Purpose: There are a variety of methods for circumcision, and the sleeve circumcision is popular with the pediatric urologist. A modification of the sleeve circumcision technique that maximally preserves the subcutaneous tissue and minimizes complications is presented.

Methods: Two hundred forty-eight males mean age 4 years (range 1 day to 13 years) underwent primary circumcision (169) or circumcision revision (79). Indications for the operation were phimosis (155), impaired cosmesis (38), refractory penile adhesions (31), chordee (16), recurrent balanitis (15), and penile torsion (5). Twelve of the 248 patients presented with more than one indication for circumcision. A modification of the sleeve circumcision technique was used such that the sleeve of prepuce being removed was de-epithelialized leaving the subdermal tissue as intact as possible. This is similar to the dissection used for the Durham-Smith de-epithelialized skin flap for hypospadias. The skin of the distal shaft was anastomosed to the subcoronal skin with chromic catgut suture. Blood loss was minimal to nil, staying in the proper plane of the de-epithelialized skin flap. In general, only minimal use of the bipolar electrocautery was necessary. Antibacterial ointment was applied without a formal dressing. Patients were seen within several weeks of their procedure, and thereafter only for urologic problems unassociated with their condition.

Results: All patients had excellent cosmesis. There were 2 cases of transient bleeding which resolved spontaneously. There was 1 case of penile adhesions which were lysed once without recurrence. No patient required revision surgery. Mean follow-up was 3 months.

Conclusion: The modified sleeve circumcision using Durham-Smith de-epithelialized skin flaps and maximal preservation of blood supply results in excellent cosmesis and minimizes complications. Advantages of this technique include removing an exact amount of skin and epithelium, and the ability to adjust this amount at any point along the circumference of the penis. The blood supply to the foreskin is preserved, and an excellent cosmetic result is apparent at the end of the procedure. We have adapted this form of prepuce removal for all of our patients undergoing penile surgery.
OPTICAL MONITORING OF TESTICULAR HEMODYNAMICS IN AN ANIMAL MODEL OF TESTICULAR TORSION

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Introduction: Testicular torsion is a time sensitive urologic emergency. Prompt diagnosis and treatment is essential. Currently Doppler ultrasound is the first line diagnostic modality. This test requires expertise in performance and interpretation, especially in pediatric cases. It may not be readily available in smaller centers, thus delaying surgical care. Therefore a non-invasive, easy to perform diagnostic test would be ideal.

In this study a rat model was used to examine the feasibility and accuracy of a spatially-resolved near infrared spectroscopy (SR-NIRS) with a custom-made miniaturized probe to detect and evaluate changes in testicular hemodynamics and oxygenation during three grades of torsion followed by detorsion.

Methods: Eight anesthetized rats (sixteen testes) were studied using the miniaturized NIRS probe applied directly on the surgically exposed testis during 360, 720 and 1080 degrees of torsion each for 5 minutes followed by detorsion. Oxygenated, deoxygenated and total hemoglobin as well as tissue oxygen saturation were studied pre and post manipulations.

Results: NIRS monitoring accurately detects acute testicular ischemia and hypoxia upon inducing torsion episodes, and tissue reperfusion-reoxygenation after detorsion. In all cases a sinusal change in NIRS signals was observed before torsion episodes. The signals disappeared after first 360 degrees of torsion and didn’t appear after detorsion. (figure 1)

Conclusions: This animal study indicates that SR-NIRS monitoring of the testes with a miniaturized sensor is a feasible and accurate method to detect testicular ischemia and hypoxia immediately after torsion and testicular reperfusion following detorsion. The findings will be used to design a human study.

Fig.1: Changes in Oxygenated Deoxygenated Total Hemoglobin
NOT ALL COMPLICATIONS ARE CREATED EQUAL: A LOOK AT THE BUTTONHOLE FLAP REPAIR TECHNIQUE FOR STAGED HYPOSPADIAS RECONSTRUCTION

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(Presentation to be made by Hamed Ahmadi)

**Purpose:** Honesty in hypospadias reporting in the recent literature has revealed the high complication rates of over 50% associated with repair of severe hypospadias. While some complications require extensive revision and high secondary failure rates others are seen more as a tune-up to an expected problem. Here, we describe an alternative technique for staged hypospadias repair using a tunneled preputial flap with primary glans closure and evaluate related complications.

**Materials and methods:** We performed a retrospective analysis examining all patients who underwent staged hypospadias repair using this technique between July 2009 and September 2015. The technique involves primary correction of chordee with urethral plate division and primary glans closure with button hole transfer of prepuce to the ventrum in the first stage. During the second stage the ventral prepuce is tabularized and then tunneled through the glans to an orthotopic location on its native pedicle.

**Results:** A total of 17 patients with median age of 14 months old (range, 7 months old–4.6 years old) and median follow up of 2.6 years (range, 0.7–5.3) were included. Complication was seen in 9/17 (53%) patients: Urethrocutaneous fistula (n=4), urethral diverticulum (n=4), urethral stricture (n=2), and meatal stenosis (n=2). All patients had orthotopic glandular meatus and no patient had recurrent curvature or glans dehiscence.

**Conclusion:** Despite similar complication rates to contemporary series of two-stage hypospadias graft and byars flap repair, the tunneled preputial button hole flap reconstruction was associated with complications easily managed through simple operation and it offers an acceptable alternative to graft repair with preserved blood flow, technical simplicity, and no associated harvest site morbidity. The challenging to repair complications of glandular dehiscence, significant urethral stricture, and recurrent chordee are completely avoided using this technique.

**Source of Funding:** None
MANAGEMENT OF ENLARGING ANGIOMYOLIPOMAS IN TUBEROUS SCLEROSIS PATIENTS ON EVEROLIMUS

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(Presentation to be made by Dr. Catherine Chen)

Background: Tuberous sclerosis is a rare hereditary disorder caused by the decrease or loss of expression of the TSC1 or TSC2 tumor suppressor gene, with resulting increase in activation of mTOR pathway. Clinically, tuberous sclerosis is characterized by the growth of hamartomas in the kidney, skin, liver, and brain. Renal angiomyolipomas (AMLs) occur in up to 60% of patients with tuberous sclerosis. The risk of hemorrhage from AMLs increases with tumors larger than 4 centimeters. Elective AML treatment includes arterial embolization, ablation or nephron-sparing excision, if possible. Everolimus, an mTOR inhibitor, is also FDA approved to reduce angiomyolipoma size in patients with tuberous sclerosis.

Method: Two female patients with tuberous sclerosis were referred to our clinic for evaluation of multiple bilateral AMLs. Both had been on Everolimus for several years for management of their renal lesions. While most of their lesions responded by decreasing in size, each patient had one AML that increased in size to over 4 centimeters. Each patient underwent several unsuccessful embolizations at an outside facility. Thus, they went to the operating room for robotic assisted partial nephrectomy.

Results: In patient 1, a total of 12 tumors were excised with the largest measuring almost 5 centimeters. There were no intraoperative or postoperative complications and there was minimal bleeding with the enucleations. The procedure was done without hilar clamping with a total operative time of 3 hours and total robot console time of 2.5 hours. Her hemoglobin nadir was 10.2 g/dL from a preoperative value of 11.7 g/dL. Postoperatively her creatinine was stable at 0.6 mg/dL. She was discharged home on postoperative day two.

In patient 2, a total of 5 tumors were excised with the largest measuring almost 6 centimeters. This AML was very endophytic, abutting the ureter, renal pelvis, and renal vein, which had to be carefully dissected off the mass. Given the proximity of this tumor to the hilum, hilar clamping was elected for a total of 17 minutes and 2 seconds. However, once again, we noticed that there was minimal bleeding from the AML. Postoperatively, her creatinine remained stable at 0.9. She was discharged home on postoperative day four.

Conclusions: Robotic partial nephrectomy is a feasible, safe, and effective option for managing enlarging AMLs in patients with tuberous sclerosis who wish to preserve renal function while pursuing surgical management. We hypothesize that prior treatment with Everolimus may have been responsible for the lack of vascularity noted in these lesions and minimal bleeding during surgery. Further studies are necessary to determine bleeding risk of angiomyolipomas exposed to Everolimus.
Introduction: Shared decision making (SDM) is defined as “a collaborative approach to care that seeks to improve the quality of medical decisions by helping patients choose options concordant with their values and in accordance with the best available scientific evidence”. This approach is crucial for patients with complex congenital conditions such as disorders of sexual development for which the timing and nature of surgery is controversial as well as for those with cloacal anomalies and neurogenic bladder which often require complex life altering surgical reconstruction. The goal of this study was to develop and implement a SDM process to assist in guiding treatment for patients with complex congenital urologic conditions.

Methods: Decision aids were created for complex congenital diagnoses where there are multiple treatment options or controversy regarding type and timing of treatment. The aids were created by collaboration between pediatric urology, surgery, and endocrinology as well as patient advocacy groups and affected individuals. The goal of the aids is to educate the patient and family about his/her diagnosis, introduce important aspects of life and health that will be affected by the diagnosis, provide a list of questions to ask, and to facilitate an informed discussion of the various management options.

Results: Decision aids were created for following scenarios: gonadal management in complete androgen insensitivity disorder (CAIS), neurogenic incontinence, vaginal agenesis, hypospadias, and congenital adrenal hypoplasia. Each tool allows providers to explain the process of care and develop a plan for delivery of that care. Coordinated clinic visits between multiple providers (surgery, urology, endocrinology) involved in the care of a complex patient have also been implemented to assist in the SDM process. It is expected that the SDM process will take multiple visits before a patient and their family may decide on the appropriate course of treatment. Long term this process will be studied using patient satisfaction scales and decisional regret tools.

Conclusions: A shared decision making process with tailored decisional aids will assist with essential discussions that must be had with patients and their families prior to any irreversible surgical procedures for complex congenital conditions. The coordinated clinic visits between all providers on the care team and the use of organized decisional aids will facilitate trust in the providers and relieve stress for the patient and family as well as ensure informed consent for treatment decisions.

Source of Funding: None
Development of a Patient-Centered Ultrasound Report for Pediatric Urology

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(Presentation to be made by Dr. Dy)

Introduction: Hydronephrosis (HN) is the most commonly detected abnormality on prenatal ultrasound (US). This diagnosis may be a source of parental anxiety, further complicated by use of complex terminology in radiology reports. We developed and piloted a patient-centered radiology report (PCRR) for renal US’s targeting children with HN.

Methods: Using a modified Delphi approach, we obtained consensus from a multidisciplinary group of pediatric nephrologists, urologists, radiologists, obstetricians and pediatricians to determine the most critical components of an US report with regards to HN. Patient focus groups reviewed these components and provided input on syntax and formatting to draft a PCRR for pilot evaluation. We prospectively recruited parents of children who underwent US for HN from January - June 2016, and block randomized patients to receive either the PCRR + standard report (SR) or SR alone. Web-based surveys assessed parental self-efficacy with PEPPi (Perceived Efficacy in Patient-Physician Interactions) and knowledge of the US findings based on report elements prioritized by our expert panel. We compared results between study groups using chi-squared analyses.

Results: The 17-clinician expert panel prioritized HN severity, presence of bilaterality, evidence of parenchymal thinning, and change in renal size over time. Parents preferred narrative explanation of the US report elements, bullet-point format, and graphical representations. Our pilot included 18 SR patients and 22 PCRR patients. There was no difference in demographic characteristics between groups, prior urologic surgeries (p=0.45), or HN severity (p=0.47). PEPPi scores were similar and uniformly high in both groups (p=0.79). PCRR patients more accurately reported bladder pathology (95% vs. 72%; p=0.04), and trended towards increased accuracy in identifying severity (55% vs. 28%; p=0.09), laterality (64% vs. 44%; p=0.22) and parenchymal pathology (77% vs. 72%; p=0.70). Parents were more confident in their ability to understand the PCRR than the SR (86% vs. 56%; p=0.03).

Conclusions: A PCRR for renal US can improve parental knowledge of important findings and increase parental confidence in study understanding. These findings justify a larger effectiveness study of PCRRs for patients and families with hydronephrosis.
UROLOGIC MANIFESTATIONS OF MITOCHONDRIAL DISEASE

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(Presentation to be made by Dr. Saum Ghodoussipour)

Introduction: Once considered one of the rarest of disorders, Mitochondrial Disease is now one of the most common inborn errors of metabolism. The complexity of inheritance and respiratory chain subcomplex regulation yields extremely heterogeneous manifestations and clinical phenotypes.

Methods: Several reviews have outlined the multisystem manifestations of Mitochondrial Disease, yet the Urologic manifestations have not been described. Our institution serves as a large referral center for Mitochondrial Disease. As the incidence of this disease rises, so too does referral to the Urology department. With this review, we hope to shed light on the Urologic presentation of Mitochondrial Disease.

Results: Five patients with Mitochondrial Disease are actively followed at our institution; ages 3 to 13 years. All patients were referred for an atonic bladder with recurrent urinary tract infections. Common diagnoses at the time of referral included GI dysmotility, endocrinopathy, and seizure disorder. The diagnosis of detrusor dysfunction was made with imaging and clinical correlation. All patients had VCUG showing a large capacity smooth walled bladder without reflux. Management varied from timed voiding to CIC and successful surgical diversion in 3 patients. Two patients underwent Mitrofanoff appendicovesicostomy and one Yang-Monti ileovesicostomy. One patient did require bilateral PCNT placement for recurrent infections with urolithiasis and ureteral obstruction.

Conclusion: Review of patients with Mitochondrial Disease at our institution shows a classic presentation of urosepsis with detrusor dysfunction. The etiology of detrusor dysfunction in these patients is not entirely clear. In patients with Mitochondrial Disease and gastrointestinal pseudo-obstruction, a visceral myopathy with atrophic and fibrotic longitudinal smooth muscle cells has been described (Gillis et al. Gastroenterol Clin N Am 2003; 32: 789-817).

Our patients have been managed effectively with surgery. Recurrent infections are addressed with antibiotic suppression and careful attention to the underlying metabolic disorder. As the diagnosis and treatment of Mitochondrial Disease progresses, Urologists are sure to see an increasing number of patients. This review outlines the common Urologic manifestations so that treatment options may be streamlined in the future.
Variation in the Use of Laparoscopy With Inguinal Hernia Repairs in a Sample of Pediatric Patients at Children’s Hospitals

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Introduction and Objective: Metachronous contralateral inguinal hernias (IH) are known to occur in up to 10% of unilateral IH repairs. Laparoscopic evaluation of the contralateral internal ring has been described as a method of identifying high risk individuals for prophylactic contralateral exploration and repair. The use of this modality and associated costs are not currently known. The purpose of this study was to examine the current use and costs associated with various types of IH repairs in a sample of pediatric patients treated at U.S. children’s hospitals.

Methods: We queried the PHIS database to identify outpatient surgical encounters for pediatric patients with a diagnosis of IH during a one-year period (2014). Using a combination of ICD-9 diagnosis/procedure and CPT codes we identified patients undergoing unilateral and bilateral IH repairs, with and without diagnostic laparoscopy. Patients undergoing multiple procedures and hospitals with identified data quality issues were excluded. Comparisons were made using Chi-square.

Results: After exclusions there were 4,016 IH repairs performed at 30 hospitals, median age 4 years (IQR 1-7), 78.9% male, 65.1% Caucasian. Three-quarters (76.5%) had unilateral repairs (UH), 8.8% had unilateral repairs with laparoscopy (UHL), 12.2% had bilateral repairs (BH), and 2.4% had bilateral with laparoscopy (BHL). Seventy-eight percent of laparoscopy was used in unilateral cases, and 22% in bilateral cases. Laparoscopy was more likely to be performed by Pediatric Surgeons than Urologists (13.8% vs 4.9% of cases; p<0.001). The percent of patients undergoing laparoscopy varied from 0 to 57% among hospitals, and 0 to 100% among surgeons.

Median adjusted costs were $2,307 (IQR 1,664-2,958) for UH, $2,704 (IQR 1,896-3,394) for UHL, $2,755 (IQR 2,232-3,407) for BH, and $2,811 (IQR 2,234-3,449) for BHL. Median costs varied over three fold among hospitals ($1,310-$4,434), and over five fold among surgeons ($950-$5,040).

Conclusions: Variation exists in the use of laparoscopy during inguinal hernia repairs and associated costs within our sample from U.S. children’s hospitals. The additional cost of laparoscopic evaluation must be considered against the clinical utility of identifying individuals with a higher risk of metachronous contralateral inguinal hernia.
Introduction: Debris within the bladder is commonly seen on ultrasound and its presence or absence is often reported by radiologists. The etiology of bladder debris is varied and includes urinary tract infection (UTI). The likelihood that urinary debris represents a UTI is not defined, thus limiting the usefulness of this finding. We hypothesize that bladder debris will increase the likelihood that a UTI is present compared to those without bladder debris.

Methods: We tested our hypothesis with a retrospective review performed on children age 0 to 17 years who had a VCUG with a catheterized urinalysis or urine culture performed on the same day, and who also had a renal and bladder ultrasound up to 1 week prior, the day of, or up to 2 days after their urine studies. Positive UTI was defined as either a single bacterial strain ≥50,000 cfu/mL, or culture-positive bacteriuria with nitrites and/or pyuria on their catheterized urine specimen. Presence of bladder debris was reliably documented on ultrasound reports, including a subjective determination of the bladder debris severity. Baseline demographic information, including findings of reflux were compared. Sensitivity, specificity, and risk ratios were calculated in usual fashion for predicting UTI in patients with urinary debris on ultrasound.

Results: A total of 445 patients met inclusion criteria between January and December 2014. The overall UTI rate was 20%, and the overall rate of bladder debris was 22% for the population. Median age for those with and without bladder debris was 6.6 years and 5.5 years, respectively (p=0.02). 23% of girls had bladder debris, compared to 12% of boys (p=0.04). The sensitivity and specificity for bladder debris in detecting UTI was 52% and 86%, respectively. 47% of those with bladder debris were infected, compared to 12% of those without bladder debris (p<0.01). The relative risk of infection if debris is present is 3.90 (95% CI: 2.73-5.55). Only minor differences were observed comparing the subjective assessment of bladder debris severity (mild, moderate, or severe).

Conclusions: Nearly half of pediatric patients undergoing urological evaluation and found to have bladder debris on ultrasound will have a UTI. Debris is noted more commonly in girls and at a slightly higher age. The presence of debris increases the risk of UTI by nearly 4-fold, regardless of debris severity. Given this, it is of value for radiologists to routinely document the presence of any amount of bladder debris seen on ultrasound, as this finding can be used to augment clinical decision-making and warrants strong consideration for obtaining urine culture.

Source of funding: None
USE OF 3D RECONSTRUCTION CLOACAGRAMS AND 3D PRINTING IN CLOACAL MALFORMATIONS

Introduction: Cloacal anomalies are rare and require complex inter-disciplinary care. Anatomic findings such as length of common channel, Mullerian structure development, and bladder size are essential in operative planning and family counseling regarding long-term bowel, bladder, and sexual function. We present our experience with the use of 3-dimensional (3D) reconstruction cloacagrams and 3D printing for patients with cloacal and urogenital sinus anomalies.

Methods: A retrospective review of all patients undergoing 3D cloacagram for cloacal and urogenital sinus anomalies was performed. Each patient also underwent cystoscopy, vaginoscopy, and exam under anesthesia. Intra-operative measurements and findings were compared to measurements from the cloacagrams.

3D Cloacagram protocol: 6Fr or 8Fr foley catheters were placed into the mucus fistula, bladder, and vagina. Catheter balloons were inflated and lead BB markers were placed at the anticipated location of the anus and at the cloacal orifice. Catheters were instilled with iothalamate meglumine (Cysto-Conray II) under intermittent fluoroscopic observation to obtain maximal distention. The catheters were then clamped, and cone beam CT imaging (XperCT) of the pelvis was performed. Images were reconstructed to produce multiplanar and volume-rendered reformations. Measurements were performed of the common channel length, common channel to bladder, and distal colon to anus. Contrast was aspirated and catheters removed.

Results: Five patients underwent both endoscopy and 3D cloacagram, with four patients having both procedures done under the same anesthetic. Patient characteristics, intraoperative measurements, and cloacagram findings are shown in Table 1. Representative cloacagram images are seen in Figures 1-2. Figure 3 illustrates a 3D model printed from patient 3’s cloacagram; the 3D model was used for family education and surgical planning.

Conclusion: 3D cloacagrams provide measurements similar to endoscopic findings, and anatomic details which are helpful in preoperative planning. It also provides a platform for 3D printed models, which can be used for surgical simulation, as well as patient and trainee education.
IMPACT OF TUMOR LOCATION ON SURVIVAL IN PATIENTS WITH URINARY BLADDER ADENOCARCINOMA

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Orange County, California, New York, New York, Dallas, Texas
(Presentation to be made by Mr. Rahul Dutta)

OBJECTIVES: To investigate the prognostic significance of tumor location on survival outcomes in patients with urinary bladder adenocarcinoma (BAC).

METHODS: We retrospectively analyzed cases of BAC with known tumor location from the Surveillance, Epidemiology, and End Results (SEER) database from 1973-2012. Data regarding patient demographics, tumor characteristics, oncologic and survival outcomes were collected. Patients were subgrouped according tumor location into urachal/dome (dome, urachus; UD), lateral wall (anterior, posterior, and lateral bladder walls; LW), and base (trigone, ureteral orifices, and bladder neck; BL).

RESULTS: A total of 1,361 cases of BAC with known tumor location were identified. More UD tumors were low grade (grade I and II; 51%) than LW (33%) and BL (43%) tumors (p<0.0001). UD lesions were the most likely to have metastatic spread (23% vs. 17% for LW and 15% for BL) (p<0.0001). Five-year overall survival (OS) and disease-specific survival (DSS) were 37.3% and 49.0%, respectively, for all BAC. Five-year OS was 42.3%, 35.9%, and 28.4% for UD, LW, and BL lesions, respectively (p<0.0001), while five-year DSS was 50.2%, 51.7%, and 42.1% for UD, LW, and BL lesions, respectively (p=0.0097). Gender, tumor location, grade and stage were predictors for survival outcome on univariate analysis. Multivariate Cox Regression analysis controlling for tumor stage and grade demonstrated that both tumors of the LW (HR=1.52 for OS, 1.30 for DSS) and BL (HR=1.71 for OS, 1.57 for DSS) conferred a worse prognosis relative to those of the UD (p<0.05).

CONCLUSIONS: Tumor location of bladder adenocarcinoma is an independent prognostic factor for disease outcome. Our results suggest that the urachal and dome locations are associated with relatively favorable survival and oncologic outcomes, while basal location confers poorer outcomes.

Table 1: Multivariate Cox Regression survival analyses (5-year) based on tumor stage, grade, and location.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Disease-Specific Survival Hazards Ratio (95% Confidence Interval)</th>
<th>p-value</th>
<th>Overall Survival Hazards Ratio (95% Confidence Interval)</th>
<th>p-value</th>
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<td>Male</td>
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<td>Female</td>
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<td>Low</td>
<td>Reference</td>
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<td>High</td>
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<td>1.81 (1.49-2.21)</td>
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<td>Regional</td>
<td>1.85 (1.48-2.34)</td>
<td>&lt;0.0001</td>
<td>2.39 (1.78-3.25)</td>
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<td>Distant</td>
<td>5.84 (4.52-7.59)</td>
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<td>8.83 (6.42-12.31)</td>
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<tr>
<td>Urachus/Dome</td>
<td>Reference</td>
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<td>Lateral Wall</td>
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TREATMENT OF URETHRAL STRICTURE DISEASE WITH DIRECT VISION INTERNAL URETHROTOMY AND PENTOXIFYLLINE INJECTION

Piyush Pathak*, BS; Sara Lenherr, MD, MS; James M. Hotaling, MD, M.S; William O. Brant, MD; Jeremy B Myers, MD: Salt Lake City, UT

(Presentation to be made by Piyush Pathak)

Introduction: Urethral stricture disease can lead to significant morbidity and poor quality of life. Direct vision internal urethrotomy (DVIU) is the most common management of urethral strictures, but long term success rates are low, with estimates ranging from 30% to less than 10% success. Pentoxifylline (PTX) is a non-specific phosphodiesterase inhibitor with anti-inflammatory properties that has been used to decrease inflammation and fibrosis in kidney transplant patients, open heart surgery, dermatological conditions, and Peyronie’s disease. To our knowledge, PTX injection during DVIU for management of urethral stricture has not been previously described. We present short term outcomes in a retrospective case series toward the goal of providing new management insights for this challenging disease.

Methods: We reviewed the records of men who underwent DVIU with PTX injection in a one year period from October 2014 to October 2015 from a single institution and treating surgeon. Data gathered included patient demographics, past medical and surgical history, etiology of stricture, location and size of stricture, and postoperative outcomes. 30 mg PTX was administered into the strictured segment prior to DVIU. Cystoscopic follow up findings were recorded where available, and patients were contacted via telephone for a questionnaire including pre- and post-operative urinary flow rate (subjective scale 1-10), symptoms, and overall satisfaction. Descriptive statistics were used for analysis of results.

Results: A total of 9 patients met our criteria, with mean age and BMI of 36 years old (SD± 17, range 18-69) and 27 kg/m$^2$ (SD± 5, range 19-33), respectively. Etiology of stricture disease was idiopathic in 6 patients (67%), with 1 patient (11%) each with stricture disease due to trauma, infection, and prostate surgery. Three patients (33%) had prior DVIU performed, and 3 (33%) had prior urethroplasty. Mean stricture length was 1.4 cm (SD± .7, range .75-2), and 4 patients (44%) each had strictures in the proximal and mid bulb urethra, respectively; the remaining patient had a mid-prostatic urethral stricture. Patients were followed postoperatively for an average of 11 months (SD± 3, range 7-17), and postoperative cystoscopic data was available for 4 patients. The mean follow up of patients with cystoscopic data was 9 months (SD± 6, range 0-15). Three of these patients (60%) showed significant re-stenosis, though notably 2 of these patients reported stable symptoms without need for re-intervention. The remaining patient had a patent urethra 8 months after DVIU. 4 of the 5 patients without cystoscopic records were contacted and 3 reported reported satisfaction with post-operative results and improvement in urinary quality of life (QoL), and one reported being somewhat satisfied. There were no adverse events associated with this treatment.

Conclusions: It is unclear if PTX will improve DVIU outcomes and maturation and expansion of this study is needed.

Source of Funding: None
RETROSPECTIVE COHORT ANALYSIS OF INPATIENT URINARY CATHETER REINSERTION PATTERNS AMONG 16,766 PATIENTS: A MISSED OPPORTUNITY TO REDUCE CATHETER-ACQUIRED URINARY TRACT INFECTIONS?

Helena C. Chang, MD, Edward Charles Osterberg, MD, Laurel Gibbs*, Amy Nichols*, RN, Jennifer Creasman*, MSPH, Benjamin Breyer, MD: San Francisco, CA

(Presentation to be made by Dr. Helena Chang)

Introduction: Eliminating inpatient catheter-associated urinary tract infections (CAUTIs) is critical to reducing hospital-acquired infections. Unnecessary urinary catheter (UC) reinsertions among inpatients is a potential target for minimizing duration of catheter use and thereby CAUTIs. Voiding trials may be underutilized among inpatients undergoing catheter reinsertion. This is the first study to characterize the patterns of urinary catheter reinsertion and timing of catheter replacement among inpatients at a tertiary academic institution.

Methods: This is a retrospective cohort study of all inpatients with a new urinary catheter placement during hospitalization at single academic medical center. All adult inpatients with a UC placed during their admission between January 2014 and December 2015 were included. Patients who had a UC upon admission and pediatric inpatients were excluded. Reinserted catheters are defined as UCs that were placed within three days of a previous catheter removal. Urinary catheters that were removed and replaced after 25 days were considered appropriate replacements for chronic indwelling urinary catheters. Data analysis was performed with STATA (Version 12, College Station, TX) using descriptive statistics, the Wilcoxon rank sum test, and Spearman correlations.

Results: A total of 16,766 inpatients were admitted to the hospital without a urethral catheter and had a catheter placed during their hospitalization, spanning 18,612 separate hospitalizations. In these patients, 21,118 urethral catheters were placed. Of these, 4,562 (21.6%) were reinserted catheters. 1660 (36.4%) of reinserted catheters replaced catheters that had been in for over 25 days and 2902 (63.6%) replaced catheters that had been in for 25 days or less. For reinserted catheters, the median time from removal to new catheter placement was 2 hours (interquartile range 1-4 hours). Of the urinary catheters that are reinserted, 3717 (81.5%) were reinserted within 4 hours. A Wilcoxon-Mann-Whitney test found that time from catheter removal to new catheter placement was higher for men (median=2, IQ range 1-4) than for women (median=2, IQ range 1-3), p<0.001. The time to reinsertion is also significantly longer on a nonsurgical service (p<0.001). Female patients were more likely than men to have a catheter replaced in under 4 hours (p<0.002). Catheter replacement within 4 hours was not associated with length of stay (p<0.201) or age (p<0.407)

Conclusion: Urinary catheter reinsertions may represent a missed opportunity for reducing CAUTIs in the hospital. Inpatient catheter reinsertions are common, representing over 20% of all UCs placed in the hospital, and, of these, over 80% have their urinary catheters replaced within 4 hours, which precludes an adequate voiding trial. Delaying catheter replacement after removal would help identify patients who would successfully void on their own, reducing inpatient urinary catheter use and CAUTIs. Further analysis of UC reinsertion data with clinical and microbial culture data is ongoing to understand if the reinserted catheters are clinically indicated and to assess the risk of CAUTIs among inpatients undergoing UC reinsertion.

Source of funding: California Urology Foundation Grant, Alafi Foundation
FEMALE CYSTECTOMY WITH ORTHOTOPIC URINARY DIVERSION – IS FEAR OF URETHRAL RECURRENCE JUSTIFIED?
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(Presentation to be made by Dr. Cory Hugen)

Introduction: Orthotopic urinary diversion following radical cystectomy is performed significantly less frequently in female patients compared with males. Reasons for this disparity are likely related to functional outcomes as well as fear of local urethral recurrences. We present our long-term oncologic outcomes in women with orthotopic urinary diversion.

Methods: We reviewed our institutional cystectomy database to identify all female patients who underwent radical cystectomy with orthotopic urinary diversion for primary bladder cancer with curative intent from 1990-2011 with a minimum of 3 year follow-up. Demographic, pathologic, complication, and outcome data were compiled and statistical analyses were performed.

Results: From 1990-2011 a total of 191 women underwent radical cystectomy with orthotopic neobladder for bladder cancer with curative intent. Outcome data are shown in Table 1. The 30 and 90-day complication rates were 37.2 and 44.0%, respectively. The 30-day operative mortality rate was 1.6%. On multivariate logistic regression, only age was associated with 30-day (p<0.028) and 90-day (p<0.020) complication rates. There were 5 patients (2.6%) with positive urethral margins on final pathology of which 1 was also positive on frozen section. There was one single case of urethral recurrence in a patient who did not have a positive urethral margin. There was no association between primary tumor location (trigone, bladder neck, urethra) and the location of recurrence (distant vs local). The 5-year recurrence free and overall survival rates were 62.3 and 60.7%, respectively. Median overall survival was 9.4 years.

Conclusions: Radical Cystectomy with orthotopic urinary diversion can be performed safely with pathologic, survival, and recurrence rates similar to those in large published series of predominantly male patients. Urethral recurrence remains a rare event with long-term follow-up. Female patients with negative intraoperative urethral margin are candidates for orthotopic diversion.

Source of Funding: None
OUTCOMES OF METASTATIC BLADDER CANCER FOLLOWING RADICAL CYSTECTOMY

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(Presentation to be made by Dr. Cory Hugen)

Introduction: Metastatic Urothelial Cell Carcinoma (UCC) of the bladder is a highly lethal disease with poor long-term survival. We reviewed the USC experience in patients with pathologic M+ disease following radical cystectomy.

Methods: We performed a retrospective review of all patients at USC undergoing planned radical cystectomy from 1971-2014 using the USC bladder cancer database. We identified all M+ patients and performed COX regression and Kaplan-Meier survival analyses.

Results: We identified 88 patients with M+ disease of whom 6 patients were inoperable and 12 patients underwent surgery for symptomatic palliation. Fifty-four patients were staged M1 secondary to distant lymph node metastasis while liver, lung, retroperitoneal, and bone metastases were found in 18, 12, 12, and 8 patients, respectively. Thirty-two patients underwent neoadjuvant chemotherapy while 24 were adjuvantly treated. Additionally, 18 patients underwent neoadjuvant radiation therapy while 7 were treated adjuvantly. A neobladder was performed in 25 (28%) patients, 17 (19%) received a continent cutaneous diversion, and 40 (45%) an ileal conduit.

The median overall survival of the entire cohort was 130 days. When stratifying by adjuvant chemotherapy, the median survival was 332 days for recipients versus 102 days for non-recipients. In both groups, only 7 patients survived >1 year. The median survival for palliative cases was 59 days. On multivariate regression analysis, continent cutaneous diversion (HR 1.7, 95% CI 1.001-2.895, p=0.0495) and positive margins (HR 1.658, 95% CI 1.023-2.685, p=0.04) were associated with worse overall survival while neoadjuvant chemotherapy (HR 0.592, 95% CI 0.35-1.00 p=0.05) and adjuvant chemotherapy (HR 0.197, 95% CI 0.106-0.368, p=<<0.001) were associated with improved survival.

Conclusions: Metastatic UCC of the bladder is highly lethal with dismal survival rates. Our experience demonstrates that surgery has a very limited role and should likely be reserved for symptomatic palliation. Early involvement with hospice care could improve quality-of-life and should be considered.

Source of Funding: None
THE VISIBILITY OF BLADDER FIDUCIAL MARKERS WITH MULTIPARAMETRIC MRI: A VALUABLE ADJUNCT FOR IMAGE-GUIDED BLADDER CANCER RADIOTHERAPY DURING BLADDER-SPARING MULTI-MODAL TREATMENT

*Presentation to be made by: Dr. Maurice Garcia

Introduction: Bladder preserving multi-modal therapy for treatment of muscle invasive bladder cancer is a therapeutic option for carefully-selected patients with muscle-invasive bladder cancer (MIBC). We have previously described use of 24-K gold bladder fiducial markers to outline the site of tumor resection for high-dose image guided radiotherapy. Multiparametric MRI (mp-MRI) offers promising data that suggests it may non-invasively detect occult bladder cancer before and after cystectomy and/or multimodal therapy.

To date, whether or not 24-K gold fiducial markers inside the bladder are visible on MRI has not been described.

We describe visibility of these markers with mp-MRI using a bladder phantom and with human imaging studies.

Methods: We fabricated an agar-based bladder phantom to mimicking human bladder tissue, to approximate the T1(~1000 ms) and T2(~60 ms) properties of the bladder. Within the walls of our hollow phantom we deployed our 24-K gold bladder fiducial markers. The phantom was imaged with a variety of MRI sequences using a 3-Tesla clinical scanner (Skyra, Siemens). Protocols were designed to overcome various possible constraints- motion artifact, resolution at tissue margins and aqueous interfaces, and use of contrast, while optimizing visibility of the markers. In total three sequence types (T1-weighted, T2-weighted & a Dante-Space sequence), and 2D images were acquired with varying image orientation and spatial resolution. In addition, MRI images of 3 patients who had previously undergone bladder fiducial marker placement were analyzed.

Results: Results demonstrate robust visualization of the fiducial markers on both T1 and T2 weighted mp-MRI, with high contrast on high resolution permitting localization in 3D space. All markers placed into each patient were distinct and clearly visualized. We present images and MRI sequence data.

Conclusions: Our novel 24-K fiducial markers are well visualized on multiparametric MRI. The combined use of our fiducial markers with mp-MRI will, for the first time, allow a robust means by which to validate the sensitivity and specificity of mp-MRI to non-invasively detect occult bladder cancer – both before and after treatment of MIBC with cystectomy (to assist with treatment decision making), and, with bladder-preserving multi-modal therapy.

Source of Funding: NIH / NCI
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GENDER DISPARITY IN PERIOPERATIVE OUTCOMES AFTER PELVIC EXENTERATION
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(Presentation to be made by Dr. Lam)

Purpose: Urologists are oftentimes involved in pelvic exenteration (PEx) for a variety of locally invasive malignancies, including urologic and colorectal cancers. Though PEx has become increasingly accepted therapy for these diseases, safety and outcome data available thus far are limited, and have largely been based on small single-center studies. Moreover, there is currently no data available comparing PEx in males versus females – in some ways two different surgeries. Here we compared perioperative outcomes data among genders across a large multi-institutional database.

Methods: Using the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database, we captured all patients undergoing exenteration for urologic or colorectal malignancy from 2005-2014, and compared perioperative outcomes between males and females. Primary outcome was post-operative mortality. Secondary outcomes included incidence of unplanned re-operation, perioperative blood transfusion, and 30-day hospital readmission. Multivariate logistic regression was used to adjust for confounding variables such as age, ASA physical status, diabetes, and type of malignancy.

Results: A total of 1,313 patients underwent pelvic exenteration, of which 730 (55.6%) were women, and 583 (44.4%) were men. Overall mortality was 2.1%, with men experiencing greater mortality than women (2.9% vs 1.5%, p ≤ 0.05). Men also experienced long operative time (431 minutes vs 398, p < 0.05), and post-operative length of stay (11.5 vs 10.9 days, p < 0.05). Men had a higher incidence of unplanned re-operation (6.4% vs 4.0%, p < 0.05), as well as abscess formation (10.8 vs 7.1%, p < 0.05). There was no difference in need for post-operative blood transfusion (46.5% vs 51.0%, p = 0.11). There was no significant difference among men and women for BMI, or prevalence of hypertension or cardiovascular disease. Further post-hoc review suggested anastomotic complications accounted for the vast majority of need for re-operation in men.

Conclusions: Pelvic exenteration for both urologic and colorectal malignancies are increasingly performed at major academic institutions as accepted therapy for locally invasive disease. However, there is little data comparing outcomes across males versus females. Here we are the first to demonstrate significantly worse perioperative outcomes in men as compared to women who undergo complete pelvic exenteration.
THE IMPACT OF AGE ON SURGICAL SUCCESS FOR THE TREATMENT OF URETHRAL STRICTURES

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**Background:** A successful transecting bulbar urethroplasty by excision and primary anastomosis (EPA) depends on collateral blood flow. A successful non-transecting bulbar urethroplasty by ventral or dorsal buccal mucosa graft augmentation (BMG) likewise depends on neovascularization of the BMG. Older patients have increased incidence of comorbid conditions including peripheral vascular disease that are associated with reduced penile blood flow. We sought to determine the effect of age on bulbar urethroplasty success in general and, specifically, in transecting vs. non-transecting.

**Methods:** Bulbar urethroplasties were retrospectively reviewed from 11 institutions that collaborate on a multi-institutional reconstructive urology database (TURNS). We limited patients to those with at least 12 months of follow-up after transecting EPA or non-transecting BMG. Our primary outcome was functional success (need for any procedure for re-stricturer dilation, urethrotomy or urethroplasty); our secondary outcome was anatomic success defined by urethral caliber greater than 17 F confirmed by cystoscopy. We compared results stratified by age.

**Results:** N=322; 258 < 60 y/o, 64 > 60 y/o. Median follow-up was 1.8 years; there was no difference in follow-up time between the two groups. The following were not different between groups: stricture length, location of stricture, smoking status, number of previous dilations/urethrotomies, and type of urethroplasty. The following comorbidities were more common in the age>60 group: diabetes, hypertension, hyperlipidemia, coronary artery and peripheral vascular disease, chronic obstructive pulmonary disease, and cancer. There was no difference between age groups with regard to receipt of repeat procedures or anatomic recurrence, both overall and when stratified by urethroplasty type. On multivariable logistic regression analysis, older age was not a significant predictor of 1-year functional success. The only statistically significant clinical factor was type of repair (OR for EPA vs. BMG = 9.69, CI 2.10-44.74-0.48).

**Conclusion:** Both transecting and non-transecting bulbar urethroplasty can be performed with high success rates regardless of age. This is despite a higher incidence of diabetes, cardiovascular and peripheral vascular disease in the elderly.
ONCOLOGICAL OUTCOMES OF CONCOMITANT CARCINOMA IN SITU OF BLADDER IN RADICAL CYSTECTOMY PATIENTS WHO UNDERWENT NEOADJUVANT CHEMOTHERAPY

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Objectives: The prognostic value of concomitant carcinoma in situ (CIS) in radical cystectomy (RC) cohorts for both muscle invasive bladder cancer (MIBC) and non-MIBC has been extensively studied. However its oncological impact remains poorly determined in the neoadjuvant chemotherapy (NACt) era. Herein we examine the survival outcomes of RC patients post NACt who had concomitant CIS in their final pathology.

Method: We reviewed our prospectively collected database, identifying 182 patients who underwent RC following NACt from 1985 - 2011. Final pathology was reviewed for presence of concomitant CIS. Multivariate analysis, log rank tests and Kaplan-Meier curves were generated using statistical software SAS. Recurrence free survival (RFS) and overall survival (OS) were compared in MIBC and non-MIBC groups based on presence or absence of CIS.

Results: Of the 182 patients, 105 (57.7%) had concomitant CIS on final pathology. Median age was 65 (IQR: 57,73) years and the median follow up was 9.3 years. The pathological staging distribution showed, 87(47.8%) T0-2N0, 50 (27.5%) T3-4N0, 50 (24.7%) TxN+. The NACt regimen included: 56(31%) MVAC, 63(35%) Gemcitabine/Cisplatin, and 63(35%) had other forms of chemotherapy. There were no significant differences based on sex, race, comorbidities or stage. Higher tumor grade (p<0.001), lymphovascular invasion (p=0.047) and multifocality of tumors (p<0.001) were associated with significantly higher rates of concomitant CIS. Presence of CIS had no significant effect on RFS or OS in MIBC (p=0.73, p=0.45) or non-MIBC (p=0.32, 0.45) using Log-Rank tests. Multivariate analysis and Kaplan-Meier curves for RFS and OS are shown in table 1 and figure 1, respectively.

Conclusion: Higher grade, lymphovascular invasion and multifocality of primary tumor are associated with higher risk of concomitant CIS at radical cystectomy after neoadjuvant chemotherapy; however it does not influence oncologic outcomes.
PATTERNS OF RECURRENCE IN DIFFERENT HISTOLOGICAL SUBTYPES OF BLADDER CANCER FOLLOWING RADICAL CYSTECTOMY

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Presentation to be made by Mr. Rahul Dutta

Objectives: While recurrent disease patterns following radical cystectomy (RC) for urothelial carcinoma (UC) of the urinary bladder have been described, little is known regarding other histologic subtypes of bladder cancer. Herein, we describe recurrence patterns of different histological subtypes {adenocarcinoma (AC), squamous cell carcinoma (SCC), and UC with glandular/squamous metaplasia (UCM)} following RC.

Methods: We retrospectively analyzed patients who underwent RC between 1997-2004 at a Mansoura, Egypt. Patient demographics, tumor pathologic features and recurrence sites were retrieved. The association between recurrence sites and different histopathological features was evaluated.

Results: Of 1,238 RC patients identified, 374 (30%) {181 (48%) UC, 105 (28%) SCC, 35 (9%) AC, and 53 (14%) UCM} had recurrent disease. 180 (48%) had local recurrence, 106 (28%) had distant, and 88 (24%) had both. SCC had the highest local (62%), UC the highest distant (32%), and UCM the highest combined local and distant recurrence rates (30%) (p=0.05). High tumor stage was significantly associated with recurrence, regardless of the site (p=0.006). There were no significant associations between recurrence sites and tumor grade, lymphovascular invasion, lymph node positivity, a history of schistosomiasis infection, gender, and age (p>0.05 for all). The most common site of local recurrence was the pelvis (87%) across all histologic subtypes; for distant recurrence, the most common site (50%) was bone. AC recurred the most in bone (62%) and less in the lung (5%), while lung metastasis accounted for 16% of SCC recurrence.

Conclusions: Patterns of disease recurrence vary significantly among different histopathological types and stages of bladder cancer. Tumor grade, lymphovascular invasion, lymph node positivity, schistosomiasis history, gender, and age are not associated with patterns of recurrence following RC for bladder cancer; further study is required to explain recurrence patterns.
SURVIVING FOURNIERS GANGRENE: A REVIEW OF CONTEMPORARY TREATMENT AND DEVELOPMENT OF AN ALGORITHM FOR MANAGEMENT AND RECONSTRUCTION

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(Presentation to be made by Dr. Saum Ghodoussipour)

Introduction: Fourniers gangrene has long been considered a lethal condition with mortality rates as high as 70%. The natural history has changed in recent years with mortality rates of 10% or less. This is due to improved care with prompt surgical debridement, broad spectrum antibiotics and advances in critical care. Subsequently, many patients are now surviving Fourniers and faced with the morbidity of their treatment and prolonged hospital stays for wound care and rehabilitation.

Methods: In this collaborative, multi departmental study, we endeavored to retrospectively examine our experience at a large university affiliated county hospital in the past 5 years. Our primary objective was to identify current practice patterns to develop an algorithm for early intervention to improve patient care. We also sought to validate different scoring systems for Fourniers gangrene to determine if they predict those who require longer hospital stays.

Results: A total of 46 patients were treated for Fourniers gangrene at our institution from 2010-2015. The median age was 48.5 years. All patients were male and 67% were Hispanic. The median BMI was 27.4, 69% had diabetes, 27% alcoholism and 36% were smokers. The median Charlson comorbidity index (CCI) score was 1, Fourniers Gangrene Severity Index (FGSI) 5, Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) 8, and neutrophil-lymphocyte ratio (NLR) 13.2. All patients had a positive wound culture and 73% of cultures were polymicrobial. Initial debridement was required on the day of admission for all patients with a median of 2 take backs for debridement. Two patients died (4%) and 29 required reconstructive surgery (63%). The median hospital stay was 28 days with 8 days in the intensive care unit. The median prealbumin on admission was 9.6 and at the time of reconstruction 17.6. Plastic surgery was consulted for reconstruction on median hospital day 7.5. FGSI, LRINEC, CCI, BMI and prealbumin on admission were not significantly correlated with length of stay. There was a significant correlation between hospital stay and NLR (p=0.01), age (p=0.03) and hospital day of plastic surgery consult (p=0.001).

Conclusions: The mortality rate for Fourniers gangrene is significantly improved with appropriate care but increased survival portends long hospital stays for wound care and reconstruction. Early emphasis on supportive care, nutrition and involvement of reconstructive surgeons will decrease length of stay. Future studies will prospectively incorporate a unique scoring system predictive of morbidity that will improve the care of patients surviving Fourniers gangrene.
PERIOPERATIVE OUTCOMES IN CYSTECTOMY PATIENTS: IS A TOTAL ROBOTIC APPROACH SUPERIOR?

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(Presentation to be made by Mr. Piyush Pathak)

Introduction: Utilization of robot-assisted radical cystectomy (RARC) has increased in the operative management of bladder cancer in recent years. Although RARC was initially a hybrid procedure employing extracorporeal urinary diversion (ECUD) following cystectomy, a total robotic approach using intracorporeal urinary diversion (ICUD) has been established for over a decade. Despite this, it is estimated that only 3% of US centers have adopted this approach, and few studies have examined differences in outcomes between a total robotic approach and open radical cystectomy (ORC). We present a retrospective case series of open and total robotic cystectomy with ileal conduit from a single institution and hypothesize that RARC with ICUD results in improved perioperative outcomes in bladder cancer patients.

Methods: Our study considered only patients treated by two urologic oncologists in Salt Lake City, UT who underwent ORC with ileal conduit or RARC with intracorporeal ileal conduit between August 2014 and May 2016 and participated in our enhanced recovery after surgery (ERAS) program. Patients who underwent hybrid cystectomy or neobladder construction were excluded. Information collected included: patient demographics, past medical and surgical history, operative parameters, and perioperative morbidity and complications as measured by the Clavien-Dindo classification. Descriptive and comparative statistics were used for analysis.

Results: A total of 46 patients with mean age of 68 (SD± 7, range 48-84) were included in our study, with 32 patients (70%) undergoing ORC and 14 patients (30%) undergoing RARC with ICUD in a two year period from May 2014 to May 2016. Forty-one patients (89%) were male, and AJCC tumor stage distribution was 0 (8%), I (8%), II (78%), and III (2%), with no significant difference in stage distribution between groups. 12 patients (86%) received neoadjuvant chemotherapy in the total robotic cystectomy cohort, compared to 20 patients (56%) in the ORC cohort. Mean surgery time was 328 minutes (SD± 59, range 232-509) with no significant difference between groups (p = .14). Node yield was significantly greater (mean nodes 28 vs 19, p < .01) and postoperative drop in hematocrit significantly less (mean drop 5.8 vs 8.4%, p = .01) for the total robotic cystectomy group, although the former may result from differences in surgeon templates. No significant differences were observed in length of hospital stay (mean stay 6.6 vs 5.2 days, p = .06), days to return of bowel function (mean 4.0 to 3.6 days, p = .42), or Clavien-Dindo complication score (mean score 1.2 vs 1.5, p = .58).

Conclusions: Our findings suggest that a total robotic approach to cystectomy plus ileal conduit results in decreased blood loss and non-inferiority of lymph node yield, without significant differences in procedure length, hospital stay, or time to return of bowel function. A clear trend toward shorter hospital stay for total robotic cystectomy was observed however, and it is likely that larger sample sizes would further elucidate this difference. Further research with large sample sizes is needed to examine differences in long-term outcomes between ORC and total robotic cystectomy, as well as differences between ECUD and ICUD outcomes and costs.

Source of Funding: None
SQUAMOUS CELL CARCINOMA OF THE BLADDER IS ASSOCIATED WITH WORSE OUTCOMES COMPARED TO UROTHELIAL CARCINOMA: ANALYSIS OF THE CALIFORNIA CANCER REGISTRY

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(Presentation to be made by: Mr. Jeremy W. Martin)

Introduction: While urothelial carcinoma of the bladder (UCB) accounts for the vast majority of bladder cancers, squamous cell carcinoma (SCC) represents the most frequent non-urothelial tumor presentation. There is unclear evidence in the literature concerning whether SCC portends worse survival compared to UCB following covariate adjustment. Herein, we examined the California Cancer Registry (CCR) to compare SCC and UCB survival and define SCC prognostic factors in California patients.

Methods: The CCR was queried for SCC and UCB cases in California from 1988 – 2012. Survival analyses were performed to determine prognostics.

Results: 67,650 bladder cancer cases (1,390 SCC and 66,260 UCB) were included. Median age was 72 (range 18-109). Male: female ratios in SCC and UCB patients were 0.9: 1 and 3.1: 1 respectively. Kaplan-Meier analysis demonstrated significantly poorer 5-year DSS and OS in SCC patients compared to UCB (p < 0.0001). Advanced stage, grade, female gender and older age (>70) were all predictive of worse survival in UCB patients (all p < 0.0001). In SCC, only stage and older age were prognostic factors (both p < 0.0001). Multivariate analysis revealed that SCC was an independent prognostic predictor (DSS HR 2.617 95% CI: 2.434 – 2.814, p < 0.0001).

Conclusions: Analysis of California Cancer Registry showed that SCC portends poorer survival compared to UCB patients in California, after adjusting for clinico-pathological features.

Figure 1. Kaplan-Meier Analysis Comparing SCC and UCB
A. Disease Specific Survival (p < 0.0001)  B. Overall Survival (p < 0.0001)
red = UCB, blue = SCC
ROBOTIC ASSISTED RADICAL CYSTECTOMY: IMPROVING OUTCOMES OVER THE YEARS DESPITE WORSENING PATIENT CO-MORBIDITIES

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Introduction and Objectives: The incidence of muscle invasive bladder cancer in the elderly population with multiple medical co-morbidities is certainly increasing; however, the gold standard treatment, radical cystectomy, also carries a particularly high risk of morbidity and mortality estimated at approximately 30% to 60% and 1% to 3%, respectively. Fortunately, implementation of evidence-based approaches to perioperative care has minimized these rates thereby facilitating earlier convalescence and shorter hospital length of stay (LOS) without increasing readmission rates. Avoidance of bowel preparation and nasogastric tubes (NGT), use of peripherally acting μ-opioid antagonists, structured early feeding and mobilization protocols, non-narcotic pain management, and care coordination pathways have served as cornerstones to successful enhanced recovery after surgery (ERAS) protocols. We sought to evaluate the evolution of the ERAS protocol at City of Hope (COH).

Methods: A prospective database collected at COH was utilized to evaluate patient demographics and trends in LOS, complications, and readmission rates for robotic cystectomy patients from 2003-2015. From 2003-2007, all patients underwent a preoperative bowel preparation as well as post-operative use of NGT and diet advancement only with bowel function. In 2008, alvimopan was introduced into the algorithm as well as a tendency towards avoidance of preoperative bowel preparation and postoperative NGT use. In April of 2014, an ERAS and care coordination pathway for bladder cancer was launched at COH focusing on preoperative patient and family goals of care and treatment expectations, daily post-operative multidisciplinary rounds, non-narcotic pain management, early feeding and mobility, and close outpatient monitoring on discharge via scheduled phone calls as well as clinic visits. Descriptive statistics and multi-variate analysis were used to assess statistical significance in LOS, complications, and readmission rates amongst cohorts.

Results Obtained: A total of 319 patients from October 2003 to June 2015 were included in the analysis and divided into three cohorts by dates and management trends as described above. The three cohorts included are: pre-enterg with 69 patients dating from 2003-2007, pre-pathway with 208 patients from 2008-2014, and pathway with 42 patients from 2014-2015. The median age and percent ASA IV of pre-enterg, pre-pathway, and pathway patients were 72 years and 11.6%, 70 years and 22.6%, and 70.5 years and 33.3%, respectively. Furthermore, there was a statistical significance (p<0.0001) amongst pre-enterg, pre-pathway, and pathway cohorts with a median length of stay and 30 day complication rates of 11 days and 88.4%, 8 days and 69.7%, and 6 days and 47.6%, respectively. The readmission rate between the groups was not statistically significant.

Conclusions: With changing epidemiologic trends of bladder cancer patients with worsening medical co-morbidities, management paradigms have evolved to facilitate shorter convalescence without negative implications on patient care. At City of Hope, from 2003 to 2015, significant and progressive changes to the perioperative management of radical cystectomy patients has led to a decreased length of stay and post-operative complication rates without affecting readmission rates.

Financial Funding: None
SPLIT THICKNESS SKIN GRAFTING IS ASSOCIATED WITH FAILURE AFTER STAGED URETHRAL RECONSTRUCTION IN ADULTS

Eric Wisenbaugh, M.D., Joel Gelman, M.D., Orange, CA (Presentation to be made by Dr. Wisenbaugh)

Objectives: Buccal mucosal grafts (BMG) are currently the gold standard substitute material for urethral reconstruction, and have been demonstrated to be superior to other graft materials in single-stage urethroplasties. Staged urethroplasties, however, are generally reserved for very complex, sometimes very long strictures that often cannot be treated with BMGs alone, and thus we have typically used split thickness skin grafts (STSG) when additional graft is needed. However, the effect of using STSG in staged procedures has not been well studied. We hypothesize that the use of STSG in these procedures will be associated with lower success rates.

Methods: A retrospective review was performed for all patients who underwent staged urethroplasty by a single surgeon (JG) between 2000 and 2014. Routine follow-up includes cystoscopy 4 months after the 2nd stage procedure to ensure a technical success, and then annual follow-up thereafter with a flow study, post-void residual and symptom assessment. Patients who did not return for the 4-month cystoscopy were excluded from analysis. Length of follow-up was determined by date of most recent evaluation. Statistical analysis was performed using JMP 12™.

Results: A total of 55 patients underwent both 1st and 2nd stage repairs, of which 47 were compliant with follow-up and eligible for inclusion, 34 of these had a diagnosis of hypospadias, ten had lichen sclerosis (LS), two had both, and two had very complex strictures in the absence of either diagnosis. The mean stricture length was 8.8cm (range 2 to 25cm). The initial technical success rate demonstrated by cystoscopy at 4 months was 97.9%, and the long-term success rate was 85.1% with a mean follow-up of 39 months. A subset analysis was performed to compare those who had STSG as part of their repair to those who only had BMG, which revealed a significantly higher success rate in those who were treated exclusively with BMG (100% vs. 70%, p = 0.0034). Additionally, six of the seven failures were located distally, where the STSG is typically placed, while the proximal portion treated with BMG remained patent.

Conclusion: The use of any amount of STSG is associated with significantly higher long-term failure rates in staged urethral reconstructions.
MULTI-STAGE URETHRAL RECONSTRUCTION: WHO COMPLETES THE SECOND STAGE?
Desiree Sanchez, Bryan B. Voelzke MD,MS, Bahaa S. Malaeb MD, Sarah K Holt PhD, Hunter Wessells MD, Judith C Hagedorn MD,MHS
(Presentation to be made by Desiree Sanchez)

Introduction: Staged urethroplasty has become a reliable treatment option for adult patients suffering from complex anterior urethral stricture disease. While the goal of the staged approach is the creation of a tubularized neo-urethra, not all patients will progress to the definitive closure. To better understand this heterogeneous population and assess the factors that may influence successful completion of a staged procedure we analyzed our 13-year experience.

Methods: A retrospective chart review (2001-2013) was performed of anterior urethral stricture patients who underwent first stage urethroplasty. To elucidate potential barriers to successful completion of second stage urethroplasty, we compared patients who underwent a second stage repair to those who did not proceed with the final urethral tubularization. The risk factors assessed include age, stricture etiology, length, and location, graft size, body mass index (BMI), diabetes, coronary artery disease, smoking, and hypertension. Statistical analysis was conducted with two tailed t-test, fisher exact, chi square, univariate, and multivariate logistic regression.

Results: 87 patients underwent a first stage urethroplasty. Mean age was 43 (16-80). The two most common stricture etiologies were hypospadias (35%) and lichen sclerosus (28%). 64 (74%) patients completed a two stage urethral reconstruction after a mean of 11.5 months following first stage urethroplasty. The second stage procedure failed in 8 (9%) at a mean of 22 months. 23 (26%) patients did not proceed to second stage urethroplasty. This particular group was older, had a higher body mass index (BMI), and more comorbidities. The groups did neither differ by stricture characteristics, nor number of prior procedures.

Conclusions: We present one of the largest cohorts of patients who underwent planed staged urethroplasty. The majority of these patients have a successful final outcome. Patients with a higher BMI are significantly less likely to progress toward a definitive second stage procedure. A better understanding of the risk factors that prevent patients from completing the second stage would help with patient counseling.
Objectives: Optimal intraoperative fluid management is crucial for adequate tissue perfusion. The standard protocol to monitor intravascular volume is based on hemodynamic parameters such as heart rate, blood pressure and oxygen saturation. Herein we evaluated the association of intraoperative fluid intake with postoperative outcomes in patients who underwent radical cystectomy for bladder cancer.

Methods: 287 patients underwent open radical cystectomy with enhanced recovery protocol (5/2012 to 3/2015). 107 where excluded; non-urothelial (30), palliative (37), had adjunct procedures or not consented (40). The protocol includes perioperative modifications (carbohydrate loading, no bowel prep, cholinergic and alvimopan, early feeding and mobilization) to enhance GI recovery and promote earlier discharge. We prospectively evaluated intraoperative fluid intake (crystalloid, colloid, blood) and correlated with length of stay, 30 and 90-day complications. Net fluid index (NFI=total fluid intake-blood loss/weight) was used with different cut-offs to correlate with 90-day outcomes.

Results: 180 patients enrolled into the study with mean age of 69 years (78% male). 71% underwent orthotopic diversion. 32% received perioperative chemotherapy. Pathologic stage was organ confined in 78%, extravesical in 14% and node positive in 8%. Median blood loss was 400 (75-2200 cc) and median OR time was 5.5 hrs (2.6-10 hr). Median intraoperative crystalloid and colloid intake was 4000 and 500 cc, respectively. 19% of patients received blood transfusion. The overall 90-day complication rate was 82%. Multivariable logistic regression demonstrated a significant independent association between total intraoperative fluid intake and 90-day complications (OR=1.41 for each 1000cc fluid, 95% CI 1.05-1.95, p=0.03) after controlling for age, BMI and Charlson comorbidity index. Higher levels of NFI (>24 mL/kg) was associated with increased risk of 90-day complications (P=0.04) (fig. 1). No association was found between fluid intake and median LOS or 30-day complications.

Conclusions: Excessive intraoperative fluid intake can independently increase complication rate following radical cystectomy. Fluid optimization can play a significant role in decreasing morbidity after this major surgery. Larger studies and prospective trials are needed to externally validate these findings.

Table 1. Relative risk of 90-day complications based on different Net Fluid Indices for patients who underwent radical cystectomy with enhanced recovery protocol
EVALUATION OF ASSOCIATION BETWEEN DRAIN VALUES AND COMPLICATIONS FOLLOWING RADICAL CYSTECTOMY

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Introduction: Loss of fluid via abdominal JP drain has unclear consequences on postoperative recovery. We sought to describe the composition of drain fluid in patients recovering from radical cystectomy (RC) and draw associations with postoperative complications within 30 days.

Materials and Methods: Under IRB approval, we analyzed drain fluid on postoperative 3 in consecutive patients who underwent RC and urinary diversion for bladder cancer. Cholesterol, triglyceride, glucose, albumin, and protein loss in the fluid were measured and converted into calories to determine total nutritional (energy) loss from the drain, too. We then prospectively followed these patients for 30-day postoperative complications (Clavien-Dindo classification). For analysis, urine leak was defined as JP creatinine greater than 110% of serum creatinine. Kruskal-Wallis test and logistic regression were performed for statistical analysis.

Results: Drain fluid was analyzed from 195 patients between May 2013 and June 2015. Mean volume output on postop day 3 was 420 ml (SD=345 ml), equal to a mean energy loss of 55.7 calories. Energy loss from drain fluid is shown in Table 1. A total of 110 patients (56.4%) had at least one 30-day complication. Energy loss was not associated with 30-day overall complications (p=0.24). Similarly, drain fluid output (ml) was not associated with metabolic complications (including electrolyte disturbances, dehydration, and ileus) (p=0.62). Biochemical urine leak seen in 47 patients (24.1%) was also not associated with 30-day complications (p=0.15). Clinically evident urine leak occurred in five patients within 30 days.

Conclusions: Volume and energy loss via drain following radical cystectomy is minimal and not associated with postoperative complications. Further study can help to determine the safest and earliest time to remove the drains after radical cystectomy.

Table 1. Mean energy content (calories) of abdominal drain output on postoperative day 3 following radical cystectomy.

<table>
<thead>
<tr>
<th>Fluid Component</th>
<th>Calories (mean (SD))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>0.9 (0.9)</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>1.1 (1.3)</td>
</tr>
<tr>
<td>Glucose</td>
<td>1.2 (1.3)</td>
</tr>
<tr>
<td>Albumin</td>
<td>20.2 (36.1)</td>
</tr>
<tr>
<td>Protein</td>
<td>27.3 (28.3)</td>
</tr>
<tr>
<td>Total</td>
<td>55.7 (57.4)</td>
</tr>
</tbody>
</table>
Objective: With the introduction of the medical home model, increasing utilization of multi-specialty teams for complex patients is becoming widespread. Initial forays into oncology have the proposed benefits of improved understanding of disease processes, available treatment options, and overall satisfaction. Despite these benefits, multispecialty clinics in bladder cancer are not widespread. We report the impact on patient care and treatment utilization with the formation of a bladder cancer multispecialty clinic (BCMC).

Methods: BCMC was initiated January 2014 at our institution. The clinic format includes simultaneous consultation with urology, medical oncology and radiation oncology and real time pathology and radiology review of each patient record. We compare the two years preceding inception of BCMC to the post initiation two years in terms of treatment selection (e.g. utilization of chemoradiotherapy), volume of clinical care, and changes in diagnostic evaluation.

Results: Utilization of BCMC slots was 75% post initiation, with an increase from bi-monthly to weekly due to patient demand. The proportion of referred patients who elected to have care at our institution increased from 43% to 64%. Treatment with chemoradiation increased from 3% to 12%. Local review of pathology and radiology resulted in a change in stage (either pathologic or radiologic) or histology of disease in 37% of patients. Finally, development of BCMC resulted in a 25% increase in bladder cancer visits overall (vs. 1% and 6% increase for prostate and testis cancer, respectively).

Conclusions: The initiation of a bladder cancer multidisciplinary clinic at our institution resulted in a significant increase in utilization of bladder sparing chemoradiation and change in stage and histology in over a third of patients. Overall growth of bladder cancer care at our institution outpaced growth of other cancers during the two years post initiation of BCMC. Further study is needed to confirm the proposed benefits of multispecialty clinics in bladder cancer.
CONGENITAL ABSENCE OF THE LEFT ILIAC VEIN IN A TRAUMA PATIENT


Congenital absence of the iliac venous system is a rare congenital anomaly. The presence of this vascular anomaly can have important implications in the surgical patient. We present an unusual case in a patient presenting after blunt trauma to the pelvis. Diagnosis was made upon initial imaging. Surgical implications are discussed.
PATTERNS OF INFECTIOUS READMISSIONS FOLLOWING RADICAL CYSTECTOMY
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Introduction: Enhanced recovery after surgery (ERAS) protocols in radical cystectomy patients have greatly improved the postoperative course of these patients. However, up to 1 in 3 patients are readmitted within 90 days, with infection as the most common cause. We therefore examined the type and timing of readmissions due to infectious causes in radical cystectomy patients managed following ERAS protocols in a single center institution.

Methods: We retrospectively evaluated the outcome of patients who underwent radical cystectomy at Stanford University Hospital from January 2012 to May 2014, focusing on the infectious causes of 30d and 90d readmission rates and causes.

Results: Of 201 patients who underwent radical cystectomy (130 ileal conduit, 72 neobladder, 3 continent pouches), 51 were readmitted within 30 days (25%) and 12 were readmitted within 90 days (6%). Notably, 45% of those readmitted at 30 days were for infectious causes, while 83% readmitted between 30 and 90 days were for infectious causes.

At 30 days, 13/72 (18%) patients with neobladders were readmitted for infectious causes, compared to 10/130 patients with conduits (8%). The average day from surgery from positive urine culture growth was 16 days, with about 26% polymicrobial/mixed flora. 5/23 patients (23%) had positive blood cultures of the same organism. Enterococcus was involved in 26%, followed by Klebsiella, Staph, and Candida (13% each).

At 90 days, 4/72 (6%) patients with neobladders were readmitted for infectious reasons, compared to 6/130 (5%) of patients with conduits. The average day from surgery from positive urine culture growth in this group was 60 days, with about 40% polymicrobial. 1/12 patients (8%) had positive blood cultures of the same organism. Enterococcus and Klebsiella were both involved in 33%, followed by Pseudomonas (17%).

Conclusions: Patients with neobladders appear to be at greater risk for infectious readmission within 30 days, but the rate is nearly equivalent to ileal conduits by the 90-day mark. Nearly a quarter of those with positive urine cultures develop bacteremia, so these must be treated seriously. Enterococcus is the most common at 30 and 90 days, though other organisms became prevalent over time. This data may be useful in targeted interventions to prevent infectious readmission following cystectomy.
SURGICAL AND FUNCTIONAL OUTCOMES FOLLOWING ADULT BURIED PENIS REPAIR WITH LIMITED SUPRAPUBIC PANNICULECTOMY AND SPLIT-THICKNESS SKIN GRAFTING

Lindsay A. Hampson, MD, Wade Muncey*, Cheng-Cheng Ma*, Jeffrey Friedrich*, MD, Hunter Wessells, MD, Bryan Voelzke, MD: Seattle, WA and Burlington, VA
(Presentation to be made by Dr. Bryan Voelzke)

Introduction: Adult buried penis is an acquired disorder typically related to obesity. Men with buried penis often have had previous circumcision and can develop secondary manifestations such as phimosis, lichen sclerosis, balanitis, penile cancer, meatal stenosis, lower urinary tract symptoms, and sexual dysfunction. There are few published data describing surgical or patient outcomes after buried penis repair and no universally-accepted technique. Our objective was to describe our technique for surgical management of buried penis and to report surgical and patient outcomes following buried penis repair.

Methods: Surgical outcomes following buried penis surgery at Harborview Medical Center were assessed from 6/1/2005 to 6/1/2016. Surgical reconstruction by a team including urology and plastic surgery consisted of limited suprapubic panniculectomy, radical excision of penile shaft skin with split-thickness skin graft (STSG), and scrotoplasty if needed. Our surgical technique includes fixing the inferior border of the panniculectomy site to the pubic symphysis periosteum to prevent buried penis recurrence. The diseased penile shaft skin is excised, with use of meshed or unmeshed split-thickness skin graft from either the thigh or the excised pannus, which is then applied to the penis. Patient demographic and surgical information was abstracted from a retrospective chart review. All patients were attempted to be contacted by phone for updated followup.

Results: A total of 42 men underwent buried penis repair surgery and had both panniculectomy and STSG performed. Demographics and surgical characteristics of our cohort are shown below (Table 1). Reconstruction was most commonly performed in one stage; however, a staged approach using a temporary allograft was done in 5 patients. Mean (SD) short-term followup was 8.1 ± 8.1 months. There was an overall 33% complication rate (24 events), with the majority of these complications relating to the pannus wound (8), the genital wound (6), or graft loss (5).

24 of the 42 patients were able to be reached for longer-term followup (mean (SD) long-term followup 35.5 ± 36.7 months. 79% of patients reported that if given the chance to go back in time, they would undergo buried penis surgery again, with a mean satisfaction score of 3.4± 1.4 on a 5-point scale (1 not at all satisfied – 5 extremely satisfied). 68.4% of patients reported that surgery led to a positive change in their lives. No patients had required any additional surgery for recurrence or problems with their repair, and 79% of patients reported that the surgery had remained a success in the long-term. Figure 1 describes patients’ subjective functional outcomes in long-term followup, showing long-term improvements in every functional domain that was assessed.

Conclusions: Surgical correction of buried penis with a penile STSG and limited panniculectomy is well tolerated and results in functional, long-term improvements.
PATHOLOGICAL CHARACTERISTICS AND PROGNOSTIC INDICATORS OF DIFFERENT HISTOPATHOLOGICAL TYPES FOLLOWING RADICAL CYSTECTOMY: A LARGE COHORT WITH LONG-TERM FOLLOW-UP

Simone L. Vernez, Jeremy W. Martin, Rahul Dutta, Ahmed Abdelhalim, Orange, CA; Ahmed Shokeir, Hassan Abol-Enein, Ahmed Mosbah, Mohamed Ghoneim, Mansoura, Egypt; Ramy F. Youssef, Orange, CA

(Presentation to be made by Ms. Simone Vernez)

Introduction and Objectives: While pathological features and prognostics for urothelial cancer of the urinary bladder are well characterized, they are poorly defined for the more rare histopathological types. Herein we determined differences in prognostic features among urothelial carcinoma (UC), urothelial carcinoma with metaplasia (UCM), squamous cell carcinoma (SCC) and adenocarcinoma (ADC) utilizing a large cohort of radical cystectomy (RC) patients with long term follow up.

Methods: We retrospectively evaluated 1,280 patients who underwent RC between 1997-2004 at a single institution in Mansoura, Egypt. Pathological features were compared. Multivariate analyses were used to evaluate the prognostic significance of tumor stage, grade, lymphovascular invasion (LVI), and lymph node involvement (LN) in the different subtypes.

Results: We included 1,238 patients (975 male and 263 female), 577 (46.6%) UC, 174 (14.1%) UCM, 398 (32.1%) SCC, and 89 (7.2%) ADC. Median patient age was 54 (20-87) and median follow up was 39.7 months (0-109). There were significant differences among the demographics, tumor stage, grade, LVI, LN and presence or absence of schistosomiasis (all p<0.05). Schistosomiasis was most highly associated with SCC (76%) and ADC (76%), followed by UCM (69%) and UC (54%). >98% patients with UC and UCM had high-grade disease, compared to 41% patients with SCC and 68% ADC (p<0.001). Grade was an independent predictor of disease recurrence in SCC (HR 1.6, p=0.023). Despite a lower incidence of LVI in both SCC and ADC, LVI was an independent prognostic factor (HR 2.1, p<0.05). LN involvement was most common in UCM (33%) and was the most important independent predictor of disease recurrence (HR 2.14, p=0.012).

Conclusions: SCC and ADC patients were younger, had higher incidence of schistosomiasis, low-grade tumors, and lower incidence of LN involvement and LVI. In UC and UCM patients, LN involvement was more common and a worse prognostic indicator. Though LVI was relatively rare in SCC and ADC, when present, it indicated a poorer prognosis. Prognostic models based on independent predictors in each histopathologic type may inform postoperative surveillance and guide the use of aggressive multimodal treatment approaches.
Introduction: Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic, disabling disease. Narcotics are the most commonly prescribed treatment medication. Recently, treatment with intravesical instillations of alkalinized lidocaine and heparin is frequently utilized. However, this treatment involves three weekly office visits or up to three daily self instillations. DMSO bladder instillations have demonstrated a 50-70% IC/BPS symptom improvement. But, a 50% DMSO concentration can cause bladder discomfort, an unpleasant taste and odor, and possibly not a safe concentration to expose to the bladder. In this study I sought a more effective and efficient therapeutic instillation regimen for the treatment of IC/BPS.

Methods: I studied consecutive patients with IC/BPS who did not adequately improve after a month of intensive behavior modification recommendations. The patients were treated with intravesical instillations of alkalinized lidocaine and heparin three times weekly for three weeks. Patients who could not commit to this regiment due to time and travel constraints were treated with intravesical instillations of alkalinized lidocaine, heparin, and dimethyl sulfoxide (DMSO) weekly for three weeks. Patient reported their outcome results using the Interstitial Cystitis Symptom index (ICSI) and Global Response Assessment (GRA).

Results: A total of 104 patients were included in this study. Patients (17) treated with intravesical instillations of alkalinized lidocaine and heparin three times weekly demonstrated a statistically significant improvement in ICSI by week 2 (p = 0.02) and week 3 (p <0.01). These patients demonstrated significant improvement in GRA in 17% of patients at 1 hour, 30% of patients at 1 day, 44% of patients at 1 week, 45% of patients at 2 weeks, and 62% of patients at 3 weeks. Twelve percent of patients dropped out after the initial treatment on this regimen. Patients (87) treated with intravesical instillations of alkalinized lidocaine, heparin, and DMSO weekly demonstrated a statistically significant improvement in ICSI by week 1 (p = 0.01), week 2 (p <0.01), and week 3 (p <0.01). These patients demonstrated significant improvement in GRA in 29% of patients at 1 hour, 27% of patients at 1 day, 37% of patients at 1 week, 51% of patients at 2 weeks, and 71% of patients at 3 weeks. Five percent of patients dropped out after the initial treatment on this regimen. There was no significant difference at 3 weeks between the regimens in improvement in ICSI (p = .13) or GRA (p = 0.47). There were no adverse events.

Conclusions: Intravesical instillations with alkalinized lidocaine and heparin or alkalinized lidocaine, heparin, and DMSO demonstrated significant improvement in symptoms of patients with IC/BPS. There was no significant difference in patient reported outcomes between the regimens.

Source of Funding: None
ENHANCED RECOVERY PROTOCOL FOLLOWING RADICAL CYSTECTOMY: INITIAL REPORT
Hamed Ahmadi M.D., Paul M. Jones B.S.*, Ann Martinez Acevedo, B.S.*, Kamran Sajadi M.D., Christopher Amling M.D., Portland, Oregon
(Presentation to be made by Hamed Ahmadi)

Purpose: Radical cystectomy (RC) and urinary diversion is a morbid procedure with substantial postoperative complications. The purpose of this study was to determine the effect of enhanced recovery (ERAS) protocol on short-term postoperative outcomes following radical cystectomy and urinary diversion at our institution.

Materials and Methods: All patients with diagnosis of bladder cancer who underwent RC between October 2014 and December 2015 received a new perioperative protocol which includes no preoperative bowel preparations, limited narcotic use for pain management, early diet advancement, and prophylactic antibiotic at time of discharge. Short term postoperative outcome including time to return of bowel function, length of hospital stay, 30-day complication and readmission rates were compared with a control group of patients who underwent RC between January 2014 and September 2014 prior to implementation of the new protocol.

Results: A total of 54 patients (35 males) with median age of 68 years old (range, 36 – 87) were enrolled in the ERAS protocol, while 43 patients were included in the control group. Two groups were similar with regard to clinicodemographic characteristics. Patients in both group received peripheral opioid receptor antagonist. Patients in ERAS group had earlier return of bowel function (3 days vs. 4 days, p=0.001) and shorter hospital stay (5 days vs. 7 days, p=<0.001) when compared to the control group. (Figure 1) There was no difference in overall 30-day readmission and complication rate. However, ERAS patients has significantly lower infectious (15% vs 37%; P=0.01) and wound (11% vs 37%; P=0.002) complication rate. 30-day readmission due to urinary tract infection significantly decreased in ERAS patients compared to controls (14% vs 62%; P=0.01).

Conclusion: Using perioperative ERAS protocol following RC, patients experienced expedited return of bowel function, shorter hospital stay, and decreased urinary tract infection-related complication and readmission rate within the first 30 days.

Source of Funding: None

Figure 1. Time to bowel movement and length of hospital stay in ERAS patients versus controls.
CONTINENT CUTANEOUS ILEALCECAL CYSTOPLASTY IN THE TREATMENT OF REFRACTORY BLADDER NECK CONTRACTURE AND URINARY INCONTINENCE AFTER PROSTATE CANCER TREATMENT


Objectives: To assess the use, complications, and outcomes of CCIC for the management of refractory bladder neck contractures and/or urinary incontinence after prostate cancer therapy.

Materials and Methods: An institutional review board approved database was reviewed for patients who underwent CCIC from January 1, 2003 to December 31, 2014. Pre-operative, peri-operative and post-operative factors were assessed, including complications and outcomes.

Results: Nine patients were identified. Indications for CCIC include refractory bladder neck contracture (3 patients), urinary incontinence (3 patients), or both (3 patients). The mean age was 70 (56-84). The mean follow-up was 64.1 months (range 33.6-89.4). 67% (6/9) of patients had a history of radiation. The mean number of procedures between initial prostate treatment and augmentation was 3 (range 0-5). 55% (5/9) of patients had a bladder neck closure along with augmentation, 1 transabdominally, and 4 transperineally. The mean operative time was 5.5 hours. Mean blood loss was 136 mL (range 50-300 mL). All patients demonstrated stomal continence. Overall morbidity rate was 88% (8/9), 44% (4/9) occurring in less than 30 days. One patient (11%) required stomal revision. Three of four (75%) with bladder neck closure required revision surgeries (all with a history of radiation). At last follow-up all patients were satisfied with their urinary control, and 88% (8/9) were continent. One patient had urethral leakage with bladder spasms, controlled with medication.

Conclusion: CCIC is a safe and effective means of treating refractory bladder neck contractures and/or urinary incontinence. While morbidity rates are high, subjective patient satisfaction is high.
STATE OF THE ART: PRACTICE PATTERNS IN RECONSTRUCTIVE UROLOGY
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FECSM, Benjamin N. Breyer MD MAS, Joshua A. Broghammer MD FACS, Sean P.
Elliot MD FACS MS, Bradley A. Erickson MD MS FACS, Christopher D. McClung MD
MS, Jeremy B. Meyers MD FACS, Thomas G. Smith III MD FACS, Alex J. Vanni MD,
Bryan B. Voelzke MD MS FACS, Lee C. Zhao MD MS, Jill C Buckley MD FACS:
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(Presentation to be made by Stephen Unterberg MD)

Introduction: The range of operative techniques employed by reconstructive urology
is much broader and diverse than often appreciated. Perception of practice patterns
often is used to define standard of care and may also impact options presented to
patients. We aim to show in this large prospective study the many techniques
employed by fellowship-trained reconstructive urologists, as well as identify patient
factors associated with choice of technique.

Methods: We identified all male patients who had undergone a urethral reconstructive
procedure within the Trauma and Urologic Reconstructive Network of Surgeons
(TURNS) database between 2010 to present. TURNS is a multi-centered outcomes
research collaborative that prospectively collects outcomes data for urethral
reconstructive procedures. All members are fellowship-trained reconstructive
urologists at major academic institutions in the United States. Institutional board
approval was obtained at each respective center.

Results: 1572 patients with a median age of 47 undergoing treatment for urethral
stricture disease were identified between 2010 to present. The median stricture
length was 2.5cm (1.5-4) and the prevalence of stricture disease peaked in the sixth
decade of life. 58% of patients underwent at least one prior DVIU and/or urethral
dilation, and 20% of patients had a history of clean intermittent catheterization (CIC)
requirement. Both Lichen Sclerosis and prior hypospadias repair were the two most
common etiologies for distal urethral strictures, while an idiopathic etiology was more
prevalent in bulbar strictures. Interestingly, strictures caused by iatrogenic means
were consistent throughout the various levels of the urethra. 408 patients had prior
failed urethroplasties, with history of prior urologic procedures and diabetes
accounting for the only significant risk factors identified in multivariate analysis. There
was no difference in outcomes noted in those patients with a prior history of
urethroplasties. Twelve different types of urethroplasty procedures were utilized in this
cohort with excision and primary anastomosis (EPA) comprising 32% of the surgeries
followed by 17% and 12% for dorsal and ventral onlay buccal substitution
urethroplasty, respectively. EPA utilization peaked in 2014 comprising 40% of
urethroplasties, but declined to 24% in 2015, surpassed by dorsal onlay buccal
substitution at 30%. For those surgeries requiring a graft, the vast majority of
reconstructive surgeons utilize buccal mucosa (94%). Overall, post-operative
complication rate was 14% with UTI and wound infection equally prevalent at 27%.
Finally, for those patients whom underwent post-operative cystoscopy (n=543), 45
(8.3%) demonstrated cystoscopic failure defined as urethral caliber <17F. On
multivariate analysis, hypertension and history of DVIU were the only significant risk
factors associated with cystoscopic failure.

Conclusion: Reconstructive urologists in practice today employ a wide array of
techniques in the management of urethral stricture disease. No technique is
employed in the majority of cases; indeed, over twelve different approaches were
used. The proportion of each technique performed varies dramatically based on
patient and stricture characteristics, prior surgery and prior surgical approach
demonstrating a complete armamentarium is necessary to provide optimal care.
Introduction and Objective There is no consensus on what processes and outcomes define high quality care in the management of stress urinary incontinence (SUI). A physician working group of surgeons who treat SUI from diverse healthcare settings in Washington State was convened through a state-level quality collaborative (Urological Surgical Clinical Outcomes Assessment Program, UroSCOAP). Preliminary SUI research questions were developed and ranked via a webinar-based focus group of experts. The objective of this project is to identify clinically meaningful quality measures to guide implementation of an SUI module within UroSCOAP.

Methods Two focus groups were convened to solicit surgeon input on SUI quality care, using UroSCOAP webinar-derived SUI research questions as discussion points. Discussants included urologists and gynecologists with specialized training from a variety of locations (i.e., urban, rural, suburban) and practice types (i.e., academic, private practice, multispecialty hospital-based) in Washington State. Focus groups were led by a trained moderator, recorded and transcribed verbatim, and qualitatively analyzed using grounded theory methodology with dual review.

Results 6 urologists and 6 gynecologists participated from 5 academic, 3 private practice, and 4 hospital-based settings, 10 of whom were fellowship trained. Physicians’ shared interests included identifying pre-, intra-, and postoperative quality measures; defining appropriate evaluation and management of recurrent/persistent SUI; identifying risk factors and management strategies for lower urinary tract symptoms, especially obstructive patterns, after sling; and establishing and validating shared decision making with patients for procedures utilizing synthetic mesh. There was interest in individualizing, rather than standardizing, management algorithms based on objective patient data. There was discourse around how best to solicit and define patient preferences regarding symptom and risk trade-offs. Finally, evaluating outcomes and predictive factors for success in management of SUI in non-index populations, such as mixed urinary incontinence, concomitant symptomatic prolapse, or young patients of child-bearing age with high leak point pressures generated surgeon interest.

Conclusions Focus groups with clinical experts on quality of SUI care identified several priority topics for future study and potential inclusion in a UroSCOAP SUI module. These topics differ from national quality measures in SUI care. Further work is needed to refine research prioritization in SUI care.
INCONSISTENCY IN THE DEFINITION OF URINARY TRACT INFECTION AFTER INTRAVESICAL BOTULINUM TOXIN INJECTION: A SYSTEMATIC REVIEW
Sarah A Adelstein, Andrew Chen, Kevin Gioia, Alvaro Lucioni, Kathleen C Kobashi, Una J Lee

Introduction Urinary tract infection (UTI) is reported in up to 0-56% of patients after intravesical botulinum toxin (BTX) therapy for idiopathic overactive bladder (OAB) and neurogenic detrusor overactivity (NDO). However there is considerable variability in the way UTIs are defined in the BTX literature. The European Association of Urology (EAU) Urological Infections Guideline statement suggests a definition based on urinalysis, urine culture, and symptoms with recognition that lower urinary tract symptoms (LUTS) may arise from other causes. The National Institute on Disability and Rehabilitation Research (NIDRR) consensus conference recommended a definition of UTI in the spinal cord injury population utilizing urine culture, urinalysis and clinical symptoms including fever. Our aim is to evaluate how the BTX literature defines UTI and to what extent current guideline statements on UTI are utilized.

Methods We performed a systematic review by querying Medline, using the medical subject heading terms “botulinum toxin” and “urinary tract infection.” We included original studies that reported on adult idiopathic OAB and/or NDO patients as study subjects and had a UTI outcome reported. We evaluated how included studies defined UTI and compared these to the EAU and NIDDR guidelines.

Outcomes We identified 159 publications, of which 37 met the inclusion criteria. 17 (46%) of the included articles reported on NDO population, and 20 (54%) on the OAB population. UTI was reported as a primary outcome in 5 (14%) of included articles, however only 18 (49%) defined their UTI diagnostic criteria (Table 1). We encountered 8 different definitions of UTI.

Conclusions Criteria for reporting UTI are poorly defined and heterogeneous in the BTX literature. While urinary tract manipulation from the procedure and possible elevated post void residual put patients at risk for a complicated UTI, the LUTS of OAB and NDO, and peri-procedural effects, complicate a simple clinical diagnosis of UTI. Implementation of explicit criteria, at a minimum, is imperative to establish a clinically meaningful UTI rate after BTX. A consensus definition for UTIs in the post-BTX setting is lacking. Few of the research definitions of post-BTX UTI met the standards of the EAU or NIDDR, and future BTX studies should address this need so clinicians can appropriately counsel their patients.
SEAPI INCONTINENCE CLASSIFICATION SYSTEM: ONE-YEAR POST-OPE RATIVE RESULTS FOLLOWING MIDURETHRAL SLING PLACEMENT

Allison S Glass MD, Blythe Durbin-Johnson* PhD, Jennifer Rothschild MS MD, Sacramento, CA; Alexander Gomelsky MD, Shreveport, LA

(Presentation to be made by Dr. Glass)

Objectives: There is limited long-term data that has examined postoperative quality of life measures following placement of either retropubic or transobturator midurethral sling (MUS). The SEAPI incontinence questionnaire includes 5 data points: Stress-related leakage, Emptying ability, Anatomy or exam of bladder neck during cough, Protection or use of pads for incontinence, and Inhibition or urge incontinence. Our aim is to present changes in SEAPI questionnaire outcomes 1 year following mid urethral sling placement with respect to patient factors such as age, body mass index (BMI) and sling type.

Methods: We retrospectively reviewed a prospectively-collected database of women who underwent MUS for stress urinary incontinence (SUI) from 2005-2012. We included those women who had completed preoperative and postoperative (of at least 12 month follow up) SEAPI scores. Preoperative patient demographics were included in descriptive analysis. BMI was categorized as < 25, 25 – 29.9, 30 – 39.9, ≥ 40. Overall SUI cure was defined as used of 0 pads per day. Individual score (S, E, A, P, I) cure was defined as score of 0 whereas improvement was defined as decrease in score by 2 or more points (not including score of 0). Logistic regression analysis was used to model the effects of patient characteristics on SUI cure and improvement in S, E, A, P, I scores.

Results: A total of 584 women were included, 364 (62%) who underwent retropubic MUS. 89% were Caucasian. Median age was 49 (25—86) years. Mean gravity and parity were 2.7 (±1.4) and 2.4 (±1) respectively. Mean BMI was 30.1 (± 6.3) and median follow up was 25.4 (12-126.8) months. SUI cure rate was achieved in 73% and 69% of women with retropubic and transobturator slings, respectively. Increased follow up (OR 0.99, p <0.001) and previous prolapse or SUI surgery (OR 0.66, p=0.023) were associated with significantly lower odds of overall SUI cure. Age had negative association with cure in Stress related leakage (S) (OR 0.96, p=0.040), Anatomy (A) (OR 0.90, p<0.001), Urge incontinence (I) (OR 0.90, p<0.001) scores. BMI had negative association with cure in S (OR 0.93, p=0.020), Protection/use of pads (P) (OR 0.94, p=0.039), I scores (OR 0.90, p=0.015). “A” score cure was also negatively impacted by many factors: gravity (OR 0.69, p=0.018), parity (OR 0.43, p=0.002), cystocele grade (OR 0.14, p<0.001), rectocele grade (OR 0.41, p=0.013), vaginal vault/cervix grade (OR 0.39, p<0.001) and other pelvic surgery (OR 0.12, p=0.42). Type of sling did not impact cure in individual SEAPI scores; however, transobturator (vs. retropubic) sling placement was associated with improvement in E score (OR 2.04, p 0.013).

Conclusion: Similar rates of SUI cure were achieved at 1 year with either retropubic or transobturator sling type in women who were followed for at least 1 year. Cure of individual S, E, A, P and I scores was impacted differently by various patient factors including duration follow up, age, BMI, prior SUI, prolapse or pelvic surgery and other preoperative anatomic findings. The SEAPI questionnaire provides a unique profile of patient-reported and functional measures in women who undergo MUS placement for SUI.

Source of Funding: None
Remote Recruitment and Open Enrollment in Patient-Centered Assessment of Bladder-Related QOL After Spinal Cord Injury: A PCORI Study


(Presentation to be made by Darshan P Patel)

Purpose: There is a growing interest in patient-centered clinical research. A key principle for this type of research is the ability of eligible participants to self-enroll into a study without visiting a conventional study site. This strategy should optimize study recruitment and also improve generalizability of results. The purpose of this study is to evaluate the use of remote recruitment to enhance patient enrollment in an ongoing, prospective assessment of bladder-related quality of life after spinal cord injury (SCI).

Methods: We identified participants between 1/1/16-5/31/16 who completed enrollment for a prospective, patient-centered outcomes research institute (PCORI) study evaluating bladder-related quality of life after SCI. The primary outcome was to evaluate frequency of remote recruitment and platforms for referral. Conventional recruitment sites include several outpatient clinics (rehabilitation medicine, urology) at the Universities of Michigan, Minnesota, and Utah. Various web-based, social, and print media were employed to optimize remote patient recruitment. Our secondary outcomes were comparing baseline demographic and socioeconomic characteristics between remote and conventional recruitment using student’s t-test, chi-square, Wilcoxon rank sum test, and Fischer’s exact tests as appropriate.

Results: Four-hundred and seventy-seven participants with SCI met inclusion criteria and completed enrollment. 285 (60%) participants were recruited through various clinics at Utah, Michigan, and Minnesota. 160 (34%) participants were remote recruited and 32 (6%) participants were recruited through other methods. For the 160 remotely recruited participants, participants selected one or more of the following recruitment methods: website (n=28, 18%), participant referral (n=4, 3%), advertisement (n=59, 37%), social media (n=30, 19%), and other (n=92, 58%). Of the participants responding other, a large majority of participants heard about the study through physician referral or were identified from pre-established lists of SCI individuals interested in research studies. Comparison of sociodemographic characteristics between remote and conventional recruitment are shown in the table. Having a higher education was associated with remote recruitment (p<0.001). There was no significant difference in self-reported income, employment status, marital status, level of SCI, and mobility (p=0.43, 0.37, 0.69, 0.9, 0.47, respectively).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Clinic (n=285)</th>
<th>Remote (n=160)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (IQR)</td>
<td>47.7 (36.1, 58.5)</td>
<td>50.7 (37.3, 61.9)</td>
<td>0.1</td>
</tr>
<tr>
<td>BMI, median (IQR)</td>
<td>24.9 (21.5, 29.2)</td>
<td>24.5 (21.8, 28.8)</td>
<td>0.72</td>
</tr>
<tr>
<td>Sex, male (n, %)</td>
<td>195 (69%)</td>
<td>117 (74%)</td>
<td>0.23</td>
</tr>
<tr>
<td>Education: (n, %)</td>
<td></td>
<td></td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Some HS</td>
<td>12 (5%)</td>
<td>3 (2%)</td>
<td>NS</td>
</tr>
<tr>
<td>Completed HS</td>
<td>58 (22%)</td>
<td>14 (10%)</td>
<td>NS</td>
</tr>
<tr>
<td>Some College</td>
<td>93 (35%)</td>
<td>44 (32%)</td>
<td>NS</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>61 (23%)</td>
<td>42 (31%)</td>
<td>0.008*K</td>
</tr>
<tr>
<td>Some Grad</td>
<td>1 (0%)</td>
<td>0 (0%)</td>
<td>NS</td>
</tr>
<tr>
<td>Grad/Professional Degree</td>
<td>37 (14%)</td>
<td>33 (24%)</td>
<td>0.004*K</td>
</tr>
</tbody>
</table>

*Wilcoxon rank sum test, #Fisher’s exact test

Discussion: Open enrollment and remote recruitment are central principles for patient centered studies. Although word of mouth and direct calls to interested individuals are the primary methods of remote recruitment in our study at this time, we anticipate a larger role of social media and web-based advertisement to increase recruitment. Understanding motivational and demographic differences in these populations is central to interpreting study results.

Source of Funding: PCORI CER14092138
ONLY TWO OF 12 PATIENTS WITH SPINA BIFIDA OCCULTA WERE IDENTIFIED PRIOR TO UROLOGIC REFERRAL FOR ENNEURESIS/INCONTINENCE/CYSTITIS IN THE SOUTHERN SAN JOAQUIN VALLEY. WHY SO FEW?

Anthony H. Horan, Delano, CA

**Introduction:** Spina bifida aperta (SBA) with cerebral-peritoneal shunts, after a declining incidence in the valley caused by folate supplements, has recently reached a plateau. Spina bifida occulta (SBO), has also been well published, but this has not affected pediatric ‘practice’ here.

**Materials and Methods:** Electronic medical records in a solo, private practice of urology dating from 2007 to the present were queried for the diagnosis spina bifida and spina bifida occulta. The occulta patients’ office charts were printed out and examined for evidence of the fresh discovery of the diagnosis. The ‘aperta’ patients were checked for renal function losses in the transition to adult care. All the newly diagnosed SBO’s had cystoscopy under anesthesia if young, and a neurological exam, S1-S4, prior to anesthesia, if old enough to understand the neuro’ exam while awake.

**Results:** 23 patients were located in the EMR for the 9 years. 9 were spinal bifida aperta with ventriculo-peritoneal shunts. One kidney had been totally lost in each of two patients along with 3/4 of the renal function in the two remaining kidneys to the point of renal insufficiency. Despite a strong primary care presence in the area, 12 new instances of SBO were diagnosed by this urologic practice. 3 of these showed spina bifida on LS spine films. These three ‘positive’ films encouraged the author to order more LS spines. But, some LS spine films were never approved by managed care.

The SBO’s without radiologic diagnosis were identified via missing deep tendon reflexes, large bladder volumes at first fullness, and large residuals urines. Unequal diameter of the legs at the mid-gastrocnemius level strengthened the diagnosis. The ratio of 9 ‘aperta’ to 13 ‘occulta’ suggests that there are many more ‘occulta’ cases to be discovered here.

Newly diagnosed SBO’s were relieved to discover that their urinary symptoms were caused by a congenital defect, not a character flaw. Only 2 of 14 SBO’s, came to the office with neurogenic bladder already identified.

**Conclusions:** The failure to identify SBO prior to referral to urology may have been caused by underfunding of Departments of Neurology in medical schools + complacency following the folate fueled decline in SBA. Children and young adults cystoscoped for incontinence and recurrent bladder infections should also have a neurological exam of S1-S4 and a conventional LS spine/sacrum if the latter is suspicious.
ASSESSING BLADDER-RELATED QUALITY OF LIFE AFTER SPINAL CORD INJURY: A PCORI STUDY PROTOCOL

Darshan P. Patel, M.D., John T. Stoffel, M.D., Sean P. Elliott, M.D., M.S., Blayne Welk, M.D., M.S.c., Angela P. Presson, Ph.D, M.S., Jeremy B. Myers, M.D. and Sara M. Lenherr, M.D., M.S., for the Neurogenic Bladder Research Group (NBRG): Salt Lake City, UT.

(Presentation to be made by Darshan P Patel)

Purpose: The Patient-Centered Outcomes Research Institute (PCORI) funds research with the goal of providing patients with “information they can use to make decisions that reflect their desired health outcomes.” Neurogenic bladder (NGB) management has a significant impact on the daily lives of patients after spinal cord injury (SCI). Our aim was to design a multicenter longitudinal study to help describe quality of life (QoL) factors related to NGB after SCI.

Methods: We developed a collaborative multicenter prospective research protocol developed by investigators, patient and clinician stakeholders. Systematic literature review identified Patient Reported Outcome Measures (PROMs) addressing NGB in SCI. Patient stakeholders were selected from the primary investigators’ clinical practices. A patient advisory meeting was held with SCI patient stakeholders who participated in a facilitator-led semi-structured qualitative group discussion about NGB management and QoL. The patient stakeholders also reviewed potential PROMs for inclusion. Themes identified in this discussion were used to select specific question banks. Patient, clinician and investigator stakeholders met to finalize PROMs and database content.

Results: An anticipated 900-1400 study participants will complete the question banks (Neurogenic Bladder Symptom Score, selected SCI-QoL item banks, Neurogenic Bowel Score, pain scale, autonomic dysreflexia questions and modified SF-12). In order to engage a diverse demographic of SCI individuals, the study was advertised via the web (nbrg.org), social and traditional media, rehab facilities, urology clinics, national SCI advocacy groups and SCI-centered events. After eligibility screening (acquired SCI & ≥18y/o) and consent, participants undergo a 20-minute interview to document prior history and management. PROMs questionnaires are then completed electronically at baseline, 3, 6, 9 & 12 months. Extractions from participants’ electronic medical records (when available) included injury level, lab and radiology results. Repeated-measures analyses will be performed on data to assess change from baseline through 12 months with planned subgroup analyses to include specific SCI populations and participants that have changed bladder management over the year.

Discussion: This multicenter longitudinal research study has been developed following the guidelines specified by PCORI to ensure prioritization of all stakeholder interests and to optimize patient-centered outcomes.

Source of Funding: PCORI CER14092138
DESIGN AND EARLY CLINICAL EXPERIENCE WITH A SMARTPHONE-BASED BIOFEEDBACK APP TO IMPROVE PELVIC FLOOR MUSCLE TRAINING (KEGEL EXERCISES) AND ROUTINE NEOVAGINA SELF-CARE AFTER TRANSGENDER GENDER AFFIRMING SURGERY

Maurice Garcia, M.D, MAS; San Francisco, CA

(Presentation to be made by Dr. Maurice Garcia)

Background: Pelvic floor muscle training (PFMT) has been shown to improve time to return of continence and other male/female sexual function indices following pelvic surgery. Kegel exercises are often prescribed to transgender men/women after genital gender affirming surgery (GAS) to facilitate PFM relaxation during neovaginal dilation and to address urinary urgency/over-activity following GAS. Failure to dilate regularly invariably results in vaginal stenosis after vaginoplasty. Similarly, failure to relax the pelvic floor muscles after trans-male urethral and genital surgery contributes to LUTS, urinary retention, and post-operative complications.

The essential parameters of Kegel exercise are duration of contraction and active relaxation, and, frequency of exercises. Frequency and regularity of self-dilation/douching are important drivers of outcomes after vaginoplasty.

We hypothesized that a smartphone-based App that provides users biofeedback re. mean duration of Kegel contraction/relaxation, and which tracks frequency of required neovaginal dilation/douching, could be helpful to transgender patients post-GAS. We also hypothesized that the presence of useful post-op wound care and genital surgery self-care would be helpful to patients.

Materials and Methods: Our iOS App (TRANS PELVIC HEALTH) were programmed to allow natal and transgender men/women to record the duration of active PFM contraction/relaxation, and, urinary frequency, urgency, voiding, leakage events, and, each dilation and douching event-- on a daily basis. A study version contains a 12-Q VAS-questionnaire that queries satisfaction (urinary, sexual, erectile), pain control, depression, sleep quality, and quality of life. Data from the App is “pushed” automatically to a custom-database on a secure server.

We provided the App to 10 non-medical colleagues (5 women/5 men age 40-70) for evaluation. All completed 10 mock Kegel exercises and used the App to measure contraction/relaxation duration, which were also timed using a stopwatch. Measured times were compared to duration times recorded in our database. User-reported ease of use and privacy related anxiety; and 3. Perceived usefulness of the App both for Kegel exercise performance and for general post-op self care.

Results: The PFM contraction and relaxation times recorded by the App disagreed with stopwatch measured duration times by mean +/- <1 second for all 10 subjects. Mean Likert scores: “Overall ease of use” =9.4 (SD 0.5); “Privacy related anxiety” score =9.1(SD 0.7); and “Usefulness” (for Kegel performance and for general post-op self care) =9.9 (SD 0.3).

Conclusions: Our App provides a means by which Transgender patients can track vital post-op self-care activities. Given the high morbidity associated with failure to perform dilation/douching on a regular basis, the opportunity to track the frequency and quality of such activities is expected to be of value to patients at large. As with other Apps on the market, the App itself can serve as a platform from which to make educational materials accessible to patients.
INCREASING SCREENING FOR OVERACTIVE BLADDER AND INCONTINENCE IN AT-RISK PATIENT POPULATION


(Presentation to be made by Dr Diane Newman)

Introduction and Objectives: Lower urinary tract symptoms of overactive bladder (OAB) and incontinence (UI) remain underdiagnosed and undertreated, despite evidence-based guidelines on assessment and treatment. Diabetic and obese women are particularly at risk. Increasing numbers of these patients are being seen by advanced practice providers (APPs), nurse practitioners and physician assistants, in the primary care setting. They have the opportunity to improve outcomes by consistently screening patients and increasing the use of strategies that promote patient adherence to treatment. To this end, the aim of this practice building activity was to increase APPs’ communication techniques and use of guideline-based screening tools to improve diagnosis, treatment adherence, and long-term monitoring of OAB and UI within their practice.

Methods: In the baseline phase, APPs (NPs = 39, PAs = 15; total n = 54) who see patients with OAB and UI were asked to review medical records of 4 patients with type 2 diabetes (T2DM) and/or obesity and answer 7 questions about their care in an online questionnaire. The APPs then received 4 educational email briefs reinforcing important aspects of optimal care for patients with OAB and UI, and were then asked to complete an Action Plan. In the final phase, APPs reviewed charts of 4 new patients with T2DM and/or obesity and answered the same questions to determine whether a change in performance occurred regarding certain practices involved in screening and management.

Results: Outcomes reported are based on a change from baseline to final phase. There was a 141% increase over baseline in percentage of clinicians asking their 4 patients all 5 main questions (P<.01), and a 125% increase over baseline in the percentage of clinicians offering all 4 patients a voiding diary (Figure 1). Results between NPs and PAs were minor.

Conclusions: Clinical performance can be improved when clinicians participate in an educational format that requires them to assess their own practice patterns before and after an educational intervention. This activity led to significant improvements in practices related to OAB and UI screening, symptom evaluation, and long-term monitoring by targeting those patients who are at increased risk for OAB and UI.

Source of Funding: Educational grant from Astellas Scientific and Medical Affairs, Inc.
STRESS URINARY INCONTINENCE ANIMAL MODELS AS A TOOL TO STUDY CELL-BASED REGENERATIVE THERAPIES TARGETING THE URETHRAL SPHINCTER

(Presentation to be made by Dr. María F. Lara)

Background: Urinary incontinence (UI) is a major health problem causing a significant social and economic impact affecting more than 200 million people (women and men) worldwide. Stress urinary incontinence (SUI) accounts for a large portion of the affected patients. SUI, as defined by the International Continence Society, is the involuntary leakage of urine on effort, exertion, sneezing, or coughing. The currently performed procedures for SUI are usually based on compensatory and nonphysiological mechanisms. Since the ultimate success of long term management of any condition is based on an understanding of its pathophysiology, and because the pathophysiology of SUI is incompletely defined, it becomes imperative that scientists invest in the development of animal models to properly understand the condition and develop treatment alternatives based on pathophysiological changes.

Objective: Over the past few years researchers have been investigating cell therapy as a promising approach for the treatment of stress urinary incontinence (SUI) since such an approach may improve the function of a weakened sphincter. Currently, a diverse collection of SUI animal models is available. Our objective is to summarize and discuss the features of the different models of SUI/urethral dysfunction and the pros and cons of these animal models in regard to cell therapy applications in the clinic. We also want to bring a discussion of different cell therapy approaches and cell types tested in preclinical animal models.

Results: In the last 45 years several animal models for urethral dysfunction have emerged. These models can be developed based on pathophysiological theories of urethral sphincter dysfunction that are reversible: the vaginal distention model that simulate maternal birth trauma and the pudendal nerve crush model as a model of neurogenic urethral dysfunction. Researchers interested in generating a durable model (defined here as SUI lasting 3 months or more) of dysfunction for the purpose of investigating treatment modalities such as slings or injectable therapies have developed non-pathophysiology based models such as urethrolysis, cauterization, and pudendal nerve transection.

Conclusion: The mechanism of human SUI is a complex, and usually multifactorial process. Moreover, the pathological changes associated with these mechanisms are variable and complex; combining denervation, muscle degeneration and apoptosis, chronic muscle atrophy, fibrosis and connective tissue disorders, among others. Hence, integrating all conditions of SUI into a single model is very difficult, if not impossible. Therefore, we support the notion that specific animal models should take into account based on the potential patient to be treated and the target tissue to be regenerated. Besides that, more efforts must be done in order to be able to perform long term functional, clinical, urodynamic and electromyogram assessments in such animal models to demonstrate cell survival, accurate homing of the cells, viability and cell regeneration capacities by use of more specific cell lineage markers. A special effort must be done to incorporate human cell therapy studies in animal models as previous steps to clinical trials.
Source of Funding: BMBS COST Action BM1209 and Servicio Andaluz de Salud from the Consejería de Salud de la Junta de Andalucía, grant PI 0222-2014, cofounded by Fondo Europeo de Desarrollo Regional (FEDER), European Union.
PATIENT-TAILORED" MESH GRAFT FOR ANTERIOR COMPARTMENT REPAIR USING VERTESSA LITE MESH: JUST ENOUGH BUT NOT TOO MUCH- TWO YEAR OUTCOMES
Matthew E. Karlovsky, M.D.: Phoenix, AZ
(Presentation to be made by Dr. Karlovsky)

Purpose: Pelvic Organ Prolapse affects women as they age. Small, tailored made mesh grafts that are intra-operatively sized to the patient’s anterior compartment after colporraphy may offer the benefit of mesh reinforcement while minimizing mesh load and avoiding trocar passage. Since the FDA bulletin of 2011 and reclassification of mesh prolapse kits in 2016, there has been a contraction of companies offering mesh prolapse kits and consolidation of physicians implanting mesh. I investigated the ongoing outcomes, first presented at WAUA 2014, of a single surgeon experience in a consecutive series of patients electing mesh repair for their symptomatic cystocele with “patient-tailored” mesh grafts now at more than 2 years follow up.

Materials & Methods: Sixty five consecutive patients with symptomatic cystocele underwent reconstruction with patient tailored graft from Vertessa Lite mesh (Caldera Medical Inc., Agoura Hills, CA) sized to the anterior compartment after midline plication. Mean preoperative statistics include age, BMI, Baden-Walker cystocele grade, POPQ stage, mean graft size (Length cm x Width cm), and number of cases involving transvaginal hysterectomy, cuff/vault suspension or slings were recorded. Vertessa Lite mesh is a light weight (23.8 gm/m²) polypropylene type 1 mesh that is 0.275 mm thick, and appears to have a “square type” weave whose pore size is 1300 μm, with an interstitial pore size 170 μm. The post-plication anterior compartment length and width were measured with an intraoperative ruler and the graft was then cut from a 10 cm x 20 cm pre-packaged Vertessa Lite mesh. Its four points were then sutured to the pelvic side wall fascia, and the proximal vaginal apex and distal bladder fascia. Mean and median post-operative follow up, post-operative BW stage and POPQ stage were recorded, as well as incidence of extrusion and dyspareunia.

Results: Mean age and BMI were 65.07 and 28.33. Mean pre-operative Baden Walker grade and POPQ stage were 3.32 and 3.1. Mean graft size was 3.5 cm length x 5.7 cm width. There were 14 simultaneous transvaginal hysterectomies, 19 cuff/vault suspensions, and 34 concomitant midurethral mesh slings. Follow up range was 2.0 months to 33 months. Mean and median follow up were 15.6 months and 14 months. Mean post-operative Baden Walker grade and POPQ stage were 0.46 and 0.51. There were two extrusions within 12 weeks, both excised in the office. There were 3 cystocele recurrences, all within 6 month of surgery. 1 elected repeat surgery with mesh (with original mesh removal), the second elected a pessary, the third had repeat colporraphy with mesh removal. Phone call follow-up of the 41 sexually active patients revealed 26 to be sexually active and 18 to have no dyspareunia.

Conclusions: “Patient-tailored” mesh grafts for anterior compartment repair are feasible, and is a viable compromise by reducing mesh implant load. In short term follow up, there was excellent post-operative anterior support, with 2 extrusions and 3 failures. Of those patients who were sexually active post-op, the large majority did not experience dyspareunia. In the age of FDA reclassification of transvaginal mesh kits with large mesh implant loads, tailor made small mesh grafts may soon become a popular option. Continued follow up is warranted to validate long term success rates and potential long term extrusion and dyspareunia rates.
AGITATED MAN YANKED OUT A FOLEY CATHETER, BROKE IT IN HALF WITH A SEGMENT RECOILED INTO THE BLADDER: INVESTIGATING THE MECHANISM OF INJURY AND REENACTMENT OF THIS VERY UNUSUAL CASE

Cu Phan M.D., Janet Kim, B.S.,* Stephanie Johng, B.A.*, Dominic Tran-Nguyen, B.S.*: Newport Beach, California

(Presentation to be made by: Dr. Cu Phan)

Usually when a patient yanks out a Foley catheter, the catheter comes out with the balloon remaining inflated and tears the urethra, causing a lot of bleeding. We present a very unusual case in which the Foley catheter broke off and a segment of the catheter remained inside the bladder after the patient yanked the catheter out.

The patient is a 67 y.o man POD # 2 s/p Whipple procedure. The patient got confused and agitated. In front of a nurse, the patient yanked out an NG tube, a central line and a Foley catheter. Urology consult was urgently called because the nurse found out that a segment of the Foley catheter was missing. Stat bladder ultrasound showed a retained segment of the Foley catheter inside the bladder. Cystoscopy was performed under anesthesia and the Foley catheter segment was removed. A new Foley catheter was placed and anchored down securely.

We were baffled by this unusual event. We would like to present our investigation of the mechanism of injury and reenactment of the event.
Medical malpractice as it relates to transvaginal mesh implantation adds another level of responsibility when deciding on surgical options to repair stress urinary incontinence or pelvic organ prolapse. As mesh is a viable option for repair, the informed consent process must involve a time commitment to discuss thoroughly the knowns and unknowns about mesh, and potentially must cover other aspects related to surgery: FDA classification of mesh, experience, potential off label usage, conflicts of interest. The physician-patient relationship should be seen as a “therapeutic alliance” about the intrinsic uncertainty of surgery. Proper risk assessment of the patient and pre-operative judgment as to when and if mesh implantation is appropriate are decisions that must be documented. Resolution of a conflict from a complication can be dealt with formally or informally. Broad knowledge base of mesh surgeries, kits and guidelines, good communication skills, cognizance of complications and their management, and meticulous documentation can mitigate or avert mesh related litigation.
A CASE OF TRAUMATIC UNILATERAL TESTICULAR RUPTURE
Natasha J Bauer MBChB* London, United Kingdom
(Presentation to be made by Dr Natasha J Bauer)

Introduction: Testicular trauma is classified aetiologically as blunt, penetrating or degloving. Blunt testicular trauma, caused by interpersonal violence, sporting injuries and RTAs account for the majority of cases, typically affecting males aged 15-40.[1] Approximately 98.5% of blunt trauma resulted in unilateral testicular injury; about 12-15% involving cyclists or motorcyclists.[2]

Method/Case: A 48-year-old male motorcyclist was blue-lighted to the accident and emergency department with multiple trauma following a low-speed collision with an oncoming vehicle. On arrival, he was tachycardic and hypertensive with a GCS of 15/15. Examination of his genitalia revealed a grossly swollen scrotum and a normal left testis. There was gross swelling and ecchymosis of the right testis, which was impalpable. Ultrasound revealed a gross haematoma and ruptured capsule of the right testicle. Intraoperatively, emergency exploration of the right hemiscrotum revealed evidence of lower pole rupture. Clot evacuation and debridement of necrotic testicular tissue preceded closure of the tunica albuginea.

Results: About 10% of all trauma involves the genitourinary tract; 80% resulting from blunt trauma.[3] Nearly 50% of patients may be diagnosed with testicular rupture.[4] Testicular rupture occurs following disruption of the tunica albuginea. The commonest findings include unilateral pain and swelling of the testicle. Testicular rupture requires a force amounting to about 50kg.[5] Scrotal ultrasonography is the gold standard imaging method used to investigate acute scrotal trauma.

Conclusion: Classical features suggestive of testicular rupture are irregularity of testicular outline and inhomogeneity of testicular texture.[6] Less commonly, ultrasound reveals a discrete fracture line. Definitive management involves immediate surgical exploration during which necrotic testicular tubules are excised.

Source of Funding: None
Introduction: Testicular cancers are one of the curable cancers in urologic oncology. Retroperitoneal lymph nodes are the primary metastatic region and in most cases chemotherapy is the standard option for retroperitoneal disease especially in Europa. To reduce the chemotherapy related morbidity we investigated the tissue distribution of cisplatinum after intratesticular injection. Its intralymphatic delivery of cisplatinum was also evaluated.

Material and Method: A total of 58 male Sprague-Dawley rats were included to study. All rats were devided into three groups: group 1. Intratesticular cisplatinum injection (2mg/kg), group 2. Systemic cisplatinum injection (6 mg/kg) and group 3. control. First and second group rats were sacrificed at 15, 30, 45 minutes and 2, 6, 26, 45, 96 hours after cisplatinum injection. Right iliac, left iliac and perihilar lymph nodes, liver, kidney and serum samples were collected in order to measure cisplatinum concentrations.

Results: All retroperitoneal lymph node samples yield high cisplatinum concentrations. But these values were not higher than systemic ones. But we must keep in mind that systemic doses were three times greater than local ones. Sample platinum concentrations were analyzed by atomic absorption spectrometry. Serum and tissue platinum levels were presented as µg/ml and µg/g wet tissue, respectively. All values for local and systemic applications were shown in fig 1a and 1b.

Conclusion: Although our results did not demonstrated higher retroperitoneal lymph node concentrations in all sacrifice schedules, our study has the greatest value in demonstrating the intralymphatic delivery of cisplatinum.
Serous papillary tumors of the testes are exceedingly rare; less than twenty case reports. These tumors are more common in the female population and probably represent a tumor in the Mullerian remnant. We present a case of this unusual tumor with pathology, imaging and management considerations.
HYPERLIPIDEMIA, STATIN USAGE, AND SEMEN QUALITY
David Guo, M.D., Shufeng Li, Barry Behr, Ph.D., Michael Eisenberg M.D:
Stanford, CA
(Presentation by Dr. Guo)

Introduction: Hyperlipidemia, and specifically, its treatment with statins, has gained increased attention in past few years due to guideline changes by the American College of Cardiology and American Heart Association. Because this trend affects a growing number of reproductive-aged men, we sought to characterize the relationships between hyperlipidemia, statin usage, and semen quality.

Methods: We assembled a cohort of men evaluated for infertility at our fertility center between 1998 and 2014. We accessed each patient’s electronic medical record to extract relevant laboratory and pharmacy data: total cholesterol, low-density lipoprotein (LDL), high-density lipoprotein (HDL), and triglyceride levels, along with usage of a statin within one year of semen analysis. We examined the association of these variables to and semen parameters. Subfertile semen parameters were determined according to WHO 5th edition criteria; parameters for elevated total cholesterol, LDL, HDL and triglycerides were based on Adult Treatment Panel III Guidelines (National Heart, Lung, and Blood Institute).

Results: While no significant association was observed between semen quality and total cholesterol, low HDL (<40 mg/dL) was found to be associated with increased sperm concentration (59.4 vs. 55.7 M/mL, p<0.01) and higher motility (53.5 vs. 49.4%, p<0.01). In addition, high triglyceride level (>150 mg/dL) was associated with higher motility (52.4% vs. 50.3%, p<0.01) and total count (175.0 vs. 156.1 M, p<0.01).

The use of a statin was associated with decreased sperm concentration (45.1 vs. 57.2 M/mL, p<0.01), total sperm count (137 vs. 169M, <0.01), and total motile sperm count (85.5 vs 99.5, p=0.01). Moreover, a higher proportion of statin users had low semen volume (20% vs 11%, p<0.01) and low sperm concentration (<15 M/mL, 26% vs 14%, p<0.01) compared to non-statin users.

Conclusions: Higher triglycerides and lower HDL were associated with slightly better semen quality. While hyperlipidemia does not appear to have a strong association with impaired semen quality, statin usage does appear to be associated with decreased sperm concentration and decreased total sperm count. Given the widespread use of statins in the United States, this finding could affect the management of a number of infertile men.

Source of Funding: American Society of Reproductive Medicine Young Investigator Grant
BILATERAL ORCHIECTOMY FOR TRANSGENDER PATIENTS: AN EFFICIENT SURGICAL TECHNIQUE THAT ANTICIPATES FUTURE VAGINoplastY AND IS ASSOCIATED WITH MINIMAL MORBIDITY
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*Presentation to be made by Dr. Washington

Introduction: For M to F transgender women, bilateral orchiectomy provides significant medical benefit: if allows many patients to use a lower dose of estrogen (used for feminization). Estrogen at the high doses that transgender women require has significant cardiovascular risks. Bilateral orchiectomy also allows immediate and complete discontinuation of Spironolactone, a potent diuretic also commonly used for feminization. In general, patients not ready for vaginoplasty benefit from early bilateral orchiectomy.

A technique specific for transgender patients which anticipates future vaginoplasty surgery by preserving collateral tissues to be used later with vaginoplasty, and which can be done via a minimally invasive approach, has not been described.

Materials and Methods: We describe a trans-scrotal technique for bilateral orchiectomy via a single midline scrotal incision that excises the cord at the level of the external inguinal ring. In our experience, is fast/efficient, and is associated with very low post-operative pain and morbidity. Furthermore, this technique spares a little-described adipose tissue pedicle that is superficial to the spermatic cord, and which we use to support the neo-labia majora at time of subsequent MtoF vaginoplasty surgery. Outcomes for a consecutive series (single surgeon) of 40 MtoF transgender women are described, including specific post-operative wound care instructions and complications.

Results: All patients were discharged home on same day of surgery. Mean operative time was 27 minutes. No significant complications occurred in this series. A total of 3 small (<2 cm) hematomas occurred. No wound infections or wound dehiscence occurred. Post op pain was minimal, and over half of the patients in this series managed post-op pain with NSAIDS only within the first 5 days, and thereafter required no analgesics.

Conclusions: Bilateral orchiectomy for transgender women has significant medical benefit and can be done with minimal morbidity, on an outpatient basis. Given the latter, bilateral orchiectomy should be offered to transgender patients that meet WPATH Standards of Care Guidelines criteria. The technique we describe anticipates future vaginoplasty surgery, spared adipose tissue needed for vaginoplasty, and minimizes risk to scrotal skin that will be later used for vaginoplasty.
NATIONALWIDE DISPARITIES IN TESTICULAR CANCER CARE DELIVERY: RACIAL, ETHNIC AND ECONOMIC MARKERS OF PATIENT VULNERABILITY

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(Presentation to be made by Dr. Macleod)

Background: Testis cancer is often curable, yet early presentation is a key determinant of survival and treatment morbidity. Testis cancer affects the young, who have less consistent primary care access. This may impede timely mobilization of complex healthcare resources needed for cancer care. We analyze the National Cancer Database (NCDB) for disparity in disease-specific outcomes.

Methods: The NCDB identified adult males with testicular tumors (2004-2013). Four outcomes were selected as markers of care delays: higher stage presentation (defined as stage III+), large primary at diagnosis, time to orchiectomy and overall mortality. Key exposures included race/ethnicity, socioeconomic factors and insurance status. Outcomes were assessed with multivariable hazards regression (survival) or logistic regression (others).

Results: 31,964 men were eligible. Seventeen percent had higher stage presentation, 29% had a large primary, and 9.9% had delayed orchiectomy and 4.8% died during follow up. All outcomes were associated with multiple markers of patient vulnerability at the p<0.001 level. The most consistent and greatest magnitude association was insurance status (e.g. for mortality Medicaid HR 1.9, 95% CI 1.6-2.3, uninsured HR 1.7, 95% CI 1.5-2.1, for large primary Medicaid OR 1.8, 95% CI 1.7-2.0, uninsured OR 2.1, 95% CI 2.0-2.3 [referent private payer]). In addition to markers of vulnerability, center case volume and travel burden were also associated (p<0.001).

Conclusions: We find association between severity of disease and markers of patient vulnerability. Insurance had the greatest magnitude and most consistent association with poor outcomes and is therefore a priority for quality improvement.
SCROTAL TISSUE EXPANSION AFTER LABIAL FLAP SCROTOPLASTY IS SAFE AND EFFECTIVE

Mang Chen, MD, Curtis Crane, MD: San Francisco, CA

Introduction: Metoidioplasty patients who desire scrotoplasty often have a scrotum that is small but proportional to their phallus. Most are satisfied with this. When small scrotal size leads to persistent dysphoria, tissue expansion can be offered.

Methods: Case review of a patient who underwent metoidioplasty with vaginectomy and labial flap scrotoplasty was completed. His continued dysphoria over his scrotum size led to a novel indication for tissue expander insertion. Two incisions were made to insert the expander into the scrotum. After 3 weeks of recovery, weekly instillations of 10cc saline were performed until the patient filled his expander with 100cc.

Results: The tissue expander was in good position and the weekly saline instillations demonstrated proper distension and viable skin. After 8 weeks, the scrotum was large enough to accommodate two testis implants (size 2, style 6, ART). Removal of the expander and insertion of the implants was performed simultaneously with excellent results. Patient reported satisfaction with his current scrotum size.

Conclusion: Scrotums after labial flap scrotoplasty, especially for metoidioplasty patients, are often small. For patients with dysphoria concerning the size of their scrotum, tissue expansion is a viable and safe procedure that may yield excellent results.
Purpose: Testosterone replacement for symptomatic hypoandrogenism is common among reproductive aged males, despite its known contraceptive potential. We sought to 1) define the frequency of testosterone replacement in men presenting for male infertility evaluation, 2) describe prescribing patterns for testosterone replacement in this population, and 3) determine reversibility in semen parameters with testosterone cessation and immediate recovery treatment.

Methods: Between 9/1/14-12/31/15, men presenting for infertility evaluation at the University of Utah were identified and prospectively enrolled in the Men's Epidemiology Network Study (MEN), with the primary objective of gathering baseline sociodemographic factors and general health status of couples presenting for male infertility evaluation. A total of 281 men were enrolled during the study period. All men on supplemental testosterone at presentation were evaluated. Men needed one semen analysis (SA) before and at least 2 weeks after testosterone cessation to be included in our analysis. Our primary outcomes were the frequency and prescribing patterns of testosterone replacement in men presenting for male infertility evaluation, and the reversibility in semen parameters with testosterone cessation and immediate recovery treatment.

Results: Of the 281 men who presented for infertility evaluation between 9/1/14-12/31/15, 10 men (10/281, 3.56%) were noted to be on testosterone supplementation at the time of initial male infertility evaluation. Median age of men on testosterone was 36 years. Seven of these men were receiving testosterone injections and 3 were using gel preparations. Prescribing patterns for these 10 men included, primary care provider prescribed alone (n=6), urologist prescribed (n=2), primary care provider and endocrinologist prescribed (n=2), endocrinologist prescribed alone (n=1). None of these men reported obtaining testosterone from other doctors or without prescription. Testosterone was most commonly prescribed for biochemical hypoandrogenism (n=10), followed by low energy (n=9), and low sex drive (n=7) [not mutually exclusive]. No patient reported use for improved looks or athletic ability. Only four patients met the inclusion criteria for the study with a documented SA prior and after testosterone cessation. All four men had documented azoospermia on SA prior to testosterone cessation and median ejaculate volume of 3.7 ml. All four men were subsequently taken off testosterone supplementation and immediately started on recovery treatment at initial evaluation. Three men were initially started on clomiphene citrate while a single patient was initially started on hCG. Three patients were noted to have return of sperm to ejaculate on SA after testosterone cessation and initiation of recovery treatment (median total motile count = 46.5 million, median total concentration, 36 million/ml). A single patient who was initially started on clomiphene citrate had a paradoxical biochemical response and was changed to hCG after 2 weeks. He continued to remain azoospermic on repeat SA while on hCG recovery treatment and was subsequently lost to follow-up.

Discussion: Exogenous testosterone use is common among men presenting for infertility evaluation at our center despite its known contraceptive potential. Men most commonly report prescriptions for testosterone supplementation from their primary care provider for symptomatic hypoandrogenism. Larger, multi-institutional studies are needed to better understand prescribing patterns and determine the long-term adverse effects of exogenous testosterone on fertility.

Source of Funding: None
COST-EFFECTIVENESS OF IPP VERSUS ICI TREATMENT IN PATIENTS WHO FAIL ORAL MEDICATION
Nancy N. Wang, M.D. M.P.H., Remy W. Lamberts, M.D., Catherine Harris, M.D.
(Presentation to be made by Dr. Nancy N. Wang)

Introduction: Erectile dysfunction is reported in up to 50% of men 40 years old and older, with the real number likely higher due to negative reporting bias. Although first line medication options have increased in the last few decades, approximately 30-35% of men still fail oral medications. Furthermore, healthy men are reporting average sexually active life expectancies up to 70 years old. We analyzed the cost-effectiveness of intracorporeal injection (ICI) therapy versus inflatable penile prostheses (IPP) management for patients who fail oral therapy.

Methods: Using decision analysis modeling, we performed a cost-effective analysis comparing the cost of ICI to the cost of IPP for men who had failed oral medication. We used published complication and efficacy data, Medicare reimbursement costs, and commercial cost data, to compare the treatments including rate of infection, mechanical failure and re-operation with IPP vs ICI treatment over a 15-year time-span, which is the average life of an IPP.

Results: Compared with ICI, IPP was the more cost-effective treatment although the overall cost (ICI $15,570 vs IPP $13,571) and health utility (ICI 0.93 vs IPP 0.92) was comparable in both groups. One-way sensitivity analysis showed that injections became cheaper, while maintaining similar efficacy, if the cost was less than $17.22 per injection. Similarly, when the frequency of monthly sexual intercourse fell below 3.5 times per month, ICI became the less costly option.

Conclusions: The average sexual lifespan of a healthy man in his 50s is estimated at 15 years and increasing. In our model, IPP is the less costly approach for men overall. However, the price of injections and the rate of monthly injections were significant factors driving costs. For men who successfully respond to less costly injection formulations and are happy with a lower frequency of monthly sexual intercourse, ICI may be a less costly option with similar successful outcomes.
VAGINECTOMY IN TRANSMEN AT TIME OF RADIAL FOREARM FREE FLAP PHALLOPLASTY DECREASES THE RISK OF URETHRAL FISTULA FORMATION

Mang Chen, MD, Bauback Safa, MD, Andrew Watt, MD, Curtis Crane, MD: San Francisco, CA

Introduction: Many transmen seeking gender confirmation genital surgery choose radial forearm (RF) phalloplasty with concomitant vaginectomy, scrotoplasty, and urethral lengthening to the tip of the phallus. Some transmen do not want vaginectomy for various reasons. We aim to determine the urethral fistula rate for these patients in comparison to transmen undergoing phalloplasty with vaginectomy.

Methods: We retrospectively reviewed our database of 145 transsexual men who underwent RF phalloplasty with urethral lengthening (UL) and scrotoplasty with or without vaginectomy between January 2013 and May 2016. Postoperative urethral fistulas are recorded. Management of these complications are reviewed.

Results: Of the 145 RF phalloplasties performed, 9 (6%) patients chose not to get a vaginectomy. Of those 9, two chose to avoid urethral lengthening altogether. Both were complication free. Of the remaining 7 patients who had urethral lengthening and vaginal sparing phalloplasties, 4 (57%) developed urethrovaginal fistulas. The fistula rate for the 142 RF phalloplasties who had UL (3 patients did not get UL) is 11%. Management involves an initial 3 month observation period followed by adjacent tissue transfers with multi-layer closure should spontaneous healing not occur.

Conclusions: Vaginectomy at time of RF Phalloplasty with UL decreases the risk of urethral fistulas. Patients wanting vaginal preservation are counseled accordingly and are advised that foregoing UL eliminates this risk. Fistula treatment after a failed observation period involves multi-layer closure of the fistula with neighboring vaginal tissue.
ROBOT-ASSISTED VASOVASOSTOMY USING A SINGLE LAYER ANASTOMOSIS

(Presentation to be made by Dr. Michael Marshall)

Introduction: Of all vasectomies performed in the United States, approximately 6% will pursue a vasectomy reversal. Currently, the gold-standard reversal procedure is a microscopic vasovasostomy utilizing either a one or two layer vasal anastomosis. Unfortunately, most urologists do not perform these procedures as they require extensive training and experience in microsurgery. The objective of our study was to evaluate the feasibility and success rate of robot-assisted vasovasostomy performed at our institution.

Methods: We completed a retrospective review of our experience with vasectomy reversal utilizing the da Vinci® Surgical System and a single layer vasal anastomosis. Obstructive intervals were limited to 10 years or less. A successful reversal was defined as a return of sperm on semen analysis or light microscopy.

Results: Since 2009, we have completed 79 robotic vasectomy reversals, 60 of which utilized a single-layer vasal anastomosis. The average obstructive interval was 5.7 ± 2.2 years. Average operative time was 192 minutes. 42 patients returned for a post-operative semen evaluation at an average time of 4.3 months post-procedure revealing a success rate of 88% (37 out of 42). Post-operative semen parameters were significant for an average sperm density of 31.0 million/mL with an average motility of 29.1%.

Conclusions: Robot-assisted vasovasostomy with a single layer anastomosis has overall success rates that are similar to that of reported microscopic vasovasostomy rates. Although more study is warranted with regard to cost, we feel as though our study demonstrates an alternative approach to vasectomy reversal that can be performed successfully by urologists trained in robotic surgery.

Source of funding: None

Disclosures: The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.
USE OF AMNIOTIC MEMBRANE IN BENIGN UROLOGY: A NOVEL SOLUTION FOR OPTIMAL WOUND HEALING
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(Presentation to be made by Dr. Martin Tam)

Introduction: Rich with collagen, cytokines and growth factors, natural human amniotic membrane is immune privileged and has been shown to modulate inflammation and reduce scarring, with antibacterial, hemostatic and analgesic properties. Such factors impart significant therapeutic potential for wound healing, tissue repair and regenerative therapy. While use of dehydrated human amnion/chorion membrane (dHACM) allograft to aid in recovery of nerve function after nerve sparing radical prostatectomy has been described in the literature, its value in other urological areas is unknown. Our purpose is to describe the surgical technique and clinical experience with using dHACM in penile reconstructive and scrotal surgery, specifically hypospadias repair, complex Peyronies and microsurgical cord denervation (MSCD).

Methods: We identified 24 patients undergoing hypospadias repair (n=8), complex Peyronies repair (n=8), or MSCD (n=8) between 05/2015 and 05/2016 where dHACM was utilized. For MSCD, the denervation procedure is performed leaving only the testicular artery, lymphatics and, possibly, vas deferens. A 2x12cm dHACM allograft is then placed around the remaining cord structures with the letter “UP” facing away from the cord, wrapped around circumferentially, and moistened with normal saline. The cord is placed back into its anatomic position. For hypospadias repair a 16mm disc dHACM allograft was placed over the imbricating layer after the urethral plate is tubularized, providing an additional barrier to prevent wound breakdown. The allograft is laid over the suture line and sutured in place with 7-0 PDS sutures. For Peyronies repair a 2x12cm graft is sutured over the repair with 5-0 sutures and the wound was closed. Handling characteristics of dHACM, impact on operative time, and surgical outcomes were examined.

Results: We found the dHACM allograft material to be easy to manipulate and suture into place. Using dHACM added an additional 2-4 minutes of operative time. No intraoperative or immediate post-operative complications were identified during its use. All patients experienced positive surgical outcomes and healed with minimal pain. The use of dHACM cost an additional 371-700$ per case.

Conclusion: In our experience, dHACM is simple to apply and adds minimally to the overall cost and operative time. Our impression is that it decreases post-operative pain and swelling. We are currently conducting a formal study with long-term data to determine its ability to optimize wound healing in penile and scrotal surgeries and its impact on reducing post-operative pain.

Funding: None
Introduction: Although deleterious effects of paroxetine on sperm parameters have been demonstrated in clinical studies, the exact pathophysiological mechanisms are not entirely understood. The aim of this study is to assess the histological changes in the testes of rats treated with daily paroxetine.

Materials and Methods: A total of 20 male Sprague-Dawley rats (5.5-6 months old) were divided into two groups. Group 1 received daily paroxetine 20 mg/kg (n=10) whereas group 2 received placebo (n=10) for 30 days each. The rats were sacrificed and the testes were harvested for histopathological evaluation. Johnson's criteria, which assigns a score of 1 to 10 for each tubule cross-section examined, was used to assess spermatogenesis. LH, FSH, testosterone and DHT samples were obtained from serum prior to sacrifice. Results were compared with Mann-Whitney U test.

Results: The mean Johnson scores were 9.7±0.48 (range: 8 to 10) and 9.5±0.52 (range: 8 to 10) in the placebo and paroxetine group, respectively. There was no statistically significant difference between the mean Johnson scores of the two groups (p=0.648). There was no significant difference in mean serum LH, FSH, testosterone or DHT levels between the two groups.

Conclusion: Paroxetine treatment does not seem to effect testicular spermatogenesis or testicular histology in rats. These findings suggest that the mechanisms contributing to the deleterious effects of paroxetine on sperm parameters may be due to changes occurring during sperm transportation.
UNILATERAL SEGMENTAL DYSPLASIA OF THE VAS DEFERENS
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(To be presented by: Dr Saitz)

INTRODUCTION AND OBJECTIVES: Bilateral segmental dysplasia of the vas deferens (SDVD) is a rare form of obstructive infertility. SDVD is characterized by isolated segments of the vas deferens that are not connected to the epididymis or ejaculatory ducts. We describe the unique finding of a patient with unilateral SDVD.

METHODS/PATIENTS: An otherwise healthy 35 year-old male patient presented for vasectomy after fathering two children via intrauterine insemination for female factor infertility. The bilateral testes and right vas were palpably normal on physical exam. Due to difficulty palpating the left vas, the patient was taken to the operating room for scrotal exploration and vasectomy.

RESULTS: Prior to vasectomy, semen analysis demonstrated 1mL total semen volume, 144.7 million sperm, 35% normal forms and 70% motility. Right vasectomy was performed. On scrotal exploration the left epididymis appeared engorged and obstructed (Figure 1). The left vas appeared absent. A 1.2cm pearly nodule was identified in the scrotum along the suspected course of the vas, not in communication with the epididymis or ejaculatory duct. This vas segment was excised and contained thick white pasty fluid similar to that seen in obstruction at time of vasectomy reversal (Figure 2). The segment was confirmed vas deferens by pathologic examination. The patient was referred to genetics for CFTR testing and a renal ultrasound was ordered.

CONCLUSIONS: To our knowledge this is the first reported case of unilateral SDVD. The thick white pasty fluid produced in the obstructed segment of vas supports that the similar fluid seen in secondary epididymal obstruction is most likely derived from the lumen of the vas deferens. Men with unilateral SDVD should also undergo upper tract imaging and testing for cystic fibrosis gene mutations.

Source of Funding: None
Introduction: Finasteride, a5α-reductase inhibitor (5-ARI’s), is used to treat benign prostatic hyperplasia and alopecia. Emerging research has suggested that finasteride can result in persistent sexual and nonsexual side effects known as post-finasteride syndrome (PFS). Because of a shared mechanism of action, the makers of dutasteride voluntarily underwent an FDA label change. A FAERS database was used to study claims of adverse events associated with 5-ARI’s.

Methods: A FAERS database between 4/1/2011 and 10/29/2014 pertaining to all 5-ARI’s received was analyzed. Every reported case was coded according to date received, case type, whether it was reported by a health professional, outcomes, manufacturer, age of patient, country, product used, adverse events, and the suspected role of the reported drug. We used the FAERS database to see if dutasteride had reported adverse events that would fall in the spectrum of Post Finasteride Syndrome, and if so, which symptoms were predominate and at what frequency.

Results: The FAERS database consisted of 3,295 cases (2,989 male with 306 either female or gender unreported). Of the 2,989 male cases, 31 were with the concomitant use of finasteride and dutasteride. There was only one reported case of dutasteride which caused “back pain”.

Conclusions: Use of a FAERS database demonstrated that there was only one adverse effect reported over a 3.5 year period associated with the use of dutasteride alone. Because dutasteride and finasteride have a shared mechanism and should have similar adverse event profiles, this may call into question PFS as a whole.
TRENDS IN PENILE PROSTHETIC SURGERY: THE IMPACT OF INHIBIZONE
Marc Holden, M.D., Dongfeng Qi, M.S., Guanghui Lui, M.S., Tung-Chin Hsieh, M.D.

Introduction: Penile prosthetic surgery is an important treatment for men with end-stage erectile dysfunction. Infection is among the indications for reoperation with removal, replacement, or temporary semi-rigid placement all options at the time of intervention. Device manufacturers have made modifications to address the risk of infection, including the introduction of antibiotic-impregnated materials. We examine the impact of one such material on the rates of intervention for device infection and the national trends in the indications for penile prosthesis surgery as well as the changing intraoperative approach to an infected device.

Methods: 19 years of worldwide surgical information from American Medical System was utilized for the study (1995-2013). Cross sectional analysis was performed over time. Surgeries were divided into initial vs. revision cases, the latter subdivided by indication for intervention and by disposition of the infected device. Surgery for infectious etiology was also analyzed pre and post introduction of inhibizone (2001). Statistical significance was defined as p-value < 0.05.

Results: 133,696 PP surgeries were included in the study period. Virgin PP cases accounted for 83.2% and revision cases accounted for 16.8% of the overall surgical volume. A decrease in virgin PP and an increase in revision surgeries were observed over time. Revision surgeries for infection accounted for 2.7% of the total PP surgeries. There was a decrease in the proportion of interventions for infection after introduction Inhibizone (3.9% vs. 1.9%, p<0.05). At the beginning of the study period, the most common management was removal only, whereas the introduction of Inhibizone was correlated with a shift towards immediate device replacement (p<0.001). 65% of revisions for infection took place at a location separate from the initial surgery, implying that prior series may underestimate the rate of infection due to inadequate follow-up.

Conclusions: An increase in revision PP surgeries were observed over the past 19 years, but the number of revision surgeries for infection decreased after the introduction of Inhibizone. Intraoperative management was also noted to shift towards favoring immediate replacement of the device rather than removal alone. A significant number of revisions are performed at a site other than the original surgery, which may require reassessment of previously published infection rates, which are often single-surgeon or single-institution series.
FETAL LOWER URINARY TRACT OBSTRUCTION FROM APHALLIA
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(Presentation to be made by Dr. Schisler)

Background: Penile agenesis (aphallia) is a rare, sporadic form of ambiguous genitalia with fewer than 100 cases reported in the literature. We present an infant with prenatally diagnosed lower urinary tract obstruction (LUTO) treated with a vesicoamniotic (VA) shunt that was found after delivery to have aphallia and urethral agenesis. This represents the second reported case of a VA shunt placed in a fetus with this condition.

Case Report: The baby was born at 37 4/7 weeks by spontaneous vaginal delivery to a 24-year-old mother whose prenatal course was complicated by identification of LUTO. Oligohydramnios suddenly developed at 19 weeks. Urine electrolytes, 46 XY karyotype, and renal ultrasound were normal. The mother was transferred to a fetal intervention center where an enhanced ultrasound showed a left multicystic dysplastic kidney, a single umbilical artery, and ambiguous genitalia, among other abnormalities, suggesting a possible underlying syndrome. Despite these findings, the mother elected to pursue VA shunt placement. By 22 weeks gestation, bilateral polycystic kidneys and anhydramnios developed despite the shunt remaining in a good position in the fetal bladder. The baby ultimately died of respiratory failure a few hours after delivery at 37 weeks. Newborn exam was significant for aphallia, a normally-rugated scrotum, nonpalpable testes, a patent anus with no evidence of fistula, and bilateral talipes. Autopsy findings were significant for polycystic kidneys, hypoplastic lungs, bilateral diminutive ureters draining into a normal size bladder with no evidence of a bladder outlet, urethra, phallus, or urethral fistula to the GI tract. There was a blind ending sigmoid and an absent rectum. Bilateral testes, epididymis, and vas deferens were found in the abdomen.

Discussion: Aphallia results from a failure of mesenchymal cells to proliferate and create the genital tubercle in the 4th week of gestation. Although ambiguous genitalia was detected prenatally, aphallia was not initially considered in this patient because of the rarity of this disorder. Aphallic infants with urethral agenesis and renal dysplasia, like this patient, have high mortality rates. A VA shunt was placed to mitigate sequelae from fetal LUTO and potentially improve survival. Our patient represents only the second case in the literature in which a VA shunt was used to intervene on fetal LUTO secondary to aphallia. Ultimately, however, the infant did not survive due to the severity of his disease.

Source of Funding: None
Introduction: pediatric patients are routinely referred to urologists for definitive care of enuresis after the common measures of water deprivation after 6 pm and nocturnal alarm clocks have failed. Cystoscopy is anticipated but the resultant reward of cystoscopy, cure of enuresis, occurs seldom. In this case, cystoscopy for incontinence resulted in cure. A PubMed search revealed no such case. The literature speaks of the sequelae of ureterocele as bladder neck obstruction, infection and calculi.

Case Report: a 9 y.o. Hispanic Anglophone presented with years of diurnal (sometimes at school) and nocturnal urinary incontinence. There was no history of bacterial cystitis and fever. Cystoscopy showed two ureteroceles with the right much larger, and closer to the bladder neck than the left. The ureteral meatus was truly a pinhole. The ureter was 3+ dilated above it. A double J was placed in the right ureter for 30 days and then removed. The opening in the ureterocele was now generous and yet the anti-reflux ‘valve’ looked preserved.

At 3 months follow up the mother reported that she was dry at night, dry during the day, and had laughed more in the past three months than in the previous three years. Mother and child have not returned, a good sign in Delano.

Conclusion: ureterocele results from inadequate apoptosis of the developing ureter. So, a tiny meatus causes a large ureterocele to bulge at & below the bladder neck. Escaped urine then triggers an irresistible, reflex bladder construction. Dilation of the ureteral meatus causes less herniation of the ureterocele into the bladder neck. This must have been the cause of the cure reported herein.
WHEN PLANNING A VASO-EPIDIDYMAL ANASTOMOSIS, CHECK THE ALLEGED NORMALITY OF THE TESTIS BIOPSY YOURSELF!

Anthony H. Horan, Delano, CA

Introduction: Bilateral testicular biopsies for azoospermia are not an unusual submission to Pathology. The report should show decreased spermatogenesis with dilated, obstructed seminiferous tubules and interstitial cell hyperplasia (accumulation of steroid precursors) in the case of bilateral vasal genesis. The index case here was azoospermic on semen microscopic. The testis biopsy was read as “normal spermatogenesis.”

Case Report: The patient was a 38 y.o. in a stable relationship and wondering if he was fertile. His testes were normal size. A semen microscopic showed no spermatozoa. He was scheduled for bilateral vasograms and testis biopsies. His vasa were too small to cannulate antegrade. One image on the left showed a thin vas approaching the caudal epididymidis retrograde. No white, cellular material came from the testicular side of either right or left lumen.

When the biopsy reading, “normal spermatogenesis,” suggested agenesis of the cauda epididymidis remediable by a vaso-epididymidal anastomosis. When the author-urologist went to look at the slides for the histology of obstruction, his particular interest, he found that there were no fully formed spermatozoa with tails on the slides. There were abundant spermatids in the lumen of the seminiferous tubules but no progression to spermatozoa with tails. The biopsies had been preserved in Bouin’s solution to preserve the lumens' contents. After clinician protest, the dictation was revised to state that proper spermatozoa with tails were extremely rare and that the interstitial cells were reduced in size, not hyperplastic. A pathology consultant in Michigan said that she thought that the sperm tails were added in the epididymis. This false idea was not re-assuring to the clinician.

Neither she, nor the local pathologist proposed in writing spermatogenic arrest of genetic origin, the obvious diagnosis according to a recent review from Asia.

The proposed vaso-epididymal anastomosis was cancelled because of the clinician’s personal review of the slides.

Conclusion: One board certified pathologist was completely wrong and two board certified pathologists were uncertain when interpreting grossly abnormal, bilateral, testicular biopsies. Members of the Western Section should check personally all testicular biopsies said to be normal prior to vaso-epididymal anastomosis.
IS NEUROGENIC BLADDER A RISK FACTOR FOR FEBRILE URINARY TRACT INFECTION AFTER URETEROSCOPY AND IF SO, WHY?

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(Presentation to be made by Dr. Craig Stauffer)

Introduction: Ureteroscopy is commonly used to treat kidney and ureteral stones. While generally considered safe and effective, there is a small but growing body of evidence suggesting that patients with neurogenic bladder are at an increased risk of infectious complications following ureteroscopy. We sought to characterize the rate of febrile urinary tract infections (UTI) after ureteroscopy in patients with neurogenic bladder compared to those with physiologically normal bladders. We also investigated whether it is the neurogenic bladder itself or the neurogenic bladder in the context of bacterial colonization due to catheterization that might be the root cause.

Materials and Methods: We retrospectively reviewed a cohort of patients from a single academically affiliated hospital system who underwent ureteroscopy between June 2013 and May 2016. Information regarding the patient’s neurogenic bladder status, preoperative culture results, bladder management method and presence of upper tract decompression (ureteral stent or nephrostomy) was collected. Postoperative febrile UTI was defined as a hospital admission within 1 week of surgery due to fever not attributable to another source.

Results: During the study period we identified 467 ureteroscopies, of which 44 (9.5%) were performed on patients with a neurogenic bladder. Postoperative febrile UTI rates were higher in patients with neurogenic bladder as compared to control patients (9% vs 1.4%, respectively, \( p = 0.01 \)). The risk of febrile UTI after ureteroscopy did not appear to be equally distributed among those with neurogenic bladder. Postoperative febrile UTIs were not seen in neurogenic bladder patients who were catheter independent (0/12). Interestingly, the presence of a nephrostomy tube in patients with physiologically normal bladders increased the risk of postoperative febrile UTI to levels comparable to neurogenic bladder patients who were catheter dependent (10.5% vs 12.5%, respectively).

Conclusion: While the presence of a neurogenic bladder may increase the risk of infectious complications after ureteroscopy, the reliance on intermittent or indwelling catheters for bladder management appears to be a more important factor. Interestingly, a similar risk of postoperative febrile UTI also appears to be present in non-neurogenic patients with nephrostomy tubes. These data suggest that bacterial colonization, which is prevalent in patients with neurogenic bladder, may be a significant underlying risk factor for febrile UTI after ureteroscopy.

Source of Funding: None
GEOGRAPHIC VARIATION IN THE PREVALENCE OF URINARY STONE DISEASE: A MODERN STONE MAP


(Presentation to be made by Dr. Harsha Mittakanti)

Purpose: The idea of a “stone belt” – which describes a higher prevalence of urinary stone disease in the southeastern United States - was first popularized using survey data from the 1982 Cancer Prevention Study II. The Veterans Health Administration (VHA) is the largest national integrated health care system in the US. We sought to create a modern-day stone map using data from the VHA to better understand the importance of environmental exposures and the geographic variation of urinary stone disease.

Materials and Methods: We identified urinary stone disease patients in the VHA from 2004-2014 (n = 208,127 with 361,608 clinical encounters). We classified patients as having urinary stone disease using outpatient and inpatient diagnostic codes, or receipt of urinary stone procedures. We used patient ZIP codes referenced from each encounter to identify patient location. We then mapped urinary stone patients by county and state to create a modern-day urinary stone map. We compared the prevalence of urinary stone disease for each year and evaluated temporal trends for each county.

Results: Implementation of an electronic health record across a national integrated health care system can be used to generate a modern stone map. Geographic variation can be seen in the prevalence of urinary stone disease in the VHA. However, the increase in prevalence of urinary stone disease in the VHA is not following a geographic pattern.

Conclusions: We have created a modern map of urinary stone disease across the US using data from the VHA. This will serve as a reference tool for future research efforts that will test the relative importance of environmental and patient-level urinary stone disease risk factors.

Source of Funding: None
OBJECTIVES: To describe a novel technique for the repair of penile urethral strictures and establishes the safety, feasibility and efficacy of this innovative surgical approach.

PATIENTS AND METHODS: Patients with urethral strictures underwent a one-sided anterior dorsal oral mucosal graft urethroplasty through a penoscrotal invagination technique. Clinical outcome was considered a failure when any instrumentation was needed postoperatively, including dilatation.

RESULTS: Eight patients underwent the novel procedure. Mean age was 58. The cause of stricture was instrumentation in 5 cases (63%), lichen sclerosis in one (12%), and failed hypospadias repair in two (25%). The mean stricture length was 3 cm. The overall mean (range) follow-up was 12 (6-15) months. Of the 8 patients, 7 (88%) had a successful outcome and one (12%) failed. The failure was successfully treated using a meatotomy.

CONCLUSIONS: The penile invagination technique through a penoscrotal incision is a viable option for the management of penile urethral strictures with several advantages to other techniques: namely, no penile skin incision, a single-stage operation, and supine positioning.
IMPACT OF SURGICAL MASKS ON THE RATE OF POSTOPERATIVE URINARY TRACT INFECTION AFTER CYSTOSCOPIC UROLOGIC SURGERY

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(Presentation to be made by Dr. John R. Michalak)

Introduction: Surgical mask use is a standard requirement for all operating room staff. One of the goals of surgical mask use is facilitating the reduction of surgical site contamination and postoperative infections. However, there are no published reviews or trials which demonstrate that surgical masks are an effective measure to prevent postoperative infections, and surgical mask use is costly and contributes to the waste generated by hospitals and medical centers. To our knowledge, this is the first review examining the impact of surgical mask usage on postoperative urinary tract infection (UTI) after cystoscopic urologic surgery.

Methods: We retrospectively reviewed the last 225 cystoscopic cases performed by 4 urologists at our institution from May 2015 to December 2015. Two urologists followed the institutional policy of surgical mask use in cystoscopic cases and two surgeons did not. Patients with a positive preoperative urinalysis or urine culture were excluded, as were patients with recurrent UTI. The primary outcome measure was rate of postoperative UTIs occurring within 30 days of surgery for each surgeon. Other covariables that could influence UTI rate were also examined. These included average length of surgery, average number of staff in the room, percentage of male vs female patients, percentage of cases involving ureteroscopy or upper tract manipulation, mean age, incidence of Foley catheter placement at the conclusion of the procedure and duration of Foley catheterization, and rate of compliance with published AUA guidelines for antibiotic use (single preoperative dose of antibiotics only).

Results: Based on the exclusion criteria, 200 patients (50 from each surgeon) were included in the final analysis. There was no significant difference between the postoperative UTI rates for patients who were operated upon by masked attendings (6/100 = 6%) and unmasked attendings (7/100 = 7%) (p=0.71). There was no significant impact of length of surgery (p=0.91), number of OR staff (p=0.92), occurrence of upper tract manipulation or ureteroscopy (p=0.55), patient age (p=0.95), incidence of Foley catheter placement at the conclusion of the procedure (p=0.24), duration of Foley catheterization following the procedure (p=0.16), percentage of male vs female patients (p=0.39), or antibiotic compliance rate (p=0.98) on postoperative UTI rate amongst the surgeons as a whole.

Conclusion: Our study found no difference in the rate of postoperative UTI between surgeons wearing masks and those not wearing masks during cystoscopic surgical procedures. This suggests that routine surgical mask use is not an effective technique for reducing postoperative UTI in patients undergoing cystoscopic surgery and adds to the growing body of evidence suggesting that routine use of facemasks in the operating room fails to prevent postoperative infections.

Source of Funding: None
IDENTIFYING LIFESTYLE AND GENETIC FACTORS TO PREVENT RECURRENCE OF NON-MUSCLE INVASIVE BLADDER CANCER IN A PROSPECTIVE COHORT STUDY AT KAISER PERMANENTE (THE BE-WELL STUDY)

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Background: Bladder cancer is one of the top 10 incident cancers. Most cases (75%) are diagnosed as non-muscle invasive disease (NMID), yet NMID typically recurs (70%) and a subset (25%) progresses to muscle-invasive disease. The Be-Well Study is an NCI-funded collaborative, multi-center prospective cohort study, with NMID bladder cancer patients enrolled at Kaiser Permanente Northern (KPNC) and Southern California (KPSC) and bioassays performed at Roswell Park Cancer Institute (RPCI). The goal is to examine diet and lifestyle factors and prognosis, with an emphasis on cruciferous vegetable (CV) intake and their unique isothiocyanate (ITC) content, the modifying effect of polymorphisms of ITC-metabolizing genes, and interactions with treatment. Our prior work suggests that dietary ITCs may prevent disease recurrence and progression in NMID patients.

Methods: Newly-diagnosed patients with NMID (Ta, Tis, T1), who are English-speaking, KP members, and ≥21 years of age, are ascertained rapidly from electronic pathology reports and enrolled on average 2.6 months post-diagnosis. Baseline participation consists of a telephone interview including a food frequency questionnaire focused on CV intake, and providing blood and urine samples. Patients will be contacted for follow-up interviews and urine samples at 12 and 24 months. Smoking, medication use, occupational exposures, physical activity, quality of life, and urinary function are also queried. Biospecimens are processed and assayed at RPCI. Strong support for Be-Well by KP urologists will promote dissemination of study results in patient care and recommendations.

Results: Recruitment began in February 2015. To date, 222 patients have completed the baseline interview, representing 78% male and 22% female, and 81% White, 7% Black, 5% Hispanic, 3% Asian, and 4% Other. Urine specimens have been collected from 82% of consented patients. Blood specimens have been collected from 85% of KPNC patients, and collection at KPSC began in November 2015. The 12-month follow-up interview and outcome ascertainment for disease recurrence and progression are scheduled to begin in February 2016.

Conclusions: The Be-Well Study is poised to be the largest and most comprehensive study to answer critical questions related to prognosis, quality of life, and care in patients diagnosed with early-stage bladder cancer.

Source of Funding: Grant from the National Cancer Institute at the National Institute of Health (# R01CA172855 to LT and MK)
Introduction and Objectives: Insomnia is a sleep disorder characterized by difficulty falling asleep, staying asleep, or waking up at night. Nocturia, or waking up at night to void, is a highly prevalent and bothersome symptom affecting up to 40% of adults. Nocturia has been found to adversely affect sleep quality, increase sleep disturbances, and to have an overall negative impact on health-related quality of life. The etiology is multifactorial, such as nocturia being related to overactive bladder symptoms (OAB) or nocturnal polyuria being related to sleep apnea, endocrine dysfunctions, or hypertension. Limited research has been conducted on the relationship between insomnia and nocturia related to OAB. We aim to assess whether waking up at night in OAB patients with insomnia is related to nighttime urinary frequency (nocturia), hypothesizing that patients with insomnia will experience an increase in nighttime frequency.

Participants and Method: Between 2013 and 2016 postmenopausal female patients over the age of 57 years presenting with OAB symptoms were recruited to study lower urinary tract symptoms and overall wellbeing, including sleep habits. The Insomnia Severity Index was used to measure insomnia. The Overactive Bladder Questionnaire (OBQ) was used to assess how much patients were bothered by both daytime (question 1) and nighttime frequency (questions 5, 6) using a Likert scale (0 = not at all to 5 = a very great deal), as well as overall OAB symptoms (questions 1-8). A voiding diary log was used to measure daytime and nighttime voided volumes (ml). Multiple one-way analyses of variance (ANOVA) were conducted to examine the effects of insomnia on bother scores of daytime and nighttime voiding volume.

Results: Fifty-two women ages 58-91 years were recruited suffering from OAB. Of the 52 women, 24 experienced some insomnia (mild to severe) and 28 experienced no insomnia. Patients in the insomnia group did not differ from the no insomnia group in age (M = 69.94), Body Mass Index (BMI; M = 28.91), or overall health-related quality of life (as measured by King’s Health Questionnaire; M = 54.80), p’s > .05).

There were statistically significant differences between the insomnia and no insomnia groups among both daytime and nighttime frequency. Participants with insomnia reported being bothered more by frequent daytime (M = 2.35, SD = 1.90) and nighttime (M = 2.71, SD = 1.76) urination compared to those with no insomnia (M = 1.18, SD = 1.49; M = 1.61, SD = 1.66), p’s < .05. Participants with insomnia also reported being bothered by more overall OAB symptoms (M = 21.36, SD = 12.50) than those without insomnia (M = 11.08, SD = 9.62).

Participants with insomnia did not differ in daytime (M = 1,280.77, SD = 543.23) and nighttime voiding volume (M = 516.84, SD = 513.63) compared to those without insomnia (M = 1,521.17, SD = 731.75; M = 649.61, SD = 644.85), p’s > .05.

Conclusion: Patients with OAB complaining of insomnia are bothered more by nighttime frequency (nocturia); however, they were also bothered more by daytime frequency. These results suggest that insomnia (difficulty falling/staying asleep, or waking up at night) among OAB patients may be associated with the increased urinary frequency and not an actual sleep disorder. Additionally, there were no differences found in the amount of daytime or nighttime voiding volume between groups suggesting no presence of nocturnal polyuria. Further studies should be conducted to better understand the relationship between insomnia and OAB, and its possible differing impact on the variety of nocturia symptoms.

Source of Funding: Grant from Versacare (#5435 to AS).
Objective: Herein, we examined the California Cancer Registry (CCR) to determine bladder cancer survival disparities based on race, socioeconomic status (SES), and insurance type in California patients.

Methods: The CCR was queried for bladder cancer cases in California from 1988 – 2012. Survival analyses were performed to determine prognostic significance of racial and socioeconomic factors.

Results: 72,452 cases were included (74.5% men, 25.5% women). Median age was 72 (range 18-109). 81% were white, 3.8% black, 8.8% Hispanic, 5.2% Asian, and 1.2% others. SES was stratified by quintile. In black patients, tumors presented more frequently with non-urothelial histology, advanced stage, and high-grade and in females. Medicaid patients tended to be younger and had more advanced stage and high-grade tumors compared to patients with Medicare or managed care (p < 0.0001). Kaplan-Meier analysis demonstrated significantly poorer 5-year DSS in black, low SES, and Medicaid patients (p < 0.0001). Multivariate analysis revealed that black race (DSS HR 1.295, 95% CI: 1.212 – 1.384), lowest SES (DSS HR 1.325, 95% CI: 1.259 – 1.395), and Medicaid insurance (DSS HR 1.349, 95% CI: 1.246 – 1.460, p < 0.0001) were all independent prognostic factors (all p < 0.0001) after controlling for stage, grade, age, and gender.

Conclusions: Analysis of California Cancer Registry demonstrated that black ethnicity, low SES, and Medicaid insurance portend poorer disease-specific survival, after adjusting for classic clinicopathological features.

Figure 1. Kaplan-Meier DSS by Race, SES, and Insurance Type
A. Race (p < 0.0001)
B. SES (p < 0.0001)
C. Insurance (p < 0.0001)
POSITIVE AFFECT AND SELF-ESTEEM IN WOMEN WITH OVERACTIVE BLADDER SYMPTOMS

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(Presentation to be made by Dr. Isaac Kelly, MD)

Objectives: Approximately 25% of women suffer from overactive bladder (OAB), a medical condition characterized by a sudden urge to urinate and the involuntary loss of urine. In addition to physical discomfort, women suffering from OAB also experience psychological distress. Specifically, low self-esteem is commonly experienced among this population. Low self-esteem is a risk factor for other health-related issues such as depression and anxiety. Conversely, positive affect, the extent a patient experiences positive moods, has been linked to lower levels of depression and a higher quality of life. The role of positive affect on self-esteem in this population has not been studied. Therefore, the current study tested the impact of positive affect on self-esteem, while controlling for OAB symptoms, age, and general health status.

Methods: Participants included 44 women ages 58-91 years (M = 69.58, SD = 6.12) recruited from a Urology clinic. The Rosenberg Self-Esteem Scale was used to measure self-esteem, the Overactive Bladder Questionnaire was used to measure OAB symptoms, the Positive and Negative Affect Scale was used to measure positive affect, and general health status was self-reported on a Likert scale from 1 (poor) to 4 (excellent). A hierarchical regression analysis was used to determine the influence of positive affect on self-esteem, while controlling for OAB symptoms, age, and general health status in the first step of the analysis and adding positive affect in the second step.

Results: Overall, the final regression model accounted for 52.2% of the variance in self-esteem, F(4,29) = 6.83, p < .01. Self-esteem was significantly predicted by positive affect (β = .483, t = 3.18, p < .01) and health status (β = .446, t = 2.79, p < .05) in this patient population.

Conclusion: Results from the current study indicate that positive affect plays an important role predicting the self-esteem of women with OAB symptoms. Findings have major implications for individuals and healthcare providers, suggesting that interventions to improve affect may also have a positive impact on self-esteem. Consequently, an increase in self-esteem may contribute to better health outcomes.

Source of Funding: Grant from Versacare (#5435 to AS)
Objectives: Prior research has shown that the quality and quantity of social relationships are linked to positive health outcomes, such as increased compliance with medical regimens and a decreased length of hospitalization. Further, social support has been linked to better outcomes in terms of the development and progression of cardiovascular disease and a reduced risk of mortality. Given these associations, it is beneficial to further examine the relationship between physical health and social interaction in different health settings. Overactive bladder symptoms (OAB) have been shown to affect level of comfort in social situations; therefore, we aim to examine the relationship between OAB symptoms and the frequency of social interactions.

Methods: Between 2013 and 2016 postmenopausal female patients over the age of 57 years were recruited, who presented at the Urology clinic with OAB. The King’s Health Questionnaire was used to assess incontinence, severity of OAB, and the effect of bladder problems on daily activities, physical limitations, emotions, and sleep and energy levels, measured on a scale from 0 to 100, and general health, which was measured on a scale from 0 to 50. Higher scores indicated greater distress. The Social Interaction Scale was used to measure the frequency of various social interactions (telephone calls, emails/letters, social outings, social media, and overall social activity) on a scale from 1 (low) to 10 (high). Correlational analyses were used to examine the relationships between OAB and frequency of social interactions. Alpha was set at .01 for correlations to reduce the likelihood of Type I error associated with running multiple statistical tests while still preserving statistical power.

Results: Participants included 54 women ages 58-91 years ($M = 70.00, SD = 6.33$). Applying the Kings’ Health Questionnaire, the mean level of incontinence in the sample was 55.10 ($SD = 35.71$) and severity of symptoms was rated at 40.91 ($SD = 25.55$). Means and standard deviations for the remaining subscales were as follows: Role Limitations ($M = 33.65, SD = 33.74$), Physical Limitations ($M = 32.03, SD = 36.34$), Emotions ($M = 22.85, SD = 28.94$), Sleep and Energy ($M = 33.97, SD = 30.60$), and General Health ($M = 24.52, SD = 18.85$). The mean level of social interaction for the sample was 15.53 ($SD = 9.16$). Results showed that higher frequencies of social interactions were associated with improved general health ($r = .413, p < .01$) and less emotional problems due to OAB ($r = -.412, p < .01$).

Conclusion: Results from the current study indicate that higher frequencies of social interactions are associated with better self-reported overall health and less emotional problems, including anxiety, depression, and self-esteem, in women with OAB. Future research is needed to confirm the current findings in order to determine the implications of these findings for individuals and health care providers.

Source of Funding: Grant from Versacare (#5435 to AS)