.0), ureter calculus (592.1) and urinary calculus unspecified (592.9) were extracted from NEDS between 2006–2009. A weighted sample was used to calculate incidence rates. Temporal trends were quantified by estimated annual percent change (EAPC). Patient/hospital characteristics associated with hospitalization were evaluated using logistic regression models adjusted for clustering.

RESULTS: Between 2006–2009 there were 3,635,054 ED visits with upper urinary tract stones. The incidence increased from 289 to 306 per 100,000 individuals. More men visited than women but only women demonstrated significant increases in visits (EAPC = +2.85%, p = 0.018). Total monthly ED visits ranged from 5.8% (February) to 8.4% (August). Overall, 12.0% of patients were hospitalized and hospitalization rates decreased over time (EAPC = -1.02%, p = 0.634). Patients were more likely to be hospitalized if female, sicker, seen in an urban teaching or low-volume hospital, and if holding Medicaid or Medicare (all p <0.001). Sepsis was associated with the highest likelihood of admission (OR = 69.64, p <0.001). In 2009, charges for ED visits increased to $5 billion (EAPC = +10.06%, p = 0.003).

CONCLUSIONS: Women demonstrated significant annual increases in ED visits for upper urinary tract stones. While ED charges have risen substantially, hospitalization rates have declined. Greater utilization of computed tomography and medical expulsive therapy could be reasons for this observation and warrants further study.

Source of Funding: none

MP30-14 RADIATION EXPOSURE OF THE PATIENT SUBMITTED TO URETEROSCOPY FOR URETERAL CALCULI
Filippo Nigro, Paolo Ferrarese, Ciro Ammendola, Enrico Scremin, Giuseppe Benedetto, Emiliano Bratti, Andrea Tasca*, Vicenza, Italy

INTRODUCTION AND OBJECTIVES: Patients treated for ureteric calculus are at risk to receive high levels of ionizing radiation during their clinical state.

We measured the total amount of radiation exposure for a group of patients affected by ureteral stones, from the onset of their symptoms to the conclusion of their clinical fate.

METHODS: Herein we report the data of a monocentric retrospective study including 64 patients submitted in 2010 to uroteroreoscopy (URS) for ureteral calculi, localised at pio-lo-ureteral junction (13 cases, 20% - group 1), lumbar tract (22 cases, 35% - group 2), pelvic tract (16 cases, 25% - group 3), ureterovesical junction (13 cases, 20% - group 4).

All 64 patients underwent abdominal X-ray (KUB) and ultrasonography (US); 49 patients (77%) required an additional CT scan to improve the diagnosis.

The total amount of radiation exposure from the onset of symptoms, during endourologic treatment, to 3 months of follow up was measured, using Gray (Gy), the unit of the absorbed dose, and Sievert (Sv), expressing the equivalent dose, i.e. the stochastic biological effects of ionizing radiation.

The measured data were related to location and volume of the stones.

RESULTS: Stone size was homogeneous in all groups (mean 0.8 mm); mean fluoroscopy time during URS was 116 seconds (s) (group 1), 172 s (group 2), 78 s (group 3), 83 s (group 4), observing less time of radiation exposure (p<0.05) for distal (pelvic and prevesical) than proximal (pio-lo-ureteral and lumbar) stones.

In addition, the absorbed dose was significantly lower (p<0.05) in groups 3 and 4 [mean for groups 1-4 expressed in miliGray (mGy): 1) 8.915; 2) 9.451; 3) 4.878; 4) 4.744].

56 patients (88%) were evaluated 2 months after treatment with KUB and abdominal US, 8 patients (12%) required a CT scan to achieve the diagnosis.

Mean measured exposure radiation was: 19 mSv (group 1), 21 mSv (group 2), 15 mSv (group 3), 15 mSv (group 4).

The total radiation received by the studied population was lower than 50 mSv, the recommended dose limit in a year for workers according to International Commission on Radiological Protection.

CONCLUSIONS: This is the first report concerning the measurement of total amount of radiation a patient submitted to URS for ureteral stone receives in his clinical fate.

The use of fluoroscopy during endourological procedures increases patient’s radiation exposure and adds to all radiological diagnostic examinations.

It’s critical that endourologist is sensitised to this problem in order to minimize the employ of ionising radiation during endourological treatment.

Source of Funding: NONE
**MP30-16 RESULTS OF TRANSURETHRAL URETEROLITHOTRIPSY (TUL) AND CLINICAL CHARACTERISTICS OF ACUTE PYELONEPHRITIS FOLLOWING TUL**

Yasunobu Hashimoto*, Kita-Aoyama, Minato-ku, Tokyo, Japan, Takafumi Yagisawa, Yukiko Kouchi, Kawada-cho, Shinjuku-ku, Tokyo, Japan, Yoshiko Maeda, Kita-Aoyama, Minato-ku, Tokyo, Japan, Tomokazu Shimizu, Kazunari Tanabe, Kawada-cho, Shinjuku-ku, Tokyo, Japan

**INTRODUCTION AND OBJECTIVES:** Post-operative acute pyelonephritis is critical complication of transurethral ureterolithotripsy (TUL). To improve operative result, we analyze risk factor of post-operative acute pyelonephritis after TUL.

**METHODS:** We analyzed consecutive 104 patients of transurethral ureterolithotripsy (TUL) with Holmium:yttrium-aluminum-garnet (Ho: YAG) laser From April 2011 to October 2012 in our institute.

**RESULTS:** Acute pyelonephritis following TUL occurred 6 cases (5.8%) and 1 of these 6 patients became septic shock under intensive-care unit (ICU) administration. The overall stone-free rate was 72.1%. This study showed that operation time, shape of stones and preoperative pyuria are the risk factors for acute pyelonephritis after the operation.

**CONCLUSIONS:** We should have a close consideration in each case before the operation and acquire an accurate surgical technique. They are crucial to perform safety operation and preventing postoperative acute pyelonephritis.

**Source of Funding:** None

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**MP30-17 IS URINARY LITHIASIS RELATED TO CORONARY ATHEROESCLEROSIS?**

Hector Sandoval Barba*, Christian Villeda Sandoval, Ricardo Castillojes Molina, Monica Chapa Ibarguengoitia, Carlos Mendez Probst, Mexico City, Mexico

**INTRODUCTION AND OBJECTIVES:** The association between coronary atherosclerosis and urinary lithiasis has been described in the past. The physiopathological mechanisms are not known and the evidence is limited. The objective of this study is to investigate the relationship between coronary atherosclerosis and urinary lithiasis.

**METHODS:** We did a retrospective review in the period of 2005–2012 in a tertiary reference center of patients who underwent a coronary CT scan. Those with a concurrent abdominal CT scan were selected. We obtained the calcium score on coronaries and determined the presence of atheroma plaques. Urinary lithiasis was investigated in the corresponding image study. We analyzed the correlation between the presence of coronary atherosclerosis and urinary lithiasis.

**RESULTS:** We included 35 adult patients of whom 14 were males and 21 females. We identified 14 patients with coronary atherosclerosis with an average calcium score of 150.92 ± 424.92 classified as 3 minimum, 4 mild, 3 moderate and 4 severe. We found atheroma plaques in 11 cases. We identified 7 cases with urinary lithiasis with an average maximum calculus diameter of 5 ± 3.9 mm. No significant correlation between calcium score or atheroma plaques presence with urinary lithiasis or stone size was found.

**CONCLUSIONS:** Contrary of what has been published in literature this study didn’t find a relationship between coronary atherosclerosis and urinary lithiasis. Further investigation in a larger sample will be pursued.

**Source of Funding:** None

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**MP30-18 DIFFERENT ANALGESIC METHODS FOR SHOCKWAVE LITHOTRIPSY**

Farkhod Abdurakhmonov*, Samarkand, Uzbekistan

**INTRODUCTION AND OBJECTIVES:** Various analgesic and sedative medication has been used for shockwave lithotripsy (SWL). The aim of this study was to evaluate the efficacy of different anesthesia modalities in these patients.

**METHODS:** One hundred twenty patients were randomly divided into four groups. The first (Group A) received fentanyl 1 μg/kg intravenously (IV), the second (Group B) received diclofenac sodium 1 mg/kg intramuscularly (IM), the third (Group C) received tramadol 1.5 mg/kg IM, and the fourth (Group D) was given 15 g of eutectic mixture local anesthetic (EMLA) cream containing lidocaine and prilocaine. After routine preoperative evaluation, all patients received midazolam 2 mg IV 5 minutes before lithotripsy for sedative premedication. In all groups, a supplemental 25-μg bolus of fentanyl was administered IV when patients complained of pain, moved, or grimaced in response to the shockwaves. Pain intensity was evaluated on a 0- to 100-mm visual analog scale (VAS). The level of sedation was determined using the Observer’s Assessment of Alertness/Sedation (OAS/S). Side effects such as bradypnea, oxygen desaturation, bradycardia, pruritus, and nausea and vomiting were recorded.

**RESULTS:** There were no statistically significant differences among the four groups with regard to VAS, OAS/S scores, or side effects. In Group F, the mean arterial pressure was decreased significantly at 10 and 20 minutes. The patients in this group also manifested a decrease of oxygen saturation at the first, tenth, and twentieth minutes and the end of SWL.

**CONCLUSIONS:** Application of EMLA cream was as safe and effective as fentanyl, diclofenac, and tramadol, and reduction of the fentanyl dose during SWL was possible.

**Source of Funding:** Anesthesiology and Urology.2009

**MP30-19 OUTCOMES AND SAFETY OF RETROGRADE INTRA-RENAL SURGERY (RIRS) FOR RENAL STONES : OUR EXPERIENCE**

Vikas Agarwal*, Atul Goswami, Delhi, India

**INTRODUCTION AND OBJECTIVES:** In current era, Incidence of small renal stone is increasing. Retrograde intrarenal surgery (RIRS) is considered for management of stone less than 2 cm. For larger (>2 cm) stone, PCNL is standard of care but due to improved resolution, optics, laser machine and patient demand, RIRS is gaining popularity. We present our experience of RIRS for stone management.

The objective of this study was to evaluate the outcomes and safety of RIRS for stone management.

<table>
<thead>
<tr>
<th>CAT I</th>
<th>CAT II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patient</td>
<td>67</td>
</tr>
<tr>
<td>Number of Renal units</td>
<td>85</td>
</tr>
<tr>
<td>Operative time (min)</td>
<td>87.5±18.5</td>
</tr>
<tr>
<td>Mean stone diameter (mm)</td>
<td>1.31</td>
</tr>
<tr>
<td>Stone free rate at 3 month</td>
<td>93.2%</td>
</tr>
<tr>
<td>Complication rate</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
METHODS: A retrospective analysis was performed on data from patients who underwent RIRS over a 3 year period (2011–2013). Stone size was measured as longest diameter on computed tomography and in cases of multiple stones, the total stone size was calculated as the sum of each stone size. For analysis, Patient were divided in two category of stone size less than 2 cm (Cat I) or more than 2 cm (Cat II). RIRS was classified as primary procedure or secondary procedure (after failed RIRS/DJ stenting). Stone clearance was defined as a complete absence of stones or stones < 4 mm, which were deemed insignificant on ultrasonography and plain radiography at 3 month.

RESULTS: Total 98 patient were analysed and total operating renal units were 122. The mean age of the patients was 33.3 ± 6.6 years. Male: female ratio was 62:36. Mean follow up period was 16 ± 3.2 months. The overall SFR for renal stones treated with RIRS in our study was 96.4% and the complication rate was 3.8%.

CONCLUSIONS: RIRS is safe and effective treatment for renal stones however in stone size more than 2 cm, multistage RIRS is required in selected cases.

Source of Funding: none

MP30-20 CLINICAL EVALUATION OF DIGITAL FLEXIBLE URETEROSCOPY WITH HOLMIUM LASER LITHOTRIPSY FOR COMPLICATED RENAL CALCULI

Cheng Yue, Yan Zejun*, Xie Guohai, Ningbo, China, People’s Republic of

INTRODUCTION AND OBJECTIVES: To explore the clinical value of digital flexible ureteroscope with holmium laser lithotripsy in the treatment of complex renal calculi.

METHODS: Data of 45 cases of complicated renal calculi treated with Olympus e-flexible ureteroscope with holmium laser lithotripsy in our department were retrospectively analyzed. 23 of the cases were multiple stones in the renal pelvis and calyx (including 10 cases of solitary kidney stones), 4 were solitary kidney infection calculi,11 were calyx diverticulum stones,4 were impacted calycolithiasis, and 3 were multiple submucosal calcification. Ureteroscopy was conducted. Guide wires were indwelt and F12–14 ureteral dilatation sheath was placed. After the flexible ureteroscope entered the pelvis, renal pelvis and upper, middle and lower calyx were observed to locate the calculi.0.365 mm or 0.2 mm fiber was chosen according to stone location, and the power ranged between 0.5–1 J and 15–30 Hz. Stones were completely smashed to 2 mm. If ureteral sheath was placed, stones could be removed or partially removed with flush drainage or stone-bag. Double-J tube was indwelt in all patients for two weeks. The first day after the operation catheter was removed. 4 weeks after the surgery, KUB or CT was performed to assess the stone free rate.

RESULTS: 39 of the 45 cases (86.7%) had successful placement of ureteral sheaths, and all cases had ureteroscope entered successfully and located the calculi.38 cases had no stone residual or stone residuals less than 4 mm after the first operation.

CONCLUSIONS: Providing clear vision, digital flexible ureteroscope is safe and minimal invasive. Combined with holmium laser, it can be used in the treatment of all types of complex renal calculi.

Source of Funding: none

MP30-21 DIABETES IN ASIAN AND CAUCASIAN PATIENTS WITH NEPHROLITHIASIS

Raghuram Devarajan*, Solihull, United Kingdom

INTRODUCTION AND OBJECTIVES: Population-based studies support a genetic component to nephrolithiasis (Thorleifsson, 2009). Evidence linking obesity and insulin resistance with low urine pH and uric acid calculi (Malaouf, 2004) as well as an association between hyperinsulinemia and hypercalciuria (Nowicki, 1998) have been reported.

We aimed to identify whether in our population studied diabetes was more prevalent in the Asian stone formers compared to the Caucasians. Furthermore, the 24 hour urinary excretion levels for risk of nephrolithiasis were compared within the diabetic cohort.

METHODS: Racial and diabetic status of 121 patients who underwent a stone retrieval procedure were identified for this case series. The 24 hour urine biochemical analysis of these patients were analysed to identify any significant associations between race and the diabetic status. SPSS v16 software was used for the statistical analysis.

RESULTS: The mean age of patients 49.7 years, of which 97 (80.2%) were males. Forty (33%) patients were of Asian origin. Thirteen of the 40 asians were diabetic whilst only 10 out of 81 Caucasians were diabetic (p=0.009). There was no significant difference between the two races in the diabetic cohort for excretory values of urinary calcium (p=0.09), uric acid (p=0.4), oxalate (p=0.25), phosphate (p=0.08) and citrate (p=0.18).

CONCLUSIONS: The incidence of diabetes is higher in asian stone formers compared to the Caucasian cohort. The fact that there is no significant difference in the urinary excretion levels suggests that there may be other metabolic factors involved in the increased incidence in diabetic Asians. This is the first report in the literature describing an association of increased stone formation in the diabetic asians.

Source of Funding: None

MP30-22 THE CORRELATIONS BETWEEN THE HOUNSFIELD UNIT (HU) ON NON-CONTRAST COMPUTERIZED TOMOGRAPHY SCANS AND THE METABOLIC TEST RESULTS OF URINARY STONE PATIENTS

Hoon Jang*, Daejeon, Korea, Republic of, Ho wun Kang, Dong Wook Kim, Won Tae Kim, Seok Jong Yoon, Sang Cheol Lee, Cheongju, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Studies on the clinical application of the Hounsfield unit (HU) on non-contrast computerized tomography (CT) scans of urinary stone patients have recently been conducted. In this study, the HU level and metabolic test results of urinary stone patients were compared, and their correlation was investigated.

METHODS: 193 urinary stone patients who underwent a non-contrast CT scan before their treatment and a metabolic test after their treatment were retrospectively analyzed.

Their HU level was measured after a region of interest (ROI) was set with an area of 2.0±0.5 mm2 that showed the highest

### Table 1. Baseline Characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Incidence (%) or value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (range)</td>
<td>51 years (28–86)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>124 (64.2 %)</td>
</tr>
<tr>
<td>Female</td>
<td>69 (35.8 %)</td>
</tr>
<tr>
<td>Median size (range)</td>
<td>8.77 mm (1.30–21.31)</td>
</tr>
<tr>
<td>Median Hounsfield unit</td>
<td>749.86 (112–1657)</td>
</tr>
</tbody>
</table>
contrast in the largest section of the urinary stone at the bone window setting (window width: 2,056; window level: 250).

RESULTS: Total 193 patients were composed of 124 male patients and 69 female patients.

The mean size of urinary stone was 8.77 mm (1.30–21.31 mm).

The mean HU level on the non-contrast CT scan was 749.86 (112–1,657).

The HU level increased with the increase in the size of the urinary stone ($p < 0.001$).

A mean HU level of Calcium oxlate stones were 923.94 – 359.05 and a mean HU level of uric acid stones were 502.28 – 199.15, there were significantly difference ($p < 0.001$).

The HU level showed a positive correlation with oxalic acid, which was one of the urinary metabolites in the 24-hour urine sample ($p = 0.019$).

No other correlation with the urinary metabolites in the 24-hour urine sample (urine volume, pH, calcium, uric acid, phosphoric acid, citric acid, magnesium, and sodium) was observed ($p > 0.05$).

CONCLUSIONS: The HU level significantly differed according to the component of the urinary stones.

In addition, the HU level showed a positive correlation with oxalic acid, which was one of the urinary metabolites 24-hour urine sample.

Source of Funding: none

MP30-23 IS IT POSSIBLE TO REDUCE THE COST OF FLEXIBLE URETEROSCOPIC LITHOTRIPSY
Cenk Gurbuz*, Gokhan Atyap, Ozgur Arikan, Ozgur Efilioglu, Onur Danacyoğlu, Turhan Caskurlu, Istanbul, Turkey

INTRODUCTION AND OBJECTIVES: To audit the cost of flexible ureterorenoscopic lithotripsy.

METHODS: The data for 302 consecutive flexible ureteroscopic lithotripsy (FURSL) procedure undertaken in our department for renal stone treatment were collected retrospectively. The costs associated with performing FURSL, including the ancillary equipment were analysed. This includes the cost of the initial purchase of the ureterorenoscopes and the holmium laser equipment.

RESULTS: The cost of flexible ureterorenoscopy for each lithotripsy procedure (for a total of 302 FURSL) was $145. Additional cost of ancillary equipment including laser device, ureteral access sheath and stone retrieval catheter were $131, $231 and $611 respectively.

CONCLUSIONS: In this series the costs of the ancillary equipment including laser exceeded the purchase and maintenance of the flexible ureteroscope. The cost of disposables rather than flexible ureteroscope itself should be considered in planning the budget.

Source of Funding: NONE

MP30-24 PREVENTING RETROGRADE STONE DISPLACEMENT DURING PNEUMATIC LITHOTRIPSY FOR URETERAL CALCULI USING LIDOCAINE JELLY
Mohammad Reza Darabi Mahboub*, Mashhad, Iran, Rahim Taghavi, Mohammad Asljare, Behtash Pedramrad, Mashhad, Iran

INTRODUCTION AND OBJECTIVES: To assess the efficacy of lubricating jelly instillation proximal to the ureteral calculi during lithotripsy on the prevention of retrograde stone displacement and the stone-free rate.

METHODS: 110 patient with ureteral calculi of less than 2 cm were randomized into 2 groups: jelly instillation (n = 55) and controls (n = 55). Ureteroscopy was performed using a 9.8 F semirigid ureteroscope. A 5F ureteral stent was advanced beyond the stone. Lidocaine jelly (2 mL) was instilled, and lithotripsy was done with a Swiss Lithoclast. A 5F ureteral catheter

Table 1. Cost of Flexible FURSL

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible URIS</td>
<td>145</td>
</tr>
<tr>
<td>LASER</td>
<td>131</td>
</tr>
<tr>
<td>Ureteral Access Sheath</td>
<td>231</td>
</tr>
<tr>
<td>Guide wire</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>545</td>
</tr>
</tbody>
</table>

Table 2. Cost for Standard FURSL Per Case
was left in place for 24 hours, and patients were followed up at 24 hours with radiography of the kidneys, ureters, and bladder and at 2 weeks with sonography.

RESULTS: Both groups were comparable in terms of mean age and stone size. Stone or stone fragment migration occurred in 18.8% of the treatment group and 44.2% of the controls, statistically significantly different (P = 0.009). The stone-free rate was 81.3% and 55.8% in the treatment and control groups, respectively. The rates did not improve after 2 weeks, and the difference was not statistically significant between the two groups (P = 0.384). The mean operative time was also comparable between the two groups.

CONCLUSIONS: Lidocaine jelly instillation proximal to the ureteral calculi during lithotripsy is an effective method to prevent retrograde stone displacement.

Source of Funding: None

MP30-25 THE EFFECT OF STONE LOCALIZATION ON SUCCESS RATES OF RETROGRADE INTRARENAL SURGERY

Hakan Kilicarslan*, Burhan Coskun, Yakup Kordan, Hakan Vuruskan, Onur Kaygisiz, Omur Gunseren, Bursa, Turkey

INTRODUCTION AND OBJECTIVES: RIRS is an emerging modality of treatment of renal stones. We aimed to investigate success rates of RIRS according to stone localization in our patients who undergone RIRS for treatment of renal stones.

METHODS: Medical records of 188 patients who undergone RIRS between October 2009 and May 2013 were investigated retrospectively. Demographics of the patients, stone size, operation time and presence of residual stone were recorded. Patients were categorized according to stone localizations. A successful operation was defined as either complete clearance of stones or clearance with insignificant residual fragments ≤ 3 mm in size at 3-months follow-up.

RESULTS: The data of 166 patients were found eligible. A total of 100 patients were male (60.2 %) and 66 patients were female (39.8 %). Mean age of the patients were 47.9 ± 13.81 (1–83). The total number of the stones at the right side was 88 (53%) and the total number of left side was 78 (47%). Mean operation time was 66.12 ± 38.15 minutes and mean stone size was 10.42 mm ± 6.59 mm (6–35 mm). The number of patients with lower pole, upper pole, middle pole and renal pelvis stones, were 84 (50.6 %), 18 (10.8%), 36 (21.7%),28 (16.9%) respectively. Total success rate was 82.5% at 3 months follow-up. The success rates with lower pole, upper pole, middle pole and renal pelvis stones were 73,80%, 88,88%, 88,88% and 96,42 respectively (p<0.0026). DJ stent were used in 139 patients (83.7 %).

CONCLUSIONS: RIRS brings successful stone clearance rates in nephrolithiasis. However, the success of this method is lower in the lower pole stones. Innovations in technology could bring more good results.

Source of Funding: none

MP30-26 SHORT TERM RESULTS OF URETEROSCOPIC LASER LITHOTRIPSY AT AKDENIZ UNIVERSITY

Mehmet Baykara*, Antalya, Turkey, Yigit Akin, Erzincan, Turkey, Selcuk Yucel, Arif Kol, Ilker Fatih Sahiner, Antalya, Turkey

INTRODUCTION AND OBJECTIVES: We investigated the factors effecting treatment results, morbidity and outcomes of ureteroscopic LASER lithotripsy cases at a single clinic to provide further evidence for safety and benefits of semi-rigid ureteroscopy and LASER as an energy source for ureteral stone management in an expert setting. This study was a part of CROES and was performed in Department of Urology, Akdeniz University School of Medicine, Antalya, Turkey.

METHODS: Data of patients who were operated in Department of Urology, Akdeniz University between January 2010 and July 2011, were evaluated retrospectively. Age, sex, body mass index (BMI), co-morbid diseases, ASA scores, preoperative urinary cultures, location and size of stone, utilized devices to prevent stone migration, stone-free rate, prophylactic antibiotics, operative time, hospital stay, and complications according to modified Clavien classification were recorded. The energy source was a Holmium-YAG LASER.

RESULTS: Mean age (92 male and 45 female) was 43,6 ± 18,2 year and mean BMI was 26,5 ± 5,2 kg/m². Thirty-six patients had co-morbid diseases. Three patients had been using anticoagulant agents. Mean ASA score was 1.2.

Fourty in proximal, 32 in middle, 65 in distal ureter stone which mean diameter was 12,8 ± 5,27 cm were operated. All of the surgical procedures were performed by using semi-rigid ureteroscopy and guide-wire. Basket used for anti-stone cone device in 34 procedures. In 90 procedures, double pigtail catheters were placed. The stone diameter and location was not associated for using basket (p >0.05).

Stone-free rate was 88,3% after the first ureteroscopy. Overall stone free rate was 97%. Eight patients had shock wave lithotripsy (SWL) after operation. Mean stone diameter of patients who needed SWL after surgery was 10,5 ± 5,5 cm. Re-treatment rate and SWL was associated with stone diameter (p<0.05).

Only 1 patient had fever (Clavien 1) even without urinary infection and residual fragmentations. Second day of antibiotic therapy, fever decreased and she was discharged.

The mean hospital stay was 1 and the mean operation time was 32,3 ± 12 minutes. Operation time and day of hospitalization was not associated with stone diameter, age, sex, side and location of stone, urinary infection statistically.

CONCLUSIONS: Ureteroscopic management of ureteral stones is safe and effective with a 7.5 Fr. semirigid ureteroscope and Ho:YAG LASER lithotriptor. The stone-free rate is related to stone size and experience regardless the stone location. With more experience, postoperative ureteral stenting can be omitted with high success and low complication rates.

Source of Funding: None
V16 LAPAROSCOPY: UPPER TRACT III

V16-01 LAPAROSCOPIC REPAIR OF IATROGENIC A RENAL VEIN INJURY DURING LAPAROSCOPIC PARTIAL NEPHRECTOMY

Bogdan Petrut*, Hogea Maximilian, Vlad Schitu, Andrei Kozan, Tiberiu Calistru, Alb Alexandra, Vasile Buda, Cluj Napoca, Romania

INTRODUCTION AND OBJECTIVES: We present the case of a patient with bilateral renal tumors that was proposed for nephron sparing surgery on the right side for a single corticalized renal tumor and radio frequency ablation on the left side for a medially renal tumor. During the pedicle preparation on the right side there has been produced an injury to the right renal vein.

METHODS: We stopped the bleeding temporarily pressure on the renal vein defect, we isolated the vein as much as possible and we sutured the vein with prolene 5.0.

RESULTS: During the partial nephrectomy we only clamped the artery. The warm ischemia time was 17 minutes and there were no other hemorrhagic incidents.

We checked the vascularisation of the kidney the next day by power Doppler that showed normal blood circulation.

CONCLUSIONS: Bleeding control and blood vessel sparing is feasible by laparoscopic approach and it requires minimally experience in the vascular surgery.

In this case of bilateral tumors we tried to reduce at minimum the bleeding and the ischemic shock and this is why we tried first the laparoscopic approach and not the conversion to the open surgery.

Source of Funding: None

V16-02 VARIOUS TECHNIQUES OF STENT PLACEMENT DURING LAPAROSCOPIC URETERAL RECONSTRUCTIVE SURGERY

Seok Kwan Hong*, Yee Mun Lee, Yew Lam Chong, Keng Siang Png, Singapore, Singapore

INTRODUCTION AND OBJECTIVES: Urinary diversion with ureteric stent placement is indicated in most ureteral reconstructive surgery. We collected 4 different techniques of stent placement during laparoscopic ureteral reconstructive surgery in this video.

METHODS: Cases of laparoscopic ureteral reconstructive surgery within six months were reviewed. Four cases were selected to represent the various techniques of stent placement. Patient A underwent left laparoscopic pyeloplasty for pelviureteric junction obstruction (PUJO) from an inflammatory stricture. Patient B underwent right laparoscopic ureteroureterostomy for a retrocaudal ureter. Patient C underwent right laparoscopic pyeloplasty for PUJO. Patient D underwent right laparoscopic ureteroureterostomy for a proximal 4 cm proximal ureteric stricture. Pros and cons of each technique were discussed in the video.

RESULTS: For Patient A, a 6 F ureteric stent pre-inserted during retrograde pyelogram before the laparoscopic portion of the surgery. The anastamosis was completed over the existing stent. For Patient B, the stent was inserted antegradely over a guide-wire. For Patient C, the stent was inserted retrogradely over a pre-placed 6 F ureteric catheter in the sterile field. In Patient D, a pre-placed 6 F ureteric catheter was used to mark the distal end of the stricture, allowing the surgeon to localize the site of the stricture laparoscopically. Following excision of the stricture, the catheter allowed a guidewire to be passed across the anastamosis for stent placement.

CONCLUSIONS: In advanced laparoscopic reconstructive surgery, the surgeon should be versatile in various techniques of stent placement to suit the pathology of the patient.

Source of Funding: None

V16-03 LAPAROSCOPIC RADICAL NEPHRECTOMY WITH LEFT RENAL VEIN THROMBECTOMY

Worapat Attawettayanon, Sompol Permpongkosol*, Bangkok, Thailand

INTRODUCTION AND OBJECTIVES: Renal cell carcinoma (RCC) is the most lethal of the common urologic cancer. The incidence of RCC is 2%-3% of all adult cancer. Many opinions suggest that RCC remains primary a surgery disease because of the chemorefractory tumor. One of the unique features of RCC is venous tumor thrombosis. When patients present with RCC and venous tumor thrombosis level 1, the choice of operation will be doubt. We demonstrated laparoscopic radical nephrectomy with left renal vein thrombectomy.

METHODS: A 68-year-old healthy Thai man present with painless gross hematuria for 3 months. Computer tomography show left large renal mass size 10*8 cm. with renal vein thrombosis. We desire to perform laparoscopic radical nephrectomy with remove renal vein thrombus.

RESULTS: The operation took 6 hours. The estimated blood loss was 1500 ml. Intra operative accidental tear tail of pancreas and complete remove tumor thrombus at left renal vein.

CONCLUSIONS: Laparoscopic may be safe and feasible in selected patients with renal vein thrombi. In the future this technique may be other choice of treatment of RCC with tumor thrombus.

Source of Funding: None

V16-04 LAPAROSCOPIC URETEROLITHOTOMY WITH FIBRIN SEALANT IN THE TREATMENT OF LARGE IMPACTED PROXIMAL URETERAL STONE

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INTRODUCTION AND OBJECTIVES: Placing an indwelling catheter into the ureter during laparoscopic ureterolithotomy is challenging and time consuming. We evaluated the efficacy of a fibrin sealant for laparoscopic ureterolithotomy.

METHODS: A 32-year-old male patient presented with severe right flank pain. A KUB graphy revealed a 25 mm opacification at right upper quadrant. CT scan demonstrated a 25 mm proximal ureteral stone. Transperitoneal laparoscopic ureterolithotomy was performed using with 3 ports. Right colon was mobilized medially and the ureter was identified. The stone was identified
using laparoscopic ultrasound. Ureterotomy was done using the hook cautery and the stone was extracted. The ureter was closed with 4/0 Vicryl in continuous fashion without placing an indwelling catheter. The fibrin sealant (Tisseel, Baxter, USA) was sprayed over the suture line to prevent urinary leakage. A Jackson-Pratt drain was placed.

RESULTS: The mean operation time was 80 min. Estimated blood loss was 30 ml and no intraoperative complication has occurred. There were no postoperative complication and analgesic requirement. Drain was removed at postoperative day 1 and the patient was discharged 24 hours after the surgery. There was no residual stone in follow-up KUB.

CONCLUSIONS: Laparoscopic ureterolithotomy can be performed safely using the fibrin sealant instead of placing an indwelling ureteral catheter. Nevertheless, prospective randomized trials are required in order to determine reliability and efficacy of this technique.

Source of Funding: None

V16-05 OPEN SURGICAL ANASTOMOSIS WITH MUSCLE SPLITTING TECHNIQUE DURING LAPAROSCOPIC PYELOPLASTY IN ADULTS


INTRODUCTION AND OBJECTIVES: Since 1949 the open Anderson-Hynes pyeloplasty is the gold standard for primary ureteropelvic junction (UPJ) obstruction surgery with it’s 90 % success rate. Laparoscopic pyeloplasty became popular at last decade with comparable results to open pyeloplasty technique. As a constructive surgery laparoscopic pyelolasty requires a well training in carefull dissection of the structures and significant experience with laparoscopic intracorporeal suturing and knotting techniques. We are reporting Anderson- Hynes pyeloplasty done through a small flank incision with muscle splitting technique.

METHODS: Anderson-Hynes pyeloplasty was performed in three patients with primary ureteropelvic junction (UPJ) obstruction. Ureter, ureteropelvic junction and renal pelvis were dissected carefully by retroperitoneal laparoscopic approach via three ports (10,5 and 5 mm) and ureter was hanged with a type (Figure 1–2). UPJ was pulled up the skin level via 3–4 cm flank incision and dismembered pyeloplasty performed. For the anastomosis between ureter and the renal pelvis 4-0 Vicryl running suture with an atraumatic needle was used then D-J stent and a drain were replaced (Figure 3–4).

RESULTS: Patients age was 18, 32, 40 years respectively and operation periods were 96, 102 and 105 minutes. Second day after surgery, drains were removed and patients discharged. At the 4 th weeks of surgery D-J stents were removed and patients have not any complaint at postoperative period. DTPA renal sintigraphy performed and obstruction was not detected.

CONCLUSIONS: Combination of muscle splitting technique with laparoscopic approach for extracorporeal anastomosis is a safe and effective and minimally invasive method of UPJ obstruction in adults.

Source of Funding: None

V16-06 LAPAROSCOPIC PYELOLITHOTOMY USING A FLEXIBLE URETEROSCOPE ANTEGRADELLY

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INTRODUCTION AND OBJECTIVES: Laparoscopic pyelolithotomy may be considered in patients who have renal anomalies, poor compliance, and large single renal-pelvic calculus.
Endourologic techniques such as flexible ureteroscopy can be combined with laparoscopic pyelolithotomy to deal with complex stone disease. We present our experience with this procedure in four patients.

METHODS: Four patients underwent laparoscopic pyelolithotomy. One patient had horseshoe kidney, one had rotation anomaly, and two patients had large renal-pelvic calculus. All stones were solitary with a mean size of 3270 mm² (range 1470–5100 mm²). Transperitoneal approach was performed in all patients with using a passage of a flexible ureterorenoscope through a laparoscopic port to aid in stone extraction.

RESULTS: All cases were completed laparoscopically. Mean operation time was 187.5 min. (range 90–300). Only in one case ureteral rupture was observed and Ureteroureterostomy was performed up in renal calyces for migrated stones. Laparoscopic pyelolithotomy combined with flexible ureterorenoscope can be done safely, effectively and efficiently with proper patient selection.

Source of Funding: none

V16-07 NYU TECHNIQUE FOR ROBOTIC-ASSISTED BOARI FLAP
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INTRODUCTION AND OBJECTIVES: Robotic-assisted laparoscopic (RAL) techniques are being adopted by urologists for reconstruction of the upper urinary tract (UUT). Specifically this technique is being increasingly used to manage complex ureteral strictures. In this video we demonstrate the use of robotic technology to repair a proximal ureteral stricture utilizing a boari flap.

METHODS: Utilizing all of the principles of open surgery we created a minimally invasive technique to perform a robotic assisted boari flap. Using a high definition recording system and iMovie software with narrative and annotative editing, we created a video outlining the pertinent steps of this procedure. We review and present our data from a retrospectively collected cohort of patients undergoing robotic-assisted ureteral re-implantation.

RESULTS: Between 2005 and 2012 we performed a total of 23 robotic-assisted ureteral reimplants of which 13% were boari flaps. Table 1 lists our results.

CONCLUSIONS: Use of robotic-assisted surgery provides a safe, reproducible, and durable technique to manage even the most complex upper urinary reconstructive procedures. This video illustrates many of the advantages provided by the use of robotics and how the open surgical technique can be reproduced in a minimally invasive environment.

Source of Funding: None

V16-08 LAPAROSCOPIC PYELOLITHOTOMY IN AN ECTOPIC PELVIC KIDNEY
Christopher Keel*, Arthur Caire, Benjamin Woodson, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: Surgical removal of renal calculi in an ectopic pelvic kidney can be challenging due to issues of achieving percutaneous access. Retrograde ureteroscopic access can be difficult due to tortuosity of ureter. We present an interesting case of a right ectopic pelvic kidney with a 3 cm renal calculus and our treatment using a laparoscopic approach.

Our objective is to demonstrate the laparoscopic dissection, identification, and extraction of a large renal calculus, with subsequent reconstruction.

METHODS: A 56 year old male presented flank pain, and was diagnosed with a large 3 cm right renal calculus in an ectopic pelvic kidney. A 4 trocar laparoscopic approach was used to localize, extract, and reconstruct the renal pelvis. A ureteral stent was exchanged at the beginning of the case. The patient was placed in Trendelenberg position.

RESULTS: The stone was able to be extracted intact, and reconstruction of the renal pelvis was performed with 2-0 vicryl on an SH needle. The ureteral stent was removed after 4 weeks.

CONCLUSIONS: Laparoscopic pyelolithotomy is a safe and feasible option for treatment of ectopic renal calculi.

Source of Funding: None

V16-09 RIGHT LAPAROSCOPIC RADICAL NEPHRECTOMY: STEP-BY-STEP
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INTRODUCTION AND OBJECTIVES: Two decades after its introduction, laparoscopic radical nephrectomy is now a standard of care for amenable tumors up to stage T3, and for cytoreductive nephrectomy. The current challenge is appropriately educating practicing urologists and urology trainees in the appropriate techniques to minimize complications. As such, one obstacle is that urologists may never actually witness the most feared complications arising from a given step until they are suddenly faced with the prospect of expeditiously handling them. METHODS: An international collaboration allowed us to collect multiple videos exemplifying not only proper techniques for right
sided nephrectomy, but also complications pertinent to each step. The authors compiled their collective experience to offer tips regarding surgical planning, technical maneuvers pertinent to each step, warnings, potential complications, and their management.

RESULTS: This educational video demonstrates the performance of a conventional right laparoscopic radical nephrectomy. Pertinent complications demonstrated include duodenal injury, gonadal vein injury, stapler malfunction with hemorrhage, and bile duct injury.

CONCLUSIONS: The gold standard treatment in certain upper urinary tract neoplasms is radical nephrectomy and the laparoscopic approach has demonstrated advantages concerning open approach. This unique educational video was compiled demonstrating both the proper technical maneuvers, alongside those leading to major complications. We hope this serves as a didactic tool to use in conjunction with simulator based education and hands-on live training.

Source of Funding: None

V16-10 LEFT LAPAROSCOPIC RADICAL NPHRECTOMY: STEP-BY-STEP

Rene Sotelo*, Oswaldo Carmona, Robert De Andrade, Caracas, Venezuela, Flavio Santinelli, Buenos Aires, Argentina, David Subira, Madrid, Spain, Cesar Ignacio, Golena Fernandez, Roberto Garza, Juan Castro, Frederic Birkhauser, Roberto Cisneros, Caracas, Venezuela, Ralph Clayman, Irvine, CA

INTRODUCTION AND OBJECTIVES: Two decades after its introduction, laparoscopic radical nephrectomy is now a standard of care for amenable tumors up to stage T3, and for cytoreductive nephrectomy. The current challenge is appropriately educating practicing urologists and urology trainees in the appropriate techniques to minimize complications. As such, one obstacle is that urologists may never actually witness the most feared complications arising from a given step until they are suddenly faced with the prospect of expeditiously handling them.

METHODS: An international collaboration allowed us to collect multiple videos exemplifying not only proper techniques for left sided nephrectomy, but also complications pertinent to each step. The authors compiled their collective experience to offer tips regarding surgical planning, technical maneuvers pertinent to each step, warnings, potential complications, and their management.

RESULTS: This educational video demonstrates the performance of a conventional left laparoscopic radical nephrectomy. Pertinent complications demonstrated include splenic injury, diaphragm injury with pneumothorax, superior mesenteric artery ligation, stapler malfunction, and bile duct injury.

CONCLUSIONS: The gold standard treatment in certain upper urinary tract neoplasms is radical nephrectomy and the laparoscopic approach has demonstrated advantages compared with open approach. This unique educational video was compiled demonstrating both the proper technical maneuvers, alongside those leading to major complications. We hope this serves as a didactic tool to use in conjunction with simulator based education and hands-on live training.

Source of Funding: None

V16-11 ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY IN KIDNEY TRANSPLANT RECIPIENT

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INTRODUCTION AND OBJECTIVES: Robot assisted laparoscopic prostatectomy is a well-established modality for the treatment of men with prostate cancer. Men who have undergone renal transplantation with the allograft in the iliac fossa present a unique challenge. We sought to provide video demonstration of modifications to an established modality to treat prostate cancer in a unique population.

METHODS: A 52-year-old Hispanic male with history of renal transplantation in the right iliac fossa was diagnosed with Gleason 3+4 adenocarcinoma of the prostate after having a biopsy for an elevated PSA of 11.2 ng/mL. A pre-operative 3 Tesla multiparametric MRI was performed to evaluate his prostate in addition to delineating the specifics of the transplant renal anatomy. Patient underwent robotic assisted laparoscopic prostatectomy via a transperitoneal approach. Traditional port placement was used for the four robotic arms and right upper quadrant 5 mm assistant port with modified placement of the right lower quadrant assistant port. This traditionally placed right lower quadrant assistant port was placed in the left mid clavicular line, two finger-breathths below the costal margin, to avoid injury to the allograft. An anterior approach was used, and the peritoneum was reflected posteriorly. The transplant kidney was mobilized posteriorly to allow adequate visualization of the pelvis. The transplant ureter was never encountered. A lymph node dissection was not performed.

RESULTS: The procedure was concluded after 208 minutes of console time with an estimated blood loss of 100 cc. The patient had an uneventful peri-operative course and was discharged on post-operative day 1. Creatinine had a transient increase to 1.86 mg/dL with subsequent return to baseline of 1.44 mg/dL. Final pathology demonstrated Gleason 3+3 with tertiary pattern 5. There was a small focus of extracapsular extension, but negative surgical margins. To date, the PSA has remained undetectable for 5 months of follow up.

CONCLUSIONS: Robotic assisted laparoscopic prostatectomy is feasible and can be performed safely in patients following a renal transplantation with only slight modifications to technique. Pathological outcomes should not differ from the traditional procedure.

Source of Funding: None

V16-12 EARLY RETURN OF CONTINENCE IN PATIENTS UNDERGOING ROBOTIC ASSISTED LAPAROSCOPIC PROSTATECTOMY USING MODIFIED MAXIMAL URETHRAL LENGTH PRESERVATION TECHNIQUE

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INTRODUCTION AND OBJECTIVES: 1) To evaluate the impact of maximal urethral length preservation (MULP) technique on the continence rate, time to achieve continence, rates of overall and apical positive margins and biochemical recurrence rates (BCR) among prostate cancer (Pca) patients undergoing robot-assisted laparoscopic prostatectomy (RALP). 2) To critically examine the influence of posterior urethral reconstruction and anterior suspension (PRAS) alone or combined with MULP on the continence rates compared to MULP alone.

METHODS: We prospectively analyzed the continence rate, time to achieve continence, pre and post-operative PSA, rates of overall and apical positive margins among 3 groups of consented continent men with Pca undergoing RALP by a single surgeon in the period between 2011 and 2012. Each group consisted of 30
patients where PRAS was performed in group A, combined MULP and PRAS in group B and MULP in group C. We performed retroapical dissection to preserve additional urethral length which was measured by graded instrument. Continence was measured by patient self-reporting of the number of pads/24 hrs. The use of no pads was defined as continent and all others as having varying degrees of incontinence.

RESULTS: No differences were detected in the age, preop PSA, BCR and overall and apical positive margins for the three groups. Men in group B and C had marked improvement in continence rates 1, 3 and 6 months after catheter removal vs. group A (50% and 70% vs. 10%, 90% and 96.66% vs. 23.3%, and 100%,100% vs. 53.3%, respectively, P<0.0001). The average and median time to continence were significantly shorter in group B (5.4 and 4 weeks) and C (3.8 and 3 weeks) vs. group A (27.4 and 22.5 weeks), P<0.0001. No significant differences were seen in continence rates, time to achieve continence and means of the preserved urethral length between groups B and C. Using cox regression analysis, only MULP and MULP + PRAS techniques were significantly correlated with continence outcomes 1, 3 and 6 months after catheter removal (OR,15.7, 95% CI, 6.7-37, P<0.0001).

CONCLUSIONS: MULP rather than PRAS performed during RALP confers higher postoperative continence rates and shorter time to achieve continence among Pca patients without jeopardizing the overall and apical positive margins.

Source of Funding: None

V17-01 IMMEDIATE ROBOTIC ASSISTED DISTAL URETEROURETEROSTOMY WITH OMENtal INTERPOSITION GRAFT AFTER IATROGENIC INJURY

Blake W Moore*, Ziho Lee, Adam Reese, Jack H Mydlo, Daniel D Eun, Philadelphia, PA

INTRODUCTION AND OBJECTIVES: Pelvic operations, either open or endoscopic, have the potential for iatrogenic ureteral injury. Gynecological procedures have accounted for greater than 50% of these complications. Immediate repair at the time of injury has been shown to improve outcomes compared to delayed repair. The purpose of this video is to demonstrate the surgical approach for robotic ureteroureterostomy three days following iatrogenic distal ureteral injury.

METHODS: The patient shown in this video is a 42-year-old woman with a history of menorrhagia who underwent robotic hysterectomy with an unrecognized left ureteral injury. Stent placement when ureteral injury was diagnosed was unsuccessful. A percutaneous nephrostomy tube was subsequently placed on post-op day one with both retrograde and antegrade pyelograms suggesting a complete transection of the left ureter. The patient underwent a robotic ureteroureterostomy three days after initial injury. She was placed in steep Trendelenburg position after a ureteral catheter was placed in the distal left ureter. Port configuration was identical to that of the prior robotic hysterectomy procedure. The operation was completed with a 12 mm camera, three robotic ports and two assistant ports. A tension-free spatulated ureteral repair was completed using 5-0 PDS suture. Prior to completion of the anastomosis, a 7 F x 26 cm double J stent was placed transabdominally. A right gastroepiploic omental interposition graft was placed between the vaginal cuff and ureteral repair and an omental wrap was placed around the ureter.

RESULTS: The operation was completed with minimal blood loss and without complication. Total operative time on the console was 110 minutes. The patient was discharged home on post-operative day two.

CONCLUSIONS: As shown in this video, robotic ureteroureterostomy with an omental interposition graft only three days after ureteral injury can be a safe and effective treatment option.

Source of Funding: None

V17-02 ZERO ISCHEMIA, SELECTIVE ISCHEMIA, AND TOTAL ISCHEMIA FOR THREE MASSES IN A SOLITARY KIDNEY: THE VERSATILITY OF ROBOTIC PARTIAL NEPHRECTOMY

Richard Knight*, Michael White, San Antonio, TX

INTRODUCTION AND OBJECTIVES: To demonstrate the technique of robotic partial nephrectomy for three renal masses in a solitary right kidney utilizing zero ischemia for the first mass, selective ischemia for the second mass, and total ischemia for the third mass.

METHODS: A 45-year-old female with a history of left nephrectomy for renal cell carcinoma in 2007 presented with three enhancing solid masses in the right kidney identified during routine follow up imaging in 2013. Preoperative creatinine was 1.4 mg/dL. Magnetic resonance imaging enhanced with gadopentetate dimeglumine demonstrated a 2.5 cm lower pole mass, a 3.6 cm mid/lower pole mass, and a 2.2 cm upper pole mass with nephrometry scores of 4x, 8a, and 5a, respectively. A robotic partial nephrectomy was performed utilizing zero ischemia for the 2.5 cm lower pole mass (4x), selective ischemia for the 2.2 cm upper pole mass (5a), and total ischemia for the 3.6 cm mid/lower pole mass (8a). Renorrhaphy was performed for each defect using the sliding clip technique followed by application of human thrombin, oxidized regenerated cellulose, and fibrin sealant. A surgical video of the technique was created.

RESULTS: The upper pole artery was clamped near the renal parenchyma for 10 minutes and the main renal arteries (two) were clamped for 22 minutes. The total surgery time was 200 minutes. At six weeks following surgery, the patient’s creatinine was 1.8 mg/dL. The surgical video demonstrates the technique.

CONCLUSIONS: Robotic partial nephrectomy is a feasible option for carefully selected patients with multiple renal masses, especially when zero ischemia and selective ischemia techniques are incorporated to minimize global renal warm ischemia.

Source of Funding: None
V17-03 ROBOTIC ANATROPHIC NEPHROLITHOTOMY: INITIAL CASE
Sherita King*, Zachary Klaassen, Ray King, Rabii Madi, Augusta, GA

INTRODUCTION AND OBJECTIVES: We are presenting our initial case for robotic anatrophic nephrolithotomy (RAN).
METHODS: Our initial patient was a 54 year old male with cerebral palsy, severe mental retardation, and recurrent urinary tract infections. He was found to have 4 cm complete staghorn calculus on CT. The decision was made to perform RAN secondary to patient behavior and that he would not be able to tolerate drains and stents. The procedure was performed transperitoneally using the standard robotic approach for kidney surgery. The hilum was controlled with vascular clamps. The renal parenchyma and collecting system were incised vertically along Brodel’s line with cold monopolar scissors. The stones were extracted using robotic forceps. The collecting system was closed with a running 3-0 polyglycolide suture. No drains or stents were placed at the conclusion of the case.
RESULTS: There were no intra-operative complications. Warm ischemia time was 41 minutes with robotic and total surgery times of 153 minutes and 185 minutes respectively. On post-operative day 7, CT urogram, showed no residual stone or urine extravasation. His postoperative creatinine was unchanged (0.8 mg/dL).
CONCLUSIONS: RAN is a feasible and safe alternative to percutaneous nephrolithotomy in management of complex staghorn calculi. We so far have performed six RAN. Continued experience with this procedure will continue to improve warm ischemia time and stone clearance.
Source of Funding: none

V17-04 ROBOTIC ANATROPHIC NEPHROLITHOTOMY WITH RENAL HYPOTHERMIA FOR TREATING STAGHORN CALCULI
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INTRODUCTION AND OBJECTIVES: Treatment of staghorn calculi with percutaneous nephrolithotomy can be challenging, often requiring multiple tracts or sessions for complete stone clearance. Although open anatrophic nephrolithotomy can result in higher stone-free rates, it is rarely performed due to increased morbidity. The objective of this study was to develop the technique of robotic anatrophic nephrolithotomy (RANL) incorporating ice slush for renal hypothermia to remove staghorn calculi.
METHODS: Three patients with staghorn calculi underwent RANL with iced cold ischemia. All patients underwent computed tomography with three-dimensional reconstruction for stone volume assessment (mean total stone volume 12887.67 mm³). A Gelpoint™ (Applied Medical Inc., CA) port was used for ice slush insertion.
RESULTS: RANL was achieved in all cases with successful introduction of ice slush and stone extraction under cold ischemia. Intra-corporeal temperatures were < 9° C within 30 minutes of cold ischemia. Mean console and cold ischemia times were 167 and 56.7 minutes, respectively. Mean blood loss was 100 mL. There were no complications. No patient required a blood transfusion or developed sepsis. Two patients were known intraoperatively to have incomplete stone clearance with residual fragments measuring 13 mm, and two 9 mm stones, respectively. Complete stone clearance was achieved after a mini-PCNL in both these patients. Follow-up at one-month demonstrated no change in renal function as estimated by the creatinine clearance.
CONCLUSIONS: RANL with iced cold ischemia is a safe and feasible option that may be considered in select patients with staghorn calculi. Further study is needed to refine the technique and assess long-term functional outcomes.
Source of Funding: none

V17-05 ROBOTIC-ASSISTED RADICAL NEPHRECTOMY WITH INFERIOR VENA CAVA TUMOR THROMBECTOMY
Mark Ball*, Gautam Jayram, Mohamad Allaf, Baltimore, MD

INTRODUCTION AND OBJECTIVES: Robotic-assisted IVC thrombectomy is an emerging treatment for renal masses with IVC tumor thrombus involvement. Careful patient selection is critical to ensure oncological efficacy and patient safety. In this video, we will present our experience and approach to this technique.
METHODS: After careful patient selection and informed consent, robotic-assisted laparoscopic radical nephrectomy with IVC thrombectomy was undertaken. A four arm approach was utilized. The IVC was dissected circumferentially. The contralateral vein, suprahilar and infranilar IVC were controlled and clamped. A cavotomy was made, the thrombus was delivered, and the specimen removed en-bloc with negative gross margins. The cava was closed in 2 layers with 4-0 Prolene, and the repair was hemostatic without significant caval narrowing.
RESULTS: There were no intraoperative or post-operative complications. Blood loss was 100 ml. Length of stay was 6 days including titration of anti-coagulation for a preoperative pulmonary embolism, though discharge criteria were met by day 3. Final pathology revealed a 6.2 cm Clear Cell RCC, Fuhrman grade IV with negative margins. Lymph node yield was 5, and all nodes were negative. The adrenal gland was found to have metastatic tumor. Final stage was pT3bN0M1.
CONCLUSIONS: Robotic-assisted IVC thrombectomy is a safe, effective technique in the properly selected patient. The robotic approach should mimic the steps of the open technique. Backup plans should be in place should bleeding, vascular injury or inability to tolerate caval clamping occur.
Source of Funding: none

V17-06 ROBOTIC ASSISTED PARTIAL NEPHRECTOMY IN A PELVIC KIDNEY
Aryeh Keehn*, Reza Ghavamian, Bronx, NY

INTRODUCTION AND OBJECTIVES: Partial nephrectomy and nephron sparing surgery is becoming the gold standard for renal lesions. We attempted a Robotic partial nephrectomy in a right pelvic kidney.
METHODS: An 85 year old female with a history of hypertension and hyperlipidemia was found to have a 3×2 cm exophytic enhancing lesion in the upper pole of her right pelvic kidney. After informed consent, the patient was taken to the operating room for a robotic assisted partial nephrectomy.
RESULTS: Length of the operation was 140 minutes. Estimated blood loss was 25 cc. Cold ischemia time was 28 minutes. Post operative creatinine was 1.1. The patient was discharged on post operative day 2. There were no surgical complications.

CONCLUSIONS: Robotic partial nephrectomy in a pelvic kidney is a feasible operation with surgeon expertise. Dedicated CT angiography is helpful to identify the aberrant vasculature of the kidney. Although not used in this case, 3D imaging and virtual surgical planning can be helpful in defining surgical approach.

Source of Funding: None

V17-07 COMPLEX PARTIAL NEPHRECTOMY FOLLOWING TUMOR DOWNSIZING WITH NEOADJUVANT THERAPY.

Luis Felipe Brandao*, Humberto Laydner, Riccardo Autorino, Ali Khalifeh, Dinesh Samarasekera, Emad Rizkala, Oliver Ko, Georges-Pascal Haber, Jihad Kaouk, Robert Stein, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Partial Nephrectomy has been established as a reasonable and reproducible treatment for most T1a renal carcinomas. As tumor size and stage increases further, nephron sparing becomes increasingly more difficult and associated with greater complications. Radical nephrectomy remains the standard therapy for increasingly complex tumors yet some patients with chronic renal insufficiency may still greatly benefit from an attempt at partial nephrectomy. To improve the potential for partial nephrectomy, neoadjuvant treatment of biopsy proven clear cell renal carcinoma with a tyrosine kinase inhibitor (TKI) may potentially downsize the tumor and decrease the complexity of resection. Objective is to report a 5.4 cm, complex (R.E.N.A.L. score 11x) biopsy proven clear cell carcinoma treated with robotic partial nephrectomy (RPN) following neoadjuvant treatment with sunitinib.

METHODS: A 75 year-old man was noted to have an enlarging 5.4 cm central left renal mass. He had a history of cystoprostatectomy and ileal conduit 5 years prior and completed chemotherapy for bilateral lung carcinoma 2 years earlier. Radionuclide scanning demonstrated that his left kidney was dominant and accounted for 60% of total function. Due to the size and position of the tumor it was felt that nephron sparing surgery would be difficult. Ultrasound guided biopsy demonstrated clear cell pathology and therefore he was eligible for consideration of neoadjuvant treatment with a TKI. The tumor decreased in size from 5.4 to 3.9 cm after one cycle with 50 mg sunitinib, but after a second cycle with half dose (due to side effects of stomal bleeding) the size increased to 4.4 cm.

RESULTS: RPN was completed successfully for the left renal mass. Operative time was 180 minutes and warm ischemia time was 28 minutes. Estimated blood loss was 300 mL and hospital stay was 4 days. Final pathology demonstrated a 4 cm Fuhrman grade 3 clear cell carcinoma with negative surgical margins. On the 12th postoperative day the patient was readmitted for back pain and a urinoma was diagnosed. A CT-guided closed suction drain was placed and the urine leak resolved spontaneously.

CONCLUSIONS: Neoadjuvant therapy for downsizing renal masses can be used to offer a nephron sparing option for patients who may otherwise require nephrectomy. Neoadjuvant treatment with TKI is only successful and recommended for patients with biopsy proven clear cell pathology. Nephron sparing surgery using a minimally invasive approach can be reasonable even for complex cases.

Source of Funding: none

V17-08 ROBOTIC CALYCEAL DIVERTICULECTOMY AND NEPHROLITHOTOMY

Christopher Keel*, Kush Patel, Benjamin Woodson, Benjamin Lee, New Orleans, LA

INTRODUCTION AND OBJECTIVES: A Calyceal diverticulum is a cystic cavity of the kidney, which is lined with urothelium and has a connection to a renal calyx. Surgical goals of treatment include removal of renal calculi within the calyceal diverticulum, ablation of the lining, and addressing the os of the connection to the calyx. Options for ablation and removal include percutaneous, retrograde intrarenal, or robotic/laparoscopic approaches. The objective is to demonstrate the technique of ablating a calyceal diverticulum with simultaneous removal of multiple calculi.

METHODS: The patient presented with flank pain, and had a history of recurrent calculi formation. A non contrast CT scan demonstrated multiple right renal calculi within a large, (add size) calyceal diverticulum. A robotic calyceal diverticulectomy was performed focusing on application of ultrasound for stone localization, extraction and subsequent ablation of the diverticulum lining.

Length of the procedure was 3 hours and 25 min, EBL was < 50 cc, patient was discharged home on POD #2, without drain or stent.

RESULTS: The length of the procedure was 3 hours and 25 minutes, estimated blood loss was less than 50 cc, and the patient was discharged home on post-operative day 2 - without drain or stent.

CONCLUSIONS: Robotic calyceal diverticulectomy with concomitant nephrolithotomy is a safe and feasible option for treatment of Calyceal diverticulum with renal calculi.

Source of Funding: none

V17-09 ROBOTIC RADICAL NEPHRECTOMY AND INFRA-HEPATIC INFERIOR VENA CAVA THROMBECTOMY

Andre Berger*, Andre Luis de Castro Abreu, Dennis J. Lee, Sheauemei Tsai, Scott Leslie, Mihir M. Desai, Monish Aron, Inderbir S. Gill, Los Angeles, CA

INTRODUCTION AND OBJECTIVES: Radical nephrectomy and inferior vena cava (IVC) thrombectomy is the gold standard treatment for renal cell carcinoma (RCC) with an infra-hepatic venous thrombus. The advancement of robotic surgical techniques allows surgeons to safely address complex renal tumor pathology, like IVC thrombus.

METHODS: This video shows our technique of robotic right nephrectomy and thrombectomy of level II IVC thrombus. Our technique parallels that of the open surgical technique. The ascending colon is mobilized and the duodenum is mobilized medially until the inferior vena cava is exposed. The ureter is divided and the hilum is exposed. The vena cava is dissected from surrounding structures at the level of the thrombus. Vascular control is obtained proximally and distally to the tumor thrombus and at the contralateral renal vein. The renal artery is divided. Vascular tourniquets are placed proximally and distally to the tumor thrombus and at the contralateral renal vein. A cavotomy is performed using scissors and the renal vein and associated thrombus are removed. The cavotomy is repaired and a lymph node dissection is performed.

RESULTS: Total operative time was 2.5 hours and the estimated blood loss was 100 cc. The patient was discharged from the
hospital on postoperative day 2. There were no perioperative complications. The pathology returned as Clear cell RCC, 24 lymph nodes (pT3b G3 N0). The patient had no evidence of disease on CT imaging at 2 months postoperatively and was doing well at his last visit at 3 months postoperatively.

CONCLUSIONS: Robotic radical nephrectomy and IVC thrombectomy is a feasible option for the management of RCC with associated level II IVC thrombus.

Source of Funding: none

V17-10 COMPLETELY INTRACORPOREAL ROBOTIC RENAL AUTOTRANSPLANTATION

Daniel Gilbert*, Jordan Angel, Ronney Abaza, Dublin, OH

INTRODUCTION AND OBJECTIVES: Totally intracorporeal robotic donor nephrectomy with autotransplantation has not been previously described. We present a video demonstration of this novel procedure.

METHODS: A 56 year old man who suffered extensive ureteral loss after infectious complications of a perforated ureter presented for surgical management and was offered nephrectomy, ileal interposition, or renal autotransplantation with ureteroureterostomy. As a stone former, he chose the latter. This was performed with a total of 5 ports, including three 8 mm robotic ports for robotic instruments. The donor nephrectomy was performed first robotically with cold perfusion of the renal artery intracorporeally with a catheter through the assistant port while the kidney was moved to the pelvis for vascular anastomosis to the external iliac vessels. A ureteroureterostomy was then performed over a stent.

RESULTS: Console time was 5 hours and 43 minutes, and the entire procedure was performed intracorporeally with only 5 port incisions. Venous anastomosis time was 17 minutes during which the kidney was cold perfused, and arterial anastomosis time was 21 minutes. Blood loss was 25 cc, and the patient was discharged on the first postoperative day with no complications. Doppler ultrasound showed excellent flow prior to discharge, and renal scan at 6 weeks confirmed excellent graft function. Ureteral patency was confirmed at 3 months by IVP.

CONCLUSIONS: We present the first report of a completely intracorporeal robotic donor nephrectomy and renal autotransplantation. This complex procedure should be offered selectively but with caution by highly experienced robotic renal surgeons.

Source of Funding: None

V17-11 ILEAL CONDUIT REVISION AND URETERAL STENOSIS REPAIR: ROBOT ASSISTED LAPAROSCOPIC TECHNIQUE

Idir Ouzaïd*, Edward Diaz, Riccardo Autorino, Dinesh Samarasekera, Vishnuvardhan Ganesan, Robert Stein, Jihad Kaouk, Georges-Pascal Haber, Cleveland, OH

INTRODUCTION AND OBJECTIVES: Applications of robotic surgery in urology are rapidly expanding. The aim of this video is to show the feasibility and to detail the surgical technique of an ileal conduit revision with repair of ureteral stenosis by using a robotic approach.

METHODS: A 52-year old male underwent a radical cystectomy and ileal conduit (IC) urinary diversion in 2011 for bladder cancer. Postoperatively, he developed a right hydronephrosis subsequent to a distal ureteral stenosis. After failure of pneumatic dilation, the patient was elected for a minimally invasive surgical repair. Five trocars for the 4 arms of The Si da Vinci® robot (Intuitive Surgical, Sunnyvale, USA) in a 4-arm approach was used. One 12 mm assistant port was placed. The surgical steps are illustrated in accompanying video.

RESULTS: The procedure was completed with pure robotic approach. Overall time was 243 minutes; of which 145 min were dedicated to adhesiolysis. Estimated blood loss was 50 ml. There were no perioperative complications. Length of stay was 4 days. Ureteral stent was removed on postoperative day 28. After 3 months of follow-up, the patient remained complication-free.

CONCLUSIONS: Robot assisted ileal conduit revision is a challenging but feasible procedure in well-selected patients. Trocar positioning is crucial to facilitate this surgery. The major difficulty encountered during the procedure can be represented by the lysis of extensive intraperitoneal adhesions that implies a high risk of bowel injury. This minimally invasive procedure is facilitated by the use of the robotic platform.

Source of Funding: None

V17-12 ROBOTIC ANATROPHIC INCISION FOR NEPHRON SPARING SURGERY FOR COMPLETE INTRA-RENAL TUMOR IN THE RENAL SINUS

Rene Sotelo*, Oswaldo Carmona, Robert De Andrade, Carmen Rodriguez, Golena Fernandez, Rafael Clavijo, Roberto Garza, Caracas, Venezuela

INTRODUCTION AND OBJECTIVES: To present a robotic nephron-sparing surgery for complete intrarenal tumor in the renal sinus through the avascular Brodel’s line, replicating the open conventional approach.

METHODS: In a female patient, we performed a robotic anatrophic nephron-sparing surgery for complete intrarenal tumor in the renal sinus through the avascular line.

RESULTS: The full procedure was performed with the robot-assisted approach. The operative time was 270 minutes, warm ischemia time was 25 minutes, estimated blood loss was 200 ml and hospital stay was 4 days. The pathology reported a renal clear cell carcinoma, Furhman grade 2 with negative resection margins of 0.7 mm. There were no intraoperative or postoperative complications during 6 months of follow-up.

CONCLUSIONS: The anatrophic incision for nephron-sparing surgery for complete intrarenal tumor in the renal sinus may be reproduced in a robotic fashion. This allows all the benefits of minimally invasive surgery with equal precision in selected patients. Prospective studies are required including a greater number of patients with long-term follow-up to assess the outcomes of this procedure, including its impact on glomerular function.

Source of Funding: None
V18-01 ROBOTIC-ASSISTED LAPAROSCOPIC LEFT RETROPERITONEAL LYMPH NODE DISSECTION

Jacob Jorns*, Michael Erhard, Jacksonville, FL

INTRODUCTION AND OBJECTIVES: Ipsilateral retroperitoneal lymph node dissection (RPLND) is indicated in cases of paratesticular rhabdomyosarcoma in the pediatric population greater than 10 years of age. Historically, RPLND has been performed in an open fashion. In the adult population, minimally invasive techniques are being more utilized due to shortened hospital stay and shorter convalescence period.

METHODS: We performed a robotic-assisted laparoscopic left retroperitoneal lymph node dissection in a 10-year-old pediatric patient with left paratesticular embryonal rhabdomyosarcoma. The DaVinci SI was utilized.

RESULTS: The procedure was performed safely with minimal blood loss. Thirty lymph nodes were collected. Patient was discharged on post-operative day one.

CONCLUSIONS: Robotic RPLND can be performed safely with adequate tissue sampling in the pediatric population.

Source of Funding: None

V18-02 ENTIRELY MINIMALLY-INVASIVE MANAGEMENT OF AN INFECTED URACHAL CYST IN THE PEDIATRIC PATIENT

Christopher Jaeger*, Candace Granberg, Rochester, MN

INTRODUCTION AND OBJECTIVES: Urachal cysts are the most common urachal anomaly in the pediatric patient population. Minimally-invasive approaches have become increasingly prevalent in management. We present an approach to entirely minimally-invasive management of a case of an infected urachal cyst utilizing percutaneous drainage and subsequent robot-assisted laparoscopic cyst excision.

METHODS: After initial ultrasound-guided percutaneous drain placement and culture-specific antibiotics, an adolescent male underwent delayed robot-assisted urachal cyst excision and partial cystectomy for an infected urachal cyst. The steps of this approach are demonstrated in this video, including (1) ultrasound-guided percutaneous drain placement; (2) placement of robotic ports; (3) identification of anatomic landmarks; (4) dissection of the urachal cyst and bladder from the anterior abdominal wall; (5) dissection of the cyst from the bladder; (6) removal of cyst with small cystotomy; (7) bladder closure in two layers; and (8) interrogation of closure with bladder distension. No perivessical drain was left.

RESULTS: The procedure was performed safely with minimal blood loss. Thirty lymph nodes were collected. Patient was discharged on post-operative day one.

CONCLUSIONS: Robotic RPLND can be performed safely with adequate tissue sampling in the pediatric population.

Source of Funding: None

V18-03 ROBOTIC-ASSISTED, LAPAROSCOPIC EXCISION OF BILATERAL HUTCH DIVERTICULI WITH BILATERAL EXTRAVESICAL URETERAL REIMPLANTATION

Carlos Villanueva*, Michael Belsante, Patricio Gargollo, Dallas, TX

INTRODUCTION AND OBJECTIVES: Minimally invasive techniques for the surgical treatment of bladder and ureteral abnormalities in children are still evolving. The purpose of this video is to illustrate a robotic approach to bilateral hutch diverticula and vesicoureteral reflux in children.

METHODS: The robotic approach described in the video employs the use of a 10 mm trocar placed in the umbilicus for the robotic camera and two 8.5 mm trocars placed on both sides of the abdomen 1–2 fingerbreadths below the umbilicus and 4–5 fingerbreadths away from the camera trocar. When necessary, a 5 mm assist port can be placed in the upper abdomen. After identifying the ureter and diverticulum, these are separated from themselves as well as from the bladder. The diverticulum is then entered superiorly and completely resected. The ureter, which was left attached to the bladder inferiorly, is re-anastomosed to the bladder. An extravesical reimplant is performed in the usual fashion.

RESULTS: No intra or postoperative complications were encountered. At 6 weeks, cystoscopy demonstrates a normal bladder and a cystogram showed no vesicoureteral reflux and complete resection of the diverticuli.

CONCLUSIONS: The robotic approach to bilateral hutch diverticulum is feasible as demonstrated in the video.

Source of Funding: None

V18-04 PEDIATRIC ROBOTIC PYELOPLASTY IN HORSESHOE KIDNEY

Candace Granberg, Rochester, MN, Daniel DaJusta, Louisville, KY, Patricio C. Gargollo*, Dallas, TX

INTRODUCTION AND OBJECTIVES: The surgical approach to ureteropelvic junction obstruction (UPJ) in horseshoe kidneys is challenging secondary to the inherent aberrant anatomy. Historically, some have recommended division of the isthmus, while others have advocated transection of crossing vessels, both of which carry risk of nephron damage. With the advent of minimally-invasive surgery, robotic pyeloplasty has become routine in otherwise anatomically normal kidneys; however, there is limited data on the robotic approach to UPJ in children with horseshoe kidneys. Thus, the objective of this video is to detail the surgical approach to robotic pyeloplasty in the horseshoe kidney.

METHODS: Hidden incision endoscopic surgery (HIdES) was developed at our institution, and is applied in all robotic pyelo-plasty cases. One robotic port is placed infraumbilically, while all remaining ports are hidden below the level of the Pfannenstiel incision, thus rendering them nonvisible when wearing a bathing suit. A 5 mm assist port is optional. With a transmesenteric approach, the UPJ is localized. In this case, a mesenteric vessel overlying the UPJ was divided to maximize exposure of the UPJ and proximal ureter. High insertion was identified as the cause of UPJ in this case. No renal crossing vessels were found, and the
CONCLUSIONS: In conclusion, robotic pyeloplasty in children clinically improved. The mean follow-up of 9 months, all patients were radiologically and complication-free. All patients were dismissed within 24 hours. At mean follow-up of 9 months, all patients were radiologically and clinically improved.

CONCLUSIONS: In conclusion, robotic pyeloplasty in children with horseshoe kidneys is safe and efficacious. Meticulous intraoperative examination of the anatomy is germane to ensure aberrant draining vessels are not overlooked. Moreover, adequate drainage can be achieved without dividing the isthmus or renal vasculature, which not only maintains blood supply to all nephrons but also avoids inherent risks associated with these maneuvers. Thus, robotic pyeloplasty is an excellent minimally-invasive approach for UPJ in children with horseshoe kidneys.

Source of Funding: None

V18-05 LAPAROSCOPIC EXCISION OF A LARGE PROSTATIC UTRICLE IN A SYMPTOMATIC 1 YEAR-OLD

Mark Currin*, Todd Purves, Andrew Stec, Charleston, SC

INTRODUCTION AND OBJECTIVES: A prostatic utricle (PU) results from incomplete regression of Müllerian duct structures and has been reported in up to 14% of proximal hypospadias cases. The majority of PUs are asymptomatic, but they may also present with urinary retention, pain, post-void incontinence, urinary tract infection, recurrent hematospermia, or recurrent epididymitis. The definitive treatment for symptomatic PUs is surgical excision, for which a number of approaches have been described. Laparoscopic excision is a safe and effective minimally-invasive approach to this procedure. We report the case of a 20-month-old male presenting with recurrent epididymo-orchitis. He experienced severe swelling, induration, and pain in the scrotum, perineum, and suprapubic region following a penoscrotal hypospadias repair. He was found to have a large PU with the vasa inserting into the superior aspect.

We present a video demonstrating a method of laparoscopic excision for a large PU involving the vasa.

METHODS: The patient was positioned supine and the bed was set in mild Trendelenburg. A 5 mm portal through an umbilical incision was used for the camera, and two additional 3–5 mm working ports were used. A peritoneal incision was made on the posterior bladder surface, and the PU and vasa were dissected away from the bladder and rectum. The vasa were ligated with clips and sharp dissection. The patient’s parents decided to have the vasa ligated so as to prevent the recurrence of his severe symptoms. The vascular pedicles to the PU were ligated using monopolar and bipolar electrocautery and a 5 mm electrocautery ligating device. A cystoscope was used to facilitate identification and dissection of the stalk of the PU. The PU was excised and the urethral defect was closed using absorbable suture.

RESULTS: The PU was successfully excised with minimal blood loss and no intraoperative or perioperative complications. At one year out from his procedure, the patient is voiding well, and is asymptomatic.

CONCLUSIONS: Laparoscopic excision of a prostatic utricle using cystoscopic assistance is an excellent surgical technique. It provides detailed visualization for dissection, even in cases where the urethra is large and involves the vasa.

Source of Funding: None

V18-06 MINILAPAROENDOSCOPIC SINGLE-SITE (MILESS) DISMEMBERED PYELOPLASTY: TECHNIQUE AND SURGICAL OUTCOMES

Francesco Greco*, Giovannalberto Pini, Paolo Fornara, Halle, Germany

INTRODUCTION AND OBJECTIVES: Laparoendoscopic single-site (LESS) surgery and Minilaparoscopy represent the evolution of laparoscopy for the treatment of urologic diseases. Nevertheless, the surgical complexity of pure LESS limits its diffusion, whereas the use of 3 mm trocars during minilaparoscopy prohibits the use of important instruments with diameter > 3 mm.

In order to join the advantages of LESS and minilaparoscopy, we ideated the minilaparoendoscopic single-site surgery (MILESS). Objective of this video is to describe the technique of MILESS dismembered pyeloplasty (DP).

METHODS: Between November 2011 and May 2013 we performed 10 MILESS-DP. All patients presented an ureteropelvic junction obstruction (UPJ) with dilatation of renal calyx system with an enlarged renal pelvis. Demographic data (age, gender), perioperative and postoperative parameters, including operating time, estimated blood loss, complications, length of hospital stay, functional outcome were collected and evaluated. Clinical success outcome was defined as complete resolution of preoperative flank pain and scintigraphic successful outcome was defined as adequate renal excretion (T1/2 20 min) and preserved or improved ipsilateral renal function on MAG-3 diuretic renal scan.

RESULTS: The mean operative time for MILESS-DP was 165 min (range 125–240 min) and the mean estimated blood loss was negligible in all patients. The mean hospital stay was 4 days (4–8). No conversion to conventional laparoscopy or open surgery occurred. In one patient (10%) an urinoma was identified but it solved spontaneously.

After removing of the double-J stent, scintigraphic anobstruction system was notice in 9 patients, who did not present any flank pain with a median follow-up of 12 months (7–20). All patients were extremely satisfied with the appearance of the scars.

CONCLUSIONS: MILESS dismembered pyeloplasty is a safe and feasible surgical procedure for DP, with excellent cosmetic and functional results.

Source of Funding: none

V18-07 ROBOTIC SINGLE SITE PYELOPLASTY USING CROSSED ARTICULATING INSTRUMENTS AND 5 MM FLARED CANNULAS

Maurilio Garcia-Gill, Jeffrey Gahan*, Jeffrey Caddedu, Dallas, TX

INTRODUCTION AND OBJECTIVES: Previously, we have reported the ability to perform robotic single site pyeloplasty safely and effectively using crossed robotic 5 mm articulating instruments. However, we have found that this technique has caused damage to the outer covering of the dissecting instruments rendering these unusable for subsequent procedures.
METHODS: We present a new system in which 5 mm flared cannulas, as opposed to standard 5 mm beveled cannulas, are used to reduce robotic instrument damage. The flared cannulas are intended for trans-oral usage, and thus do not have an air tight seal around the robotic instrument. We demonstrate a system whereby this shortcoming can be circumvented by using a novel airlock mechanism in which TRUS probe covers are placed around the robotic instrument and cannula.

RESULTS: Currently, the estimated cost for a cautery hook and arm is $5760 for 18 uses and the estimated cost for a Maryland grasper is $4600 per 20 uses. Damage occurring earlier in the life of these instruments will therefore significantly increase the cost per use. We present evidence that the demonstrated system is efficacious and negates instrument damage such that in all cases performed (n=3) the instruments were available for subsequent use. We further demonstrate that when using our novel air lock mechanism, we are able to perform the surgery without loss of pneumoperitoneum.

CONCLUSIONS: Robotic single site pyeloplasty remains a viable option using our current technique of crossed articulating instruments. We have demonstrated that using flared cannulas along with our novel air lock system can improve upon our current technique and mitigate robotic instrument damage.

Source of Funding: None

V18-08 LAPAROENDOSCOPIC SINGLE SITE (LESS) SURGERY FOR URACHAL REMNANT IN ADULTHOOD
Kyohei Kuorse*, Takamatsumi, Japan

INTRODUCTION AND OBJECTIVES: Laparoscopic management via the standard three-trocar technique is widely used for urachal remnant. Our video shows the initial experience with laparoendoscopic transumbilical single-site surgery (LESS) surgery for urachal remnant.

METHODS: A 28 year old male with a diagnosis of omphalitis due to urachal remnant underwent LESS surgery. A 1.5 cm vertical incision above umbilicus was made and EZ access port (HAKKO, NAGANO, JAPAN) was inserted. Instrument collisions were minimized by using low-profile trocars, roticulator grasper, and a 5 mm flexible endoscope. Urachal remnant was recognized, completely dissected, removed via single incision and umbilicoplasty was made.

RESULTS: Between December 2011 and March 2013, 5 patients with a diagnosis of urachal remnant underwent LESS surgery. The LESS procedure was performed successfully for all the patients, and none required conversion to an open procedure or a conventional laparoscopic surgery by the addition of more entry ports. The mean operating time was 85 min. and no complication was observed. Operative estimated blood loss was less than 50 cc for all patients.

CONCLUSIONS: LESS surgery for urachal remnant is technically feasible and safe, representing a better alternative to standard laparoscopic surgery in terms of cosmetic result.

Source of Funding: none

V18-09 LAPAROSCOPIC URETEROLYSIS IN RETROPERITONEAL FIBROSIS
Burhan Coskun, Onur Kaygisiz, Berna Aytac, Hakan Kilicarslan, Yakup Kordan, Hakan Vuruskan*, Bursa, Turkey

INTRODUCTION AND OBJECTIVES: Laparoscopy offers a minimally invasive solution in treatment of retroperitoneal fibrosis. We present a video exhibiting the surgical technique in a patient with retroperitoneal fibrosis.

METHODS: A 49-year-old man was referred to our clinic with pathological diagnosis of right retroperitoneal fibrosis. Previously he had been treated with corticosteroids, however, his symptoms did not recover. MRI scan revealed grade 3 hydronephrosis. Retrograde pyelography confirmed a stricture at mid ureter on the right side. We introduced 6 Fr 26 cm DJ stent to right ureter and performed transperitoneal laparoscopic ureterolysis.

RESULTS: Total operation time was 70 minutes. Mean blood loss was 50 ml. No complication occurred during operation. The drain was removed 24 hours after the operation, and the patient was discharged on post operative second day. DJ stent extracted 1 month following then surgery. Three months after the operation the patient was asymptomatic, and the dilatation was regressed.

CONCLUSIONS: Laparoscopic ureterolysis may be offered in treatment of patients with retroperitoneal fibrosis as a minimally invasive method.

Source of Funding: none

V18-10 ROBOT ASSISTED RADICAL PROSTATECTOMY IN A PATIENT WITH EPISPADIAS
Samuel Eaton*, Robert Nadler, Kent Perry, Chicago, IL

INTRODUCTION AND OBJECTIVES: Robot assisted radical prostatectomy (RARP) is rapidly becoming the most common surgical technique for treatment of prostate cancer. Epispadias is a rare urologic condition usually dealt with by pediatric urology. While rare, encountering this condition in an adult with prostate cancer presents unique anatomic considerations. We aim to present our experience with RARP in a patient with isolated epispadias s/p surgical repair as an infant.

METHODS: The patient was a 49 year-old with PSA of 3.91, Gleason score 6 prostate cancer in a 40 cc gland by trans-rectal ultrasound. RARP was performed using the DaVinci surgical system. Standard 5 port transperitoneal technique was used. Full technique is described in the accompanying video.

RESULTS: Note was made of an anteriorly displaced prostate urethra as well as laterally and posteriorly displaced dorsal venous complex. Additionally, neurovascular bundles were noted to be more lateral and discrete from prostate. There were no intraoperative complications noted. Patient had return of erections at 3 months, and required only a safety pad at last follow-up of 12 months. PSA remains undetectable at last follow-up.

CONCLUSIONS: RARP is feasible in patients with history of isolated epispadias. With consideration of unique anatomic variations, the procedure can be done safely with satisfactory technical, oncologic, and functional results.

Source of Funding: none

V18-11 ROBOTIC URETERAL REIMPLANTATION UTILIZING A BOARI FLAP
John Gannon*, Jeffery Redshaw, Salt Lake City, UT, Jeff Piacitelli, Jay Bishoff, Murray, UT

INTRODUCTION AND OBJECTIVES: Ureteral Injury is uncommon in pelvic surgery, but can have devastating consequences for the patient. Some cases are recognized at the time of surgery; while most present in a delayed manner. In delayed presentations...
decompression of the kidney is recommended, followed by surgical repair, or nephrectomy in the case where delayed diagnosis has resulted in loss of the renal function. In this video we present a case of a 36-year-old multiparous woman who underwent an apparently uncomplicated C-section, one month prior to presentation to the emergency room. She presented with right flank pain and urosepsis and was found to have right hydroureronephrosis. A right percutaneous nephrostomy tube was placed. Antegrade nephrostogram, demonstrated obstruction of the right distal ureter at the pelvic brim. In this video, we demonstrate our standard.

METHODS: The operation was performed utilizing low lithotomy with Trendelenburg positioning and trocars placed in the same configuration as that used for robotic assisted laparoscopic radical prostatectomy. After incising the peritoneum the obstructed ureter is dissected from the dilated proximal ureter to the area of obstruction and divided. We spatulate the ureter on the anterior surface. The bladder is distended with 300 cc of sterile saline. A boar flap is created with a wide base and apex, sufficient to allow implantation of the ureter without tension. A hole is created in the flap and the spatulated ureter brought up from the posterior aspect into the flap. Interrupted 4-0 absorbable sutures are used to re-approximate the mucosa of the ureter to the mucosa of the bladder. A ureteral stent is placed in a retrograde technique. The bladder is closed in a watertight manner with two layers and the peritoneum was replaced over the bladder.

RESULTS: The use of minimally invasive techniques allows for successful ureteral reimplantation with a boari flap. The nephrostomy tube was removed at the time of surgery. A cystogram is obtained 10–14 days after surgery and the stent removed at six weeks. A Lasix renal scan is obtained two weeks after stent removal to document patency.

CONCLUSIONS: The treatment for delayed presentation of a ureteral injury can be effectively managed through a minimally invasive approach. Our robotic assisted laparoscopic approach allows for successful reimplantation in a single session for repairing ureteral injuries.

Source of Funding: none

V18-12 ROBOTIC ASSISTED EXCISION OF A GIANT SEMINAL VESICLE CYST AND ATRETIC URETER

Ramgopal Satyanarayana*, Devendar Katkoori, Ezekiel Young, Murugesan Manoharan, Miami, FL

INTRODUCTION AND OBJECTIVES: Seminal vesicle cyst with ipsilateral renal agenesis is a rare urological anomaly. A robotic approach offers excellent minimally invasive option for treating these patients. We describe our robotic approach in this video presentation.

METHODS: We describe the clinical presentation, imaging findings, surgical steps and post-operative outcome in a 29 yr old male patient with giant right side seminal vesicle cyst and ipsilateral renal agenesis, treated by robotic approach.

RESULTS: A transperitoneal robotic assisted excision of the giant right sided seminal vesicle cyst and the atretic right ureter along with remnant renal tissue was performed. Standard port placement as for a robotic radical prostatectomy was utilized, only the camera port was placed slightly higher. The cyst was identified, peritoneum overlying cyst was incised, and the cyst was completely mobilized. Anterior incision of the cyst was performed, the cyst interior inspected and then the cyst was excised while taking care not to injure the rectum and surrounding structures. A small area of adherent remnant wall was fulgurated. The atretic ureter and the remnant renal tissue were dissected and removed. Drain was placed.

The patient had an uneventful postoperative course, was discharged on post op day 1. The histopathology result reported the cyst also contained a clear cell adenocarcinoma, immunohistochemistry positive for CA-125, CEA, and CK7. The patient is voiding well, normal erections, pain free. He is currently receiving chemotherapy.

CONCLUSIONS: Robotic approach for excision of a giant seminal vesicle cyst and atretic ureter is fairly straight forward, feasible and offers all the advantages of a minimally invasive approach.

Source of Funding: None
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