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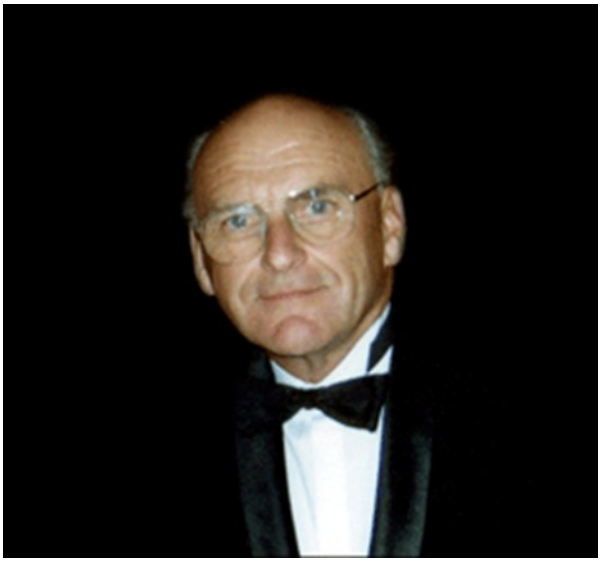
JACK WYATT UROLOGY RESIDENTS' RESEARCH DAY

April 4, 2014

Syllabus

Western

Dr. John Kenneth Wyatt



John Kenneth Wyatt was born in Detroit, Michigan and grew up in London, Ontario where he attended the University of Western Ontario, graduating in Medicine in 1954. While an undergraduate at Western, Jack excelled in many sports and was captain of the Western Mustangs football team.

Dr. Wyatt completed his General Surgery and Urology training in London and joined the small Urology faculty here in 1960. He published one of the first papers on the beneficial effects of chemotherapy for testis cancer. Dr. Wyatt steadily built the UWO Urology Program, serving as the Program Director and Division Chair for 15 years. He was best known for his clinical acumen and his caring attitude towards his patients as well as his residents. An excellent clinical teacher, Dr. Wyatt was well-known for his common touch and sense of humor, whether he was lecturing to medical students, doing bedside or operating room teaching, or chatting with the janitor. Dr. Wyatt was an active contributor to the Royal College and the Canadian Urological Association, serving as CUA President in 1984.

Dr. Wyatt passed away December 6, 2004. We continue to honor his memory through our Annual Residents' Research Day.

Western University
Jack Wyatt Urology Residents' Research Day 2014

RESIDENTS:

PGY5
Varunkumar Bathini
R. Michael Lang
Linda Lee

PGY4
Marie Dion
Kim-Chi Tran
Peter Wang

PGY3
Adiel Mamut
Stephanie Tatzel
Siobhan Telfer

PGY2
Jeffrey Campbell
Victor McPherson
Golnaz Naderkhani

PGY1
Garson Chan
Melissa Huynh
David Mikhail

FELLOWS

Hana'a Al-Hothi—Reconstruction

Francisco Garcia — Andrology

Thomas Tailly—EndoUrology
Philippe Violette—EndoUrology

Jason Archambault—Transplant
Neal Rowe—Transplant

Michele Billia—Uro-Oncology
Clarisse Mazolla—Uro-Oncology
Khurram Siddiqui—Uro-Oncology

GUEST PROFESSOR 2014

Joel B. Nelson, M.D.

Professor and Chairman
Department of Urology,
University of Pittsburgh School of Medicine

Joel B. Nelson received a BA in Philosophy at the University of Pittsburgh in 1983. He received his medical degree in 1988 and completed his urology residency in 1994, both at Northwestern University Medical School. He was awarded an American Foundation for Urological Disease Scholarship for fellowship training in basic research and oncology at the Brady Urological Institute at Johns Hopkins from 1994 to 1996. After joining the faculty of the Department of Urology at Johns Hopkins in 1996, Dr. Nelson was named the Director of Urological Oncology at Johns Hopkins Bayview Medical Center. In 1999, at the age of 39, Dr. Nelson was appointed the first Frederic N. Schwentker Professor and first Chairman of the newly formed Department of Urology at the University of Pittsburgh School of Medicine. Under his leadership, the Department has grown from five to 35 full-time faculty members, with a several-fold increase in clinical volumes and research funding, placing it in the top ten nationally for NIH funding. Dr. Nelson's area of clinical interest is focused on prostate cancer, maintaining a surgical practice of about 250 radical prostatectomies per year, nearly 3000 in total. He research interest has been on novel treatments for advanced prostate cancer, most notably as the first to identify the endothelin axis as a possible target for treatment in prostate cancer bone metastases. Dr. Nelson has published over 150 papers and chapters and is a member of several editorial boards. He is the member of the American Association of Genitourinary Surgeons, the Clinical Society of Genitourinary Surgeons and a recipient of many clinical and basic science awards. He is the Chief of Surgery at UPMC Shadyside Hospital.

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Jack Wyatt Urology Residents' Research Day 2014

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JK Wyatt Urology Residents' Research Day

Western University
Friday, April 4, 2014
Hilton, 300 King Street, London

AGENDA

7:00 – 8:00	Registration and Breakfast	
8:00 – 8:15	Welcome and Introductions: Dr. H. Razvi	
SESSION I	**ONCOLOGY**	**Moderator: Dr. Joseph Chin**
8:15-8:30	P.Wang:	Prostate Pathology Cystoprostatectomy Specimens with Partial versus Complete Submissions for Pathological Examination
8:30-8:45	C.Mazzola:	Developing a Patient-Derived Xenograft Model Using Chicken Embryos to Predict Targeted Therapy Tumor Resistance in Renal Cell Carcinomas
8:45-9:00	M.Lang:	Functional and Oncological Outcomes of Robotic Assisted Radical Prostatectomy (RARP) Learning Curve Analysis of 418 Consecutive Patients with up to 7 Year Follow-up
9:00-9:15	M.Billia	MRI-Guided Transurethral Ultrasound Ablation of Prostate Cancer: Preliminary Outcomes of a Phase I Clinical Trial
9:15-9:45	**State-of-the-Art Lecture – Dr. Gerald Brock** *Men's Health: Is it a Marketing Tag Line or a Real Health Concern?*	
9:45-10:15	Health Break	
SESSION II	**TRANSPLANT, NEPHROLOGY AND BASIC SCIENCE**	**Moderator: Dr. Alp Sener**
10:15-10:30	M.Huynh:	Donation after Circulatory Death (DCD) Renal Allografts: Recipient Outcomes Based on Donor Age in a Contemporary Canadian Cohort
10:30-10:45	A.Mamut:	Measuring The Impact Of Medical Chronic Kidney Disease And Diabetes Mellitus on Renal Functional Decline Following Radical Nephrectomy and Nephron-Sparing Surgery for Renal Cell Carcinoma
10:45-11:00	V.Bathini:	Initial Experience with Performing a Zero Ischemia Open Partial Nephrectomy
11:00-11:15	T.Beveridge:	The Anatomy of Post-Chemotherapy Retroperitoneal Lymph Node Dissections for Testis Cancer: A Cadaveric Study of the Aortic Plexus and Patterns of Lumbar Vessels
11:15-12:00	**Guest Professor: Dr. Joel Nelson** *Is There a Role for Open Prostatectomy in the Era of MIS/Robotics?*	
12:00-1:00	LUNCH	

SESSION III KIDNEY SURGERY **Moderator: Dr. Nicholas Power**

1:00-1:15	P.Violette:	The Canadian National Hereditary Kidney Cancer Needs Assessment Survey
1:15-1:30	N.Rowe:	Robotic-Assisted Laparoscopic Pyeloplasty at a Canadian Institution: Perioperative Comparison of Single Incision vs Multiple Incision Techniques
1:30-1:45	S.Telfer:	Surgical Management of the Painful Kidney | A Case Series of Nephroptosis

SESSION IV ANDROLOGY and NEUROUROLOGY **Moderator: Dr. Blayne Welk**

1:45-2:00	J.Campbell:	Patient Pre-Operative Diagnosis as a Predictor for Sperm Recovery from Testicular Biopsy in Azoospermic Men
2:00-2:15	G.Naderkhani:	Pollen Extract (Cernilton) for Management of Chronic Prostatitis / Chronic Pelvic Pain Syndrome: A systematic Review and Meta-analysis
2:15-2:30	F.Garcia:	Retrospective Review of Penile Doppler Studies for Peyronie's Disease to Identify Independent Predictors of Treatment Success at a Single Centre
2:30-2:45	K-C.Tran:	Urological Morbidity and Access to Care Among Traumatic Spinal Cord Injured Patients

2:45-3:15 **HEALTH BREAK**

3:15-4:00 **Guest Professor: Dr. Joel Nelson**
What's New in the Management of Castrate Resistant Prostate Cancer?

SESSION V ENDOUROLOGY **Moderator: Dr. Stephen Pautler**

4:00-4:15	T.Tailly:	Use of Novel Antimicrobial Coatings on Urinary Catheters for Prevention of *E. coli* Infection in a Rabbit Model
4:15-4:30	D.Mikhail:	The Impact of Patient BMI on Outcomes of Percutaneous Nephrolithotripsy
4:30-4:45	L.Lee:	A Comparison of Outcomes After Percutaneous Nephrolithotomy in Children and Adults: A Matched Cohort Study
4:45-5:00	M.Dion:	Percutaneous Nephrolithotomy Outcomes in Patients with Renal Anomalies

5:00-5:30 Complete Program Evaluations / Wrap up

6:30 Resident and Faculty Dinner (by invitation)

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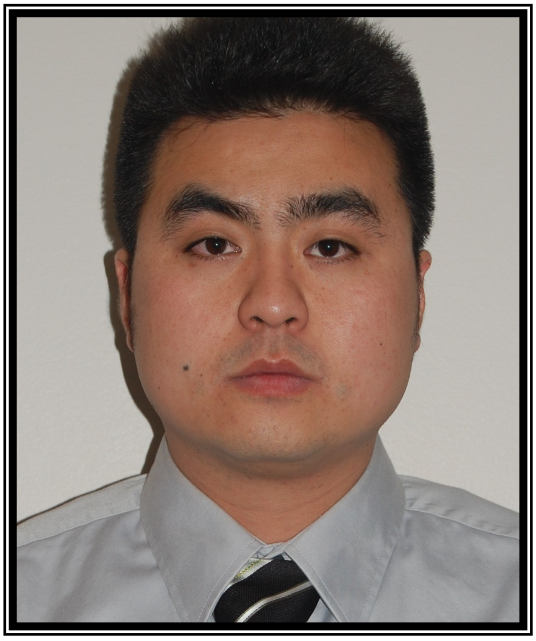
*Note: Guidelines = 15 minute presentations = 10 minute presentation, 5 minute Q & A
30 minute presentations = 20 minute presentation, 10 minute Q & A
60 minute presentations = 45 minute presentation, 15 minute Q & A

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University (8.0 hours). Each participant should claim only those hours of credit that he/she actually spent participating in the educational program.

This year's program is intended to provide participants with:
- *A state-of-the-art review of the management of castrate-resistant prostate cancer.*
- *A state-of-the-art review of the role of open prostatectomy in the era of MIS.*
- *An update on the management of erectile dysfunction.*
- *Results of clinical and basic science research projects of the resident staff from Western University in the following subspecialty areas: Oncology, Andrology, Endourology, Urinary voiding dysfunction, Transplantation*

This program was supported in part by an educational grant from the following: (list organization name(s): Abbott, Abbvie, Actavis, Allergan, Amgen, AMS Canada, Astellas, AstraZeneca, Boston Scientific, Clarion, Coloplast, Cook Medical, Eli Lilly, Ferring, Janssen Inc., Merck, Olympus, Paladin, Pfizer Canada Inc., Pendopharm (a division of PharmaScience Inc.), Red Leaf Medical, Sanofi-Aventis, Storz.



PROSTATE PATHOLOGY IN CYSTOPROSTATECTOMY SPECIMENS WITH PARTIAL VERSUS COMPLETE PROSTATE SUBMISSIONS FOR PATHOLOGICAL EXAMINATION.

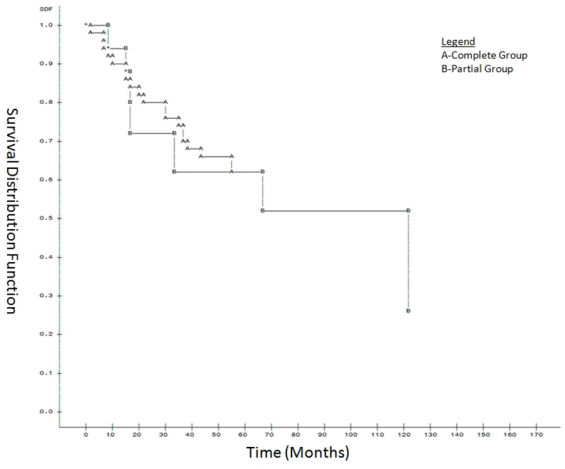
P Wang, E Filter, M Gabril, J Gomez, J Izawa, J Chin, M Moussa

Introduction:
Histological prostate cancer (PCa) is incidentally found 25-40% of the time in cystoprostatectomy (CP) specimens (1). Currently, there are no guidelines for the pathological examination of the prostates in these specimens. In our institution, prior to 2000, prostates were partially submitted whereas currently all prostates are completely submitted for examination. The aim of this study is to evaluate the incidence, pathological features and clinical outcomes of patients with PCa found on CP specimens with partial versus complete submission.

Methods:
CP specimens with incidental PCa were identified from our archives between 1990 to 2006. Patients with at least 5 years of clinical follow-up were included. Patients with known metastatic PCa, previous radiotherapy or partial prostatectomy were excluded. A total of 72 patients were found, 51 (complete group) had CP specimens that underwent complete submission of the prostate versus 21 (partial group) that were partially submitted. Clinical outcomes were retrospectively collected via paper and electronic charts. Each CP specimen was retrieved and reviewed by the pathology department. Clinically significant PCa was defined as: Gleason score ≥ 7 with either seminal vesical invasion, extraprostatic extension (EPE) or positive surgical margins. Statistical analysis was performed with the Student t-test, Fisher's exact test and the Kaplan-Meier method. Significance was set at <0.05.

Results:
Patient demographics between the two groups were similar. Median follow-up for the partial and complete group were 65.7 and 72.9 months respectively. There were a total of 40 (55.5%) clinically significant PCa, of these 13 (61.3%) were in the partial group versus 27 (52.9%) in the complete group (p=0.60). Positive surgical margins at the apex was found in 5 (7%) out of all specimens analyzed (2 in the partial group versus 3 in the complete group, p=0.63). EPE was found in 2 (9.5%) versus 11 (21.6%) specimens in the partial and complete group respectively (p=0.60). Invasive urothelial carcinoma was found in 7 (33%) specimens in the partial group versus 11 (21.6%) in the complete group (p=0.73). There was one death from metastatic PCa in the complete group and none in the partial group. There was no significant difference in overall mortality between the two groups (Figure 1).

Figure 1: Kaplan-Meier Curve Overall Survival Comparing Partial versus Complete Group



Conclusions:
This study comparing partial versus complete submission of the prostates in CP specimens showed no significant differences in the detection of clinically significant PCa or survival. Limitations of this study include the biases inherent in retrospective studies, small sample size and short follow-up.

References:
1. Abdelhady, M., Abusamra, A., Pautler, SE., Chin JL., Izawa, JI (2007). Clinically significant prostate cancer found incidentally in radical cystoprostatectomy specimens. *BJU Int 99(2), 326-329.*
2. Barbisan, F., Mazzucchelli, R., Scarpelli, M., Lopez-Beltran, A., Cheng, L., Kirkali, Z., et al. (2008). Urothelial and incidental prostate carcinoma in prostates from cystoprostatectomies for bladder cancer: is there a relationship between urothelial and prostate cancer. *BJU Int 103*, 1058-1063.
3. Saad, M., Abdel-Rahim, M., Abol-Enein, H., & Ghoneim, M. (2008). Concomitant pathology in the prostate in cystoprostatectomy specimens: a prospective study and review. *BJU Int, 102*, 1544-1550.
4. Winfield, H., Reddy, P., & Lange, P. (1987). Coexisting adenocarcinoma of prostate in patients undergoing cystoprostatectomy for bladder cancer. *Urology 2*, 100-101.
5. Winkler, M., Livni, N., Mannion, E., Hrouda, D., & Christmas, T. (2007). Characteristics of incidental prostatic adenocarcinoma in contemporary radical cystoprostatectomy specimens. *BJU Int99*, 554-558.

DEVELOPING A PATIENT-DERIVED XENOGRAFT MODEL USING CHICKEN EMBRYOS TO PREDICT TARGETED THERAPY TUMOR RESISTANCE IN RENAL CELL CARCINOMAS

CR Mazzola, C Willie, S Pardhan, KM Siddiqui, M Billia, JI Izawa, J Chin, AF Chambers, J Brugarolas, A Tram, N Power, HS Leong

Introduction and Objectives:
Approximately 30% of patients with metastatic renal cell carcinoma (RCC) will have primary resistance to targeted agents. The remainder will develop resistance over a longer time course. Our aim was to develop a patientderived xenograft model to determine the sensitivity of each RCC patient's tumor cells to a defined targeted therapy prior to the start of systemic therapy.

Methods:
We developed a patient–derived xenograft model using chicken embryos. Seven patient-derived primary RCC cell lines were implanted into the chorioallantoic membrane (CAM, N>15/cell line) to assess the effect of sunitinib on tumor take ratios. Three of these cell lines are sensitive to sunitinib (XP206, XP158, XP185) and four are resistant to sunitinib (XP127, XP121, XP258, PF22), as determined previously in murine models. A secondary cell line that is sensitive to sunitinib (786-O,was also implanted as a control. Each cell line was implanted into the CAM of day9 chicken embryos. To evaluate sunitinib sensitivities in vivo, chicken embryos were divided into two groups: one treated with sunitinib and one with vehicle. Intravital imaging was performed to assess tumor size. Tumor take rates were determined 6–8 days post implantation.

Results:
Using the 786-O cell line, tumor take rates were 82% in vehicles compared to 46% in sunitinib treated tumors. Using the 7 patient derived RCC cell lines, decreased tumor take rates were observed in sunitinib sensitive cell lines treated with sunitinib, when compared to their controls (Table1). Tumor xenografts underwent extensive angiogenesis as observed by IV injection of DextranAlexa555. (10 kDa; Figure 1).

Conclusions:
We believe our patient-derived xenograft model could be a useful tool for drug sensitivity evaluation, allowing to potentially individualize targeted treatments to each patient with metastatic RCC prior to systemic therapy. Further studies will be performed with other drugs used in the treatment of RCCs.

FUNCTIONAL AND ONCOLOGICAL OUTCOMES OF ROBOTIC ASSISTED RADICAL PROSTATECTOMY (RARP) LEARNING CURVE ANALYSIS OF 418 CONSECUTIVE PATIENTS WITH UP TO 7 YEAR FOLLOW-UP

RM Lang, PD Violette, S Pautler

Background:
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 was used to evaluate PSA recurrence and continence.

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) pre-operatively and a mean BMI of 27 ± 3. The majority underwent nerve sparring (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±30min, 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%, p0.02). 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, continence, 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.

MAGNETIC RESONANCE IMAGING-GUIDED TRANSURETHRAL ULTRASOUND ABLATION OF PROSTATE CANCER (MRI-TULSA): PRELIMINARY OUTCOMES OF A PHASE I CLINICAL TRIAL

M Billia, J Chin

Introduction and Objective:
MRI-guided transurethral ultrasound ablation (TULSA) is a new minimally-invasive technology for treatment of localized prostate cancer (PCa), aiming to provide good local disease control with a low side-effect profile. This modality consists of a transurethral device emitting planar ultrasound and generating a continuous and precise volume of thermal coagulation shaped to conform to the prostate, using real-time MRI monitoring and active temperature feedback control. A prospective, multi-center phase I clinical trial was initiated in March 2013 with the aim to determine safety and feasibility of MRI-guided TULSA, and to assess initial efficacy for localized PCa treatment.

Patients and Methods:
Patients with low-risk PCa: cT1c-T2a, N0, M0; PSA≤10ng/ml; GS≤6 are enrolled. Under general anesthesia, suprapubic catheter (SPC) is inserted and left in for 2 weeks. The TULSA device (PAD-105, Profound Medical Inc.) is inserted manually over a Nitinol guidewire and positioned precisely in the prostatic urethra with MRI guidance (3-Tesla unit). Treatment planning is performed under MRI prostate visualization, with therapeutic intent of conservative whole-gland ablation. Treatment is delivered under continuous MR thermometry feedback control, and patients recover with an outpatient protocol. Primary study endpoints are safety and feasibility, with follow-up to 12 months. Complete clinical monitoring is 5 years, including serial PSA, TRUS biopsy and QoL questionnaires (IPSS, IIEF, bowel domain of UCLA-PCI-SF).

Results:
To-date, 25 patients have been treated with no intraoperative complications. Median treatment time was 29 (24 – 61) min and prostate volume 45 (34 – 95) cc. Spatial control of thermal ablation was within ±1.5 mm and contrast-enhanced MRI confirmed the resulting non-perfused volume. Clavien II complications included urinary tract infections (4), and epididymitis (1). Clavien I complications included hematuria (3), and acute urinary retention after SPC removal (2) resolving after SPC re-insertion. At 1 month, median PSA reduced by 87% (60 – 99%) to 0.7 ng/ml (0.1 – 3.3 ng/ml), with the nadir expected by 6 months. Normal micturition returned after SPC removal, with no significant change in QoL at 3 months.

Conclusion:
MRI-guidance enables accurate planning and real-time dosimetry and control of the thermal ablation volume. Initial results indicate that MRI-guided TULSA is safe and clinically feasible with a well-tolerated, low side effect profile.

DONATION AFTER CIRCULATORY DEATH (DCD) ALLOGRAFTS: RECIPIENT OUTCOMES BASED ON DONOR AGE IN A CONTEMPORARY CANADIAN COHORT

M Huynh, PD Violette, NE Rowe, C Weernink, ASener, P Luke

Background:
Donation after circulatory death (DCD) renal allografts demonstrate comparable outcomes to neurological determination of death (NDD) grafts, but few studies have addressed the impact of donor age.

Methods:
We compared outcomes in recipients of DCD allografts from donors >50 years of age to those <50 years. Between July 2006 and September 2013, 118 single DCD renal transplants occurred at our institution. Outcome variables (creatinine clearance (CrCl), readmission rate, length of hospital stay (LOS), delayed graft function (DGF), graft loss and rejection) were compared between the two age categories using Student's t-test and Pearson chi-square test. Independent prognosticators of CrCl at 12 months were assessed with multivariate linear regression modeling.

Results:
Mean recipient age was 53.8±14.7 years and 45.8% of DCD donors were >50 years of age. Median follow-up was 20.5 months (range 1.1 to 86.6). Recipients of kidney transplants from DCD donors >50 years of age demonstrated lower CrCl at 1 month (50.3±25.3 mL/min vs. 72.7±31.7 mL/min, $p<0.001$), 3 months (62.5±22.9 mL/min vs 87.9±36.4 ml/min, $p<0.001$), and 1 year (66.2±26.8 mL/min vs 87.8±38.7 mL/min, $p=0.013$). The two groups did not differ with regard to DGF, graft loss, hospital readmissions, or LOS. Multivariate linear regression demonstrated that donor age, recipient age, recipient sex, and cold ischemia time were independent predictors of CrCl at 12 months.

Conclusion:
Recipients of allografts from donors >50 years of age demonstrated lower CrCl at 1 year, but patients in both groups had similar graft survival and short-term outcomes. Longer follow-up is required to determine long term allograft survival.

MEASURING THE IMPACT OF MEDICAL CHRONIC KIDNEY DISEASE AND DIABETES MELLITUS ON RENAL FUNCTIONAL DECLINE FOLLOWING RADICAL NEPHRECTOMY AND NEPHRON-SPARING SURGERY FOR RENAL CELL CARCINOMA

AE Mamut, NE Rowe, PD Violette, F Cui, P Luke

Introduction and Objectives:
The risk factors for medical chronic kidney disease are well established, however, the impact of such factors in a conjunction with surgical kidney disease have been the source of recent debate. The goal of our study was to identify risk factors for renal functional decline following extirpative renal surgery, and to establish the impact of these factors on glomerular filtration rate (GFR) reduction.

Methods:
We present a retrospective cohort study of 344 consecutive patients who underwent surgery for a renal mass at a tertiary care center between 2002 and 2010. Patients were grouped by RN or PN and baseline characteristics were compared. Renal function was estimated by the Modification in Diet and Renal Disease (MDRD) formula. Multivariate linear regression was used to identify independent predictors of renal function.

Results:
120 patients were treated with PN and 224 with RN. Mean age was 60.9 yr for PN and 62.6 yr for RN. Mean tumor size was 2.9cm for the PN group and 6.2cm for the RN group. Multivariate analysis identified radical nephrectomy, pre-operative GFR and Diabetes Mellitus (DM) as independent predictors of 1 year post-operative renal function. Patients undergoing RN had a mean decrease in GFR of 20.7 mL/min/1.73 m2 (95%CI 18.1- 23.3) compared to those undergoing PN. For each unit increase in pre-operative GFR, post-operative GFR increased by 0.66 mL/min/1.73 m2 (95%CI 0.60-0.71). DM impacted a post-operative GFR decline by 3.6 mL/min/1.73 m2 (95% CI 0.7 – 6.6).

Conclusions:
Pre-op GFR, type of surgery and DM were independent predictors of post-operative renal function. While our findings support nephron-sparing surgery for patients with chronic kidney disease, the value of nephron-sparing approaches in diabetic patients may be even greater.

INITIAL EXPERIENCE WITH PERFORMING A ZERO ISCHEMIA OPEN PARTIAL NEPHRECTOMY

V Bathini and A Sener

Background:
Ischemic injury produced by hilar clamping during a partial nephrectomy is one of the main factors linked to postoperative renal function loss.

Purpose:
To describe our technique and present our initial four cases of preforming a zero ischemia open partial nephrectomy using the Altrus device.

Materials and Methods:
Single surgeon data on the initial four cases of using the Altrus device to perform the partial nephrectomy was collected. Each of these patients had multiple comorbidities ranging from severe hypertension to diabetes to liver failure. In each case the hilar vessels were isolated but not clamped. Hemostasis was preformed primarily with coagulation along with reconstruction of the renal parenchyma. Preoperative and postoperative serum creatinine values were measured. In addition, we preformed functional renograms preoperatively as well as postoperatively at the 3 day, 3 month and 6 month time point to accurately trend changes in glomerular filtration rate and split function.

Results:
Using the R.E.N.A.L Nephrometry scoring system the tumours were similar in complexity ranging from a score of 6a – 7a. The average tumour size was 2.95 cm (2.0 – 4.3cm). Hilar clamping was not necessary in any patient. The mean operation duration was 217.5 min (147 – 289 min). The average blood loss was 250 ml (200 – 300 ml). There were no immediate postoperative complications. The average hospital stay was 5.25 days (4 – 7 days). The final pathology was renal cell carcinoma with negative margins in each case. In regards to the histopathology two of the specimens were clear cell, one was papillary type and one was chromophobe. Overall there was a mean decrease in the creatinine from baseline by 8.25 µmol/L (-27 – 6 µmol/L) at four weeks. There was an average improvement in the glomerular filtration rate by 10.5ml/min from baseline (-7 – 30 ml/min) at six months. The mean change in the split function of the ipsilateral kidney was less than 1%.

Conclusion:
To the best of our knowledge this is the first reported case series of using the Altrus to preform a zero ischemia partial nephrectomy. In this initial case series we demonstrated no requirement of hilar clamping, optimum renal function post-operatively, and a relatively easy technique that could be safely preformed in carefully selected patients. There could be a role for a zero ischemia partial in patients with severe medical comorbidities where renal function could be compromised with hilar clamping. However, prospective studies with larger numbers, an appropriate control group and longer follow up are needed to evaluate this further.

Sources of Funding: None

THE ANATOMY OF POST-CHEMOTHERAPY RETROPERITONEAL LYMPH NODE DISSECTIONS FOR TESTIS CANCER: A CADAVERIC STUDY OF THE AORTIC PLEXUS AND PATTERNS OF LUMBAR VESSELS

TS Beveridge, A Power, L Allman

Introduction and Objective:
Post-chemotherapy retroperitoneal lymph node dissection (pc-RPLND) for testis cancer requires an expert knowledge of retroperitoneal anatomy. The presence of aberrant lumbar vessels may lead to intraoperative complications, and damage to the aortic plexus often results in retrograde ejaculation. Despite attempts to minimize complications using unilateral template dissections, there has never been a robust anatomical description of the retroperitoneum. The aim of this study is to determine the variability in the lumbar vessels and to map the nerves of the aortic plexus for preservation during surgery.

Methods:
Anatomy of the lumbar vessels was determined by embalmed cadaveric dissections (n=25) and the aortic plexus was mapped in fresh, frozen human cadavers (n=7). Using standard histochemical procedures, ganglia of the aortic plexus were verified with H&E staining while anti-tyrosine hydroxylase staining confirmed the presence of sympathetic neurons.

Results:
Vascular dissections revealed a right-side dominance of lumbar veins that were not equally-spaced; rather, the inter-vein distance progressively increased for the more inferior veins. In contrast, the lumbar arteries were bilaterally symmetrical with consistent inter-artery distance along the aorta. All aortic plexus dissections revealed three previously identified ganglia (right/left spermatic ganglia and inferior mesenteric ganglion), and one newly discovered ganglion; all of which were supplied by the L1 and L2 lumbar splanchnic nerves.

Conclusions:
Our anatomical description of the lumbar vessels and the nerves of the aortic plexus may prove useful for surgeons performing pc-RPLND. We observed unique patterns in the lumbar vasculature, and identified peripheral nerves within the aortic plexus which we hypothesize contain fibres controlling ejaculation. Finally, the newly discovered ganglion may be integral in preserving fertility in males undergoing pc-RPLND.

THE CANADIAN NATIONAL HEREDITARY KIDNEY CANCER NEEDS ASSESSMENT SURVEY

PD Violette, S Kamel-Reid, G Graham, N Reaume, D Wexler, M Jewett, M Care, J Basiuk, SE Pautler

Introduction and Objectives:
Treatment of hereditary renal cell carcinoma (HRCC) requires a multidisciplinary approach that may involve medical oncologists, geneticists, genetic counselors, and urologists. The objective of our survey was to obtain current and accurate information about the use and perceived importance of genetic testing for HRCC from each of the above mentioned specialties.

Methods:
A self-administered web-based survey was provided to medical oncologists, geneticists, genetic counselors, and urologists. The survey was created through an iterative process beginning with a focus group and repeated consultations with the members of the genetics division of the Kidney Cancer Research Network of Canada. The survey was designed to be exploratory and results were compared across provinces.

Results:
The overall response was low, with 136 responders. Of the respondents, 42%, 33%, 19%, 5% were genetic counselors, urologists, medical oncologists and medical geneticists, respectively. The majority of respondents described their practice setting as primarily academic 62.7% vs non-academic 37.3%. Academic respondents tended to refer for genetic counseling more frequently than non-academic 67.2 % vs 48.6%, $p<0.001$. The majority of respondents believed that genetic testing for HRCC was available (82.8%), although 47.7% did not know which tests were available. This observation was consistent across provinces. VHL testing was given highest priority among respondents. A lack of provider knowledge, clinical guidelines, institutional funding, access to genetic services and poor coordination between disciplines were cited as the main barriers to testing.

Conclusions:
There is a significant need to increase provider knowledge of genetic testing for HRCC. These findings support the development of practice guidelines and national strategies to improve coordination of specialists and access to genetics services.

ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY AT A CANADIAN INSTITUTION: PERIOPERATIVE COMPARISON OF SINGLE INCISION AND MULTIPLE INCISION TECHNIQUES

N Rowe, S Nastis, A Sener, P Luke P

Introduction and Objectives:
The utility of robotic platforms in laparoscopic dismembered pyeloplasty is well established. Literature data suggests reductions in morbidity and increased satisfaction with cosmesis when single site surgeries are performed. Our study aimed to compare the perioperative feasibility of single incision pyeloplasty to multiple incision pyeloplasty with the use of a da Vinci robotic system.

Methods:
Institutional review board approved our study. We reviewed all consecutive robotic pyeloplasty surgeries by a single surgeon from January 2011 to October 2013. Single incision technique was compared to multiple incision technique on the basis of operating room time and patient length of stay (LOS).

Results:
13 patients underwent multiple incision pyeloplasty and 7 patients underwent single incision pyeloplasty. Mean age of patients 34.3 years. Operating room time was similar for multiple incision and single incision surgery (3.47 hrs vs. 3.99 hrs, $p = 0.23$). While patients in the single incision cohort had similar length of stay (LOS) to those in the multiple incision cohort, there was a trend to shorter LOS in the single incision group (3.21 days vs. 3.92 days, $p = 0.46$). One patient in each cohort demonstrated evidence of persistent obstruction on postoperative nuclear renogram.

Conclusions:
Our early experience with single incision robotic pyeloplasty does not appear to compromise operating room time or hospital LOS. Verifying these trends with larger cohorts outside the initial learning curve is required prior to the wide adoption of this technique. Our ongoing objective measurement of patient satisfaction and cosmesis may further elucidate the value of single site surgery.

SURGICAL MANAGEMENT OF THE PAINFUL KIDNEY
A CASE SERIES OF NEPHROPTOSIS

SI Telfer and PPW Luke

Renal ptosis, or nephroptosis is a well-described, rare condition in which the kidney descends >2 vertebral bodies during position change (supine to upright). This translocation can lead to symptoms of abdominal pain and vomiting secondary to renal ischemia or obstruction.

Nephropexy (surgical fixation of the mobile kidney), a once routine operation for nephroptosis, hasn't been common practice for the last two decades. Within the last few years, careful selection of patients and innovations in laparoscopic surgery has led to renewed interest.

Here we describe the cases of four patients with nephroptosis who were treated with nephropexy. All patients were females, between the ages of 22 and 87, who presented with right flank pain, +/- nausea/vomiting and imaging consistent with right sided nephroptosis (kidney translocation ranging from 1 to 2 vertebral bodies). All patients underwent 3-port laparoscopic right nephropexy in which non-absorbable monofilament sutures were used to pex the upper pole of the kidney to the quadratus lumborum, and the lower pole to the psoas muscle. Total operative time ranged from 88 to 97 minutes, and EBL was minimal in all cases. Hospital stay ranged from 1 to 4 days. Period of follow-up was between six months and four years. In all patients, pain had resolved and quality of life (as determined by SF-36 quality of life score) had significantly improved. In this small case series, we demonstrate that overall patient satisfaction is high post minimally invasive nephropexy for documented renal ptosis.

PATIENT PRE–OPERATIVE DIAGNOSIS AS A PREDICTOR FOR SPERM RECOVERY FROM TESTICULAR BIOPSY IN AZOOSPERMIC MEN

J Campbell, F Tekpetey, G Brock, V Feyles

Testicular sperm extraction (TESE) from azoospermic men can improve sperm retrieval for intra–cytoplasmic sperm injection (ICSI). The ability to predict the presence of sperm from therapeutic TESE without a prior diagnostic testicular biopsy is a challenge in these patients. The objective of this study is to determine if a patient's cause for azoospermia can reliably predict whether there will be viable, motile sperm recovery with TESE. This is a retrospective case series looking at 165 men who underwent TESE for use in ICSI from September 2000 to June 2013 at a single centre. TESE outcome parameters assessed were: presence of spermatozoa in fresh extract, sperm viability, and sperm motility in fresh and frozen extracts. These parameters were compared in men with obstructive azoospermia (OA) and non–obstructive azoospermia (NOA). Men with NOA were then divided into broad subgroups (congenital anomalies, history of varicocele, secondary hypogonadism, and other causes) and evaluated. The data was analyzed using Chi–square, ANOVA, and Fisher's exact tests as applicable. Compared to men with NOA, men with OA were found to have a significantly higher proportion of sperm in fresh tissue extract (98% vs. 31%), as well as motility in fresh (98% vs. 29%) and frozen–thawed extracts (88% vs. 21%). Men with OA were significantly older than men with NOA (38.3 vs. 34.5). Men with previous vasectomy had significantly better retrieval of viable, motile sperm (100%; 100%), compared to men with varicoceles (56%; 50%), congenital disorders (25%; 25%), or hypogonadism (20%; 15%). Although clear trends, there was no statistical difference in sperm recovery between NOA subgroups. This study can be used to help counsel men about the probable outcome of their TESE based on their pre–operative diagnosis.

POLLEN EXTRACT (CERNILTON) FOR MANAGEMENT OF CHRONIC PROSTATITIS / CHRONIC PELVIC PAIN SYNDROME: A SYSTEMATIC REVIEW AND META-ANALYSIS

G Naderkhani, M Smith, B Akpinar

Background:
Chronic prostatitis / Chronic pelvic pain syndrome (CP/CPPS) is a highly prevalent urological condition with limited therapeutic success. Alternative therapies, such as the herbal-based pollen extract Cernilton, have gained popularity worldwide, leading to an accumulation of data on the therapeutic role of Cernilton for CP/CPPS. This meta-analysis aims to review all randomized placebo-controlled trials reporting on efficacy and safety of pollen extract for CP/CPPS.

Methods:
We searched major international databases: MEDLINE, EMBASE, CINAHL, CENTRAL, AMED, PubMed, the Cochrane Register of Controlled Trials, NIDDK, Google scholar, and major Chinese databases: Chinese National Knowledge Infrastructure (CNKI), Chinese Biomedical Database, CEBM/CCD, PACC, and Evidence-based Traditional Chinese Medicine Database between 1947 and December 17, 2013 without language and study type restrictions. All randomized control trials on CP/CPPS and Cernilton pollen extract, using a standardized outcome measure were included. Two reviewers independently screened the studies for eligibility, evaluated the quality, and extracted data on response to treatment. Standardized mean difference was applied for pooling continuous outcomes and random-effects methods for dichotomous outcomes. We evaluated the quality of eligible studies with Jadad's scale. I-squared plots were used for heterogeneity testing.

Results:
Eight (1550 subjects) of 378 identified studies were eligible for analysis. Compared with placebo, Cernilton pollen extract was associated with statistically significant reduction in total symptom, pain, voiding, and quality-of-life scores with standardized mean differences of -1.0 (95% CI, -1.4 to -0.5), -0.6 (95% CI, -0.7 to-0.5), -0.6 (95% CI, -0.7 to -0.4), and -0.5 (95% CI, -0.6 to -0.4), respectively. Patients on Cernilton pollen extract had a higher chance of favorable response compared to placebo, with pooled RR of 1.6 (95% CI, 1.2-1.8). Combing Cernilton with Vitamin B supplements resulted in the greatest benefit for total symptom score reduction of -6.7 (95% CI, -7.7 to -5.8). Combining Cernilton pollen extract with antibiotics or α-blockers yielded the greatest overall clinical benefit with statistically and clinically significant reductions in all subdomains and total scores of NIH-CPSI. Time analysis indicated significant improvement in efficacy with longer treatment durations. There was a statistically significant placebo effect for all outcomes with a total symptom score improvement of 6.6 (95% CI, 8.8 to 4.3).

Conclusion*:* Cernilton pollen extract appears to be beneficial for some patients with CP/CPPS, however, the greatest magnitude of clinical improvement was achieved when this treatment was combined with Vitamin B supplements, α-blockers, and antibiotics. These results reflect the conventional views on optimal management of CP/CPPS with multimodal therapy rather than mono-therapy. Clinicians and researchers must consider placebo effect, publication bias and quality of study designs in the therapeutic role of this intervention in CP/CPPS.

RETROSPECTIVE REVIEW OF PENILE DOPPLER STUDIES FOR PEYRONIE'S DISEASE TO IDENTIFY INDEPENDENT PREDICTORS OF TREATMENT SUCCESS IN A SINGLE CENTRE

F Garcia, P Violette, G Brock.

Peyronie's disease is an incurable benign condition of the phallus that can cause significant anatomical deformity as well as psychological and relationship consequences. As the condition is heterogeneous in presentation as well as in its management it can be difficult to identify the optimal treatment modality for each individual patient. Multiple treatment modalities exist with varying degrees of basic science and clinical evidence for support. It has been postulated that specific features identified on duplex ultrasound may identify patients likely to respond to different modalities. We further hope to characterize standard radiographic presentations of peyronie's disease such that they me reported reliably in the future for external validation of any relevant data identified. Retrospective chart review of 277 duplex ultrasounds of the penis with vasoactive injection was conducted. All pertinent clinical and radiographic information was reviewed and assimilated by a single reviewer. Inclusion criteria included at least one follow-up appointment after the ultrasound to discuss options. If a patient had multiple ultrasounds the initial duplex was used to collect radiographic information. Treatment selection was a joint decision between clinician and patient and was tracked in the chart review. Whether or not the patient became functional, improved but not functional or no improvement was also recorded. The need for secondary and tertiary interventions due to complications or non-success was identified. Total follow-up was variable ranging from 1-84 months. Statistical analysis was performed using univariate analysis and multivariate regressions. Data will be presented and the implications discussed. In conclusion, this should be considered as an exploratory analysis, and may provide background for further prospective trials.

UROLOGIC MORBIDITY AND ACCESS TO CARE AMONG TRAUMATIC SPINAL CORD INJURED PATIENTS

K-C Tran, B Welk, K Liu, S Shariff

Purpose:
Urologic morbidity is common after a traumatic spinal cord injury (TSCI). The purpose of this study was to assess access to urologic care among traumatic SCI patients in Ontario.

Methods:
Administrative data holdings from Ontario, Canada were used. Records from the Ontario Health Insurance Plan, hospital discharge databases, and the National Rehabilitation System were linked. The primary outcome was urologic consultation, with the primary exposure being year of injury. Measured covariates included lesion level, age, gender, comorbidity burden (Aggregated Diagnosis Groups (ADG)), and socioeconomic status (Ontario marginalization index). Logistic regression models were used to assess for linear trends. A Cox proportional hazards model was used to assess the impact of covariates on urologic consultation among TSCI patients.

Results:
1551 incident TSCI patients who were discharged from a rehabilitation hospital in Ontario between 2002-2012 were identified. The mean followup time of this cohort was 5.3 (SD 2.7) years. Within this cohort, 74% were male, and the mean age was 48 (SD 19) years. 69% of patients (1065/1551) were seen by a urologist a mean of 2 (SD 2.5) years after SCI. Urologic referral was generally initiated by family practitioners (37%), and physiatry (27%).

Over the study period there was no significant linear trend in the proportion of TSCI patients being assessed by a urologist within 1 year (mean 55%, p=0.97) or 2 years (mean 62%, p=0.75) of their initial injury. A Cox proportion hazards model demonstrated that TSCI patients who were female (HR 0.78 compared to males, 95% CI 0.66-0.92) or over 65 years of age (HR 0.70 compared to 19-39 years of age, 95% CI 0.57-0.85) were significantly less likely to be referred to urology. Year of injury, level of TSCI, socioeconomic status, and comorbidity were not significant predictors.

Conclusions:
Urologists are often not involved in the post rehabilitation management of TSCI patients, and this trend has not changed significantly over the last 10 years. Older patients and those who are female, are significantly less likely to be referred to a urologist. Our analysis reveals that family physicians and physiatrists refer the majority of TSCI patients to urologists. As such, education on the various treatment options urologists can offer TSCI patients should be explored with these physicians. Further research into the impact of these practice patterns on patient morbidity is needed to improve urologic care for TSCI patients.

USE OF NOVEL ANTIMICROBIAL COATINGS ON URINARY CATHETERS FOR PREVENTION OF *E. COLI* INFECTION IN A RABBIT MODEL

T Tailly, RA MacPhee, J Koepsel, I Welch, J Dalsin, PA Cadieux, JP Burton, H Razvi

Introduction and Objectives:
Urinary catheters and stents are notoriously prone to catheter-associated urinary tract infections (CAUTI) through biofilm formation and encrustation of the device. In the past decade, several anti-fouling and biofilm coatings have been developed and studied with varying success. Our group has recently derived a silver-based anti-fouling coating polymer composed of polyethylene glycol conjugated with 3,4 -dihydroxyphenylalanine (mPEG-$DOPA_3$). This material has prevented bacterial growth on urinary devices under *in vitro* conditions. The objective of this study was to verify this coating's ability to reduce bacteriuria in a rabbit catheter model after infection with *Escherichia coli*, the most common clinically encountered uropathogen.

Methods:
A total of 36 New Zealand White rabbits were catheterized with 5-Fr urinary catheters and organized into groups of 12 with the following treatments: I) uncoated polyurethane control, II) coating A (mPEG-$DOPA_3$ + 2 mg/mL $AgNO_3$) and III) coating B (mPEG-$DOPA_3$ + 10 mg/mL $AgNO_3$). Rabbits were then inoculated with 10^8 CFU of the uropathogen isolate *E. coli* GR-12 into the bladder via the instilled catheter. Their bacterial loads in urine were monitored for 7 days by dilution plating.

Results:
Throughout the study there was increased bacterial clearance in the rabbits with coated devices compared to the uncoated control group. In the control group, *E. coli* could still be detected in 90% of animals at day 7. In comparison only 40% of rabbits implanted with catheters coated with coating A ($p < 0.05$) and 50% implanted with catheters coated with coating B had *E. coli* detected at this time point. We observed higher encrustation in uninfected versus infected animals ($p < 0.05$) due to the saturated nature of healthy rabbit urine. Mean catheter encrustation was 6.88 mg/cm^2 on coating A and 8.65 mg/cm^2 on coating B, compared with only 3.55 mg/cm^2 on uncoated devices. Tissue histopathology and serum and urine sample cytokine levels are currently being analysed to further investigate the inflammatory response to the catheters..

Conclusions:
The use of a silver-based polyethylene glycol formulation that showed antimicrobial effects *in vitro* was translated to a well-established model for urinary devices. A significant clearance of *E. coli* from urine was observed in rabbits catheterized with catheters coated with our experimental coating A. This coating may be a promising candidate to address the ongoing issues surrounding CAUTI.

THE IMPACT OF PATIENT BMI ON OUTCOMES OF PERCUTANEOUS NEPHROLITHOTOMY

D Mikhail, PD Violette, T Tailly, Y Bao, JD Denstedt, H Razvi

Introduction and Objective:

Obesity is a significant health concern in North America and has been associated with the increasing prevalence of nephrolithiasis. Understanding the clinical implications of BMI for patients who undergo percutaneous nephrolithotomy (PCNL) is important to improving patient care. Our objective was to evaluate the role of BMI on clinically relevant outcomes of PCNL.

Methods:

We extracted data from our institutional PCNL database for 622 consecutive patients for whom BMI was available. Patient demographic, perioperative and 30 day follow-up data were included in analysis. BMI was categorized into four groups: normal weight <25, overweight 25-29.9, obese 30-39.9 and morbidly obese >40. Continuous variables were evaluated with one-way ANOVA and Dunnett's T post-hoc. Chi square was used for categorical variables. Independent predictors of residual stone and incidence of complication were identified with logistic regression. Predictors of hospital stay and operative time were evaluated with linear regression.

Results:

The mean BMI of our cohort was 31 +/- 8 distributed as follows: Normal weight 23.8% (148), Overweight 32.3% (201), Obese 32.6% (203), Very Obese 11.3% (70). On univariable analysis obesity was associated with increased comorbid conditions ($p<0.001$), and Morbidly Obese showed longer operative time 112 +/-47 vs. 97 +/- 36 ($p=0.03$) and trended toward longer hospital stay ($p=0.04$ ANOVA, $p=0.06$ Dunnett). On multivariate analysis, BMI did not predict residual stone, however BMI >30 was associated with increased incidence of complication OR 1.50 (1.03, 2.20) ($p=0.036$). Similarly, BMI>40 predicted increased operative time 15min (5.4, 25.0) ($p=0.002$) and hospital stay 1.3 days (0.3, 1.9) ($p=0.007$).

Conclusions:

Obesity was not found to have a significant impact on incidence of residual stone, but predicted increase incidence of complication, operative time and length of stay independently of patient and operative factors.

A COMPARISON OF OUTCOMES AFTER PERCUTANEOUS NEPHROLITHOTOMY IN CHILDREN AND ADULTS: A MATCHED COHORT STUDY

L Lee, P Violette, L Nott, JD Denstedt, H Razvi

Introduction and Objectives:
Percutaneous nephrolithomy (PCNL) is an appropriate treatment option for children with large and complex stone burdens or genitourinary tract abnormalities. There is a paucity of data regarding outcomes following PCNL in children compared to adults.

Methods:
Data regarding patient characteristics and outcomes for all patients undergoing percutaneous nephrolithotomy at a tertiary care center was collected prospectively from January 1992 to July 2013. Thirty one pediatric patients undergoing 39 PCNLs were identified. Each pediatric PCNL was matched 4:1 to adults PNCL by year of surgery and stone burden characteristics (staghorn, partial staghorn, number of stones). The primary outcome measure was stone free rate at hospital discharge. Secondary outcomes included need for second look nephroscopy , length of hospital stay (LOS) and stone composition. Student-t tests were used for continuous and fishers exact for categorical variables.

Results:
Renal anomalies were found in 25.6% of pediatric patients and 18.6% of adult patients (p=0.1). Four (10.3%) pediatric patients and 3 (1.92%) adult patients presented with ureteropelvic junction obstruction (p=0.03). Adult patients tended to present with calcium stones, compared to pediatric patients (37.7% vs. 14.8%, p=0.004). Pediatric patients tended to present with metabolic stones (58.1% vs. 34.9%, p=0.01). There was no statistically significant difference in rate of infection stones (29.0% vs. 27.1%, for pediatric vs. adult patients respectively, p=0.17). More pediatric patients required a second access tract, compared to adult patients (15.4% vs. 4.52%, p=0.02). No difference was found in stone-free rate at time of hospital discharge (86.1% vs. 86.4%, p=0.2), the need for second look nephroscopy (20.5% vs. 17.3%, p=0.16), or LOS (3.4 vs 3.9, P=.2).

Conclusions:
There is no statistically significant difference in stone-free rate among children compared to adults undergoing PCNL for large and complex stones burdens, affirming its usefulness in this patient population.

PERCUTANEOUS NEPHROLITHOTOMY OUTCOMES IN PATIENTS WITH RENAL ANOMALIES

M Dion, P Violette, T Tailly, J Denstedt, H Razvi

Purpose:
Percutaneous n
ephrolithotomy (PCNL) is the procedure of choice for treating patients with large renal stone burdens. Renal malformations can lead to an increased risk of stone formation, however the use of PCNL in this population is understudied. Our objective was to characterize PCNL in this population and identify predictors of residual stones.

Patients and Methods:
This work is based on a single-center prospective database of 2,284 consecutive PCNL procedures from 1994 to 2012. Patient and stone characteristics, operative data, incidence of residual stone and complications at discharge and 3 months were included. We describe the population and compare patients with renal malformation to those without using univariable statistics. Multivariable analysis was used to identify prognosticators of residual stone, complications, hospital stay and operative time among patients with renal malformations.

Results:
Our cohort had a mean age of 54+/-15 years with a BMI of 30.4 +/- 8.0 and was 44% female. Nineteen percent (n=425) of the cohort was considered to have a renal anomaly. On univariable analysis patients with renal anomalies were more likely to present with urinary tract infection (29% vs 21%, $p<0.001$) and less likely to present with pain (57% vs. 66%, $P<0.001$) or hematuria (16% vs 21%, $p<0.03$). They were also more likely to have medical comorbidities (53% vs 43%, $p<0.001$) but appeared to have similar stone characteristics. On multivariable regression, renal anomaly was predictive of residual stone at discharge, need for secondary procedure, but did not increase the odds of peri-operative complications, and only modestly prolonged operative time and hospital stay.

Conclusion:
Patients with renal anomalies, who undergo PCNL, have a higher risk of residual stones at discharge and need for secondary procedure, but comparable complication rates, operative time and hospital stay

PAST RESIDENTS' DAY GUEST PROFESSORS: 1984 – 2012

2013	Dr. Stephen Nakada
2012	Dr. Lawrence Klotz
2011	Dr. Gerald Andriole
2010	Dr. John Michael Fitzpatrick
2009	Dr. Antoine Khoury
2008	Dr. Margaret Pearle
2007	Dr. Martin Gleave
2006	Dr. Leonard Zinman
2005	Dr. Joseph A. Smith Jr.
2004	Dr. Anthony Atala
2003	Dr. Peter T. Scardino
2002	Dr. Inderbir Gill
2001	Dr. Shlomo Raz
2000	Dr. Donald Lamm
1999	CUA in London, no Residents' Day
1998	Dr. Patrick Walsh
1997	Dr. Joseph Oesterling
1996	Dr. Michael Marberger
1995	Dr. E. Darracott Vaughan
1994	Dr. Martin Resnick
1993	Dr. Andrew Novick
1992	Dr. Howard Winfield
1991	Dr. Moneer Hanna
1990	Dr. Drogo Montague
1989	Dr. Ralph Clayman
1988	Dr. Gerald Sufrin
1987	Dr. Alvaro Morales
1986	Dr. J. Edson Pontes
1985	Dr. Alan Perlmutter
1984	Dr. Alan Bennett

NOTES