**NEAR INFRARED FLUORESCENT PELVIC LYMPH NODE IMAGING USING AN INTRA-PROSTATIC INJECTION OF INDOCYANINE GREEN AND FIREFLY TECHNOLOGY DURING ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY WITH BILATERAL EXTENDED PELVIC LYMPH NODE DISSECTION – A PROSPECTIVE, RANDOMIZED FEASIBILITY STUDY**

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Presented by: Ali Zhumkhawala MD

**Introduction/Objectives:** The importance of thorough lymph node dissection for prostate cancer has been established with both prognostic and disease-free survival implications. While other disease groups, notably melanoma and breast carcinoma, have moved to a sentinel lymph node biopsy with subsequent lymph node dissection, this has not been shown to be effective in prostate adenocarcinoma. Indocyanine green (ICG) may prove an effective agent for intra-operative lymph node imaging given its benign pharmacodynamics as well as available integration into the DaVinci robotic surgery platform. Our objective was to perform a randomized, prospective, dose-finding and feasibility study on the use of intra-prostatic injections of indocyanine green with subsequent near infrared fluorescent imaging using the DaVinci Firefly technology to assist in pelvic lymph node dissection during robotic assisted laparoscopic radical prostatectomy.

**Methods:** Twenty patients (age < 80) with D’Amico intermediate or high risk prostate adenocarcinoma were consented to participation in the trial and randomization. Patients were excluded for prior pelvic lymphadenectomy, androgen deprivation therapy, chemotherapy or pelvic radiation. The primary endpoint was the intra-operative detection of fluorescence in pelvic lymphatic tissue following injection of ICG into the prostate. Secondary endpoints included quality of fluorescence at varying doses, lymph node yield and correlation of positive nodes with fluorescence. The patients were randomized to doses of 1.25 mg, 2.5 mg, 3.75 mg, 5 mg, or 7.5 mg of ICG. After 5 patients, randomization was limited to the 3 largest doses due to initial experiences. After induction of general anesthesia, ICG was injected into the prostate using a trans-perineal approach with trans-rectal ultrasound guidance. The dose was divided between the apex, mid and base of each side of the prostate. The patients then underwent robotic assisted laparoscopic radical prostatectomy with bilateral extended pelvic lymph node dissection. Fluorescence in each anatomic lymph node location was graded on a scale of 0-4 and recorded. Pathologic findings were correlated with fluorescent findings.

**Results:** Pre-operative patient characteristics were statistically similar. The median ability to identify lymph node fluorescence prior to dissection was 3/4 and was statistically similar across all doses. The median post-dissection fluorescence was 2/4 and was also statistically similar across all doses. The assistance of ICG in lymph node dissection was rated at a median of 3/4 and was also statistically similar across all doses. Fluorescence by lymph node region did not vary statistically across doses. The median number of lymph nodes excised was 21. There was a non-statistically significant upward trend of lymph nodes excised with respect to the ICG dosage. Patients at doses of 3.75, 5.0, and 7.5, had a median nodal yield of 18.5, 23, and 30, respectively (n=6, 5, 6; p=0.7). There were 7 patients (36.8%) with positive lymph nodes on final pathology with no clear correlation to ICG dose. Of note, this is a higher percentage of lymph node positivity than noted previously on the City of Hope robotic prostatectomy experience. The degree of fluorescence did not predict lymph node positivity at the location of fluorescence across any of the 5 doses or overall. There were no adverse events related to injection of ICG or use of the near infrared laser.

**Conclusions:** ICG can be safely administered into the prostate via a trans-perineal approach for use with near infrared fluorescent imaging during robotic assisted laparoscopic extended pelvic lymph node dissection for prostate adenocarcinoma. There was a trend towards higher lymph node yield with higher dose of ICG although this feasibility study was not sufficiently powered to show statistical significance. Given the safety of ICG across all doses, we would recommend using the 7.5 mg dose. As nodal fluorescence did not predict node positivity at the location of fluorescence, it is unlikely that ICG will serve as a viable molecule for sentinel lymph node biopsy during prostatectomy. However, the use of ICG may increase total and positive lymph node yield. Larger studies are warranted to examine the trends we noted.

**Sources of Funding:** No external funding
Objectives: Pelvic paraganglioma is rare and presents with hypertension, hematuria, and micturition attacks. Open and laparoscopic approaches to resection of paragangliomas in the pelvis, often involving the bladder, have been reported, but there are few reports of robotic assisted laparoscopic resection of such masses. The purpose of this video abstract is to demonstrate that robotic assisted laparoscopic resection of pelvic paraganglioma is a safe, feasible, and effective approach to managing this rare disease.

Methods: Robotic assisted laparoscopic resection of a pelvic paraganglioma between the bladder and vagina was performed in one patient.

Results: A 32-year-old woman presented with poorly controlled hypertension, and she was found to have a bladder mass upon workup for secondary hypertension. On further history, she revealed that her symptoms were exacerbated when her bladder was full, and during voiding. She had elevated normetanephrines and MRI of the pelvis demonstrated a 5.4 cm T2 hyperintense posterior bladder wall mass. A MIBG scan demonstrated normal uptake in the adrenal glands and no increased uptake in the bladder. After preoperative alpha blockade, she underwent successful robotic assisted laparoscopic resection of the pelvic paraganglioma that was adherent to the posterior bladder wall and vagina without any perioperative complications. The EBL was 100 cc. She remains normotensive and off antihypertensive medication at six months of follow up.

Conclusions: Robotic assisted laparoscopic resection of pelvic paraganglioma is safe, feasible, and effective. The robotic approach affords excellent visualization of the deep pelvis, may lessen blood loss and tumor manipulation, and allows for precise reconstruction of the pelvic organs when required.
NERVE SPARING ROBOTIC RETROPERITONEAL LYMPH NODE DISSECTION: A STEP BY STEP APPROACH

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Introduction: Retroperitoneal Lymph Node Dissection (RPLND) has been utilized in the treatment of germ cell tumors since the 1940s, however, not until 1992 was the first laparoscopic procedure described. One common side effect of this surgical treatment modality is retrograde ejaculation which results from damage to post ganglionic sympathetic nerves. This unfortunate outcome, which can have profound effects on fertility, sexual health and quality of life in the younger population, has led to the adoption of the nerve sparing technique. A common critique of pure laparoscopic RPLND is that there is a steep learning curve and increased operative times, thus more institutions are adopting the robotic platform for this procedure. In 2013, a case series at our institution totalling 18 patients treated with the robotic approach demonstrated equivalent oncologic outcomes with decreased overall morbidity and preserved sexual function. With multiple institutions utilizing the robotic platform for this procedure, we will present an instructional video to demonstrate the technique for a robotic nerve sparing technique.

Objective: We aim to not only demonstrate the functional outcomes of nerve sparing robotic assisted RPLND, but also provide a step by step approach to the successful preservation of post ganglionic sympathetic nerves.

Methods/Technique: All of our cases involve the patient in the low lithotomy position in Trendelenburg with left side down to aid in bowel reflection. Infraumbilical access is obtained with two 8-mm robotic ports in line with camera and the fourth robotic arm in the right lower quadrant and 15-mm and 5-mm in the left lower and upper quadrant respectively. The robot is then docked from the patient’s head. The peritoneum is incised over the root of the mesentery as well as the lateral attachments of the cecum and right colon. The peritoneum is then attached to the abdominal wall to reflect bowel away from operative field. The lymph node dissection is carried out in caudal to cephalad. The sympathetic chain is largely found in the paracaval, interaortocaval and pre aortic locations and the dominant fibers are identified and lymphatic tissue is split and rolled off of these fibers. Ligation of the lumbars in select cases is critical to being able to adequately identify and preserve these fibers.

Results: A total of 30 procedures were completed at our institution between 2008 and 2015. Of which, 19 were completed utilizing a nerve sparing technique. Conclusion: The robotic platform allows for increasingly complex procedures to be completed in minimally invasive fashion. The Robotic RPLND has been demonstrated to be an effective modality in the treatment of germ cell malignancy in minimally invasive fashion. Furthermore, when clinically applicable, utilizing this step by step approach, allows this platform to be employed to preserve sexual function.

Source of Funding: None
ROBOTIC APPROACH TO RADICAL NEPHRECTOMY WITH LEVEL II IVC THROMBECTOMY – VIDEOGRAPHIC PRESENTATION

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Objectives: Radical nephrectomy with inferior vena cava (IVC) tumor thrombectomy is associated with five-year survival that may exceed 70% in M0N0 subjects with renal cell carcinoma (RCC) and IVC tumor thrombus. The extent of the IVC thrombus has a major impact on the surgical approach and technical difficulty of the operation but has a limited effect on survival. The advantages conferred by laparoscopic and robotic approaches for radical and partial nephrectomy include reductions in blood loss, postoperative pain and time in the hospital. To date, robotic surgery has been employed on a very limited basis for patients with RCC and IVC tumor thrombus. We present a case of a 53 year old male who presented with gross hematuria and flank pain and was found to have a 9.5 cm right renal mass with a tumor thrombus extending 2.5cm into the infrahepatic IVC (level II). Metastatic workup was negative. We elected a robotic approach using the DaVinci Si operating system.

Materials and Methods: We utilized 4 robotic ports, 2 assistant ports (5 and 15mm) and a 5mm port for a fixed liver retractor. After mobilization of the colon and duodenum, the IVC was skeletonized above and below the renal vein. The renal hilum was approached in a standard fashion, though the enlarged right renal vein and hilar adenopathy precluded access to the right renal artery lateral to the IVC. We therefore identified and ligated the right renal artery in the interaortocaval space. Next, the suprarenal and infrarenal IVC were circumferentially exposed and encircled with umbilical tapes. Lumbar veins were ligated with a 5 mm Ligasure. The level of the tumor thrombus was confirmed with intraoperative ultrasound. Isolation of the IVC segment containing the thrombus was accomplished using percutaneously controlled Rummel tourniquets on the IVC and a bulldog clamp on the left renal vein. After dividing the superior, inferior and anterior walls of the renal vein at the junction with the IVC, the tumor thrombus was milked out of the IVC with care not to fracture the tumor. The posterior wall of the IVC was then divided with care taken to excise a portion of the IVC where the thrombus was adherent to the vein wall. The cavotomy was then irrigated with heparinized saline and closed with a running 4-0 prolene suture. Flow was then reestablished to the IVC and hemostasis was excellent. Total clamp time was 35 minutes. Finally, a retroperitoneal lymph node dissection was performed by removing nodes from the interaortocaval and retrocaval spaces separately.

Results: Operative time was approximately 6 hours. Estimated blood loss was 250cc. The patient was transferred to the floor in stable condition. Final pathology was a 14 cm clear cell RCC, Fuhrman grade 3, pT3cN0. Tumor invasion of the IVC was identified where the tumor had been adherent to the IVC wall. Margins were negative. At the 2 week postoperative check the patient was doing extremely well.

Conclusions: While laparoscopic and robotic surgery has been widely applied for partial and radical nephrectomy, robotic surgery for radical nephrectomy with IVC thrombectomy has been reported sparingly. Our case highlights the technical considerations of robotic nephrectomy with IVC thrombectomy for a level II IVC thrombus.
ROBOTIC ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY IN HORSESHOE KIDNEYS: SERIES OF TWO PATIENTS
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Presented by: Ali Zhumkhawala MD

Introduction/Objectives: With the advance of minimally invasive and nephron sparing surgery, the ability to tackle partial nephrectomies in patients with aberrant anatomy has improved significantly. We present operative characteristics and our technique in performing robotic assisted laparoscopic partial nephrectomy in two patients with horseshoe kidneys.

Methods: Patient 1 is a 74 year old male who presented with gross hematuria. His pre-operative serum creatinine was 0.83 mg/dL. A CT urogram identified a 4 cm, endophytic tumor in the lower pole of the left side of a horseshoe kidney. The patient was noted to have a solitary left renal artery and vein with an additional artery feeding the isthmus arising directly from the aorta. Patient 2 is a 64 year old male with a history of lower back pain who was incidentally found to have a 4 cm, largely exophytic, renal mass in the upper pole of the right side of a horseshoe kidney. His pre-operative serum creatinine was 0.79 mg/dL. He underwent percutaneous biopsy of the renal mass at an outside institution that confirmed a diagnosis of Fuhrman grade 2 clear cell renal cell carcinoma. A repeat CT showed a main right renal artery and vein with an additional artery feeding the lower pole and isthmus arising directly from the aorta.
Both patients were positioned in the flexed lateral decubitus position. We used a Dice #5 standard port placement with an additional 8 mm robotic port medial to the anterior superior iliac spine (total of three 8 mm robotic ports, a 12 mm camera port, and two 12 mm assistant ports). An additional 5 mm liver retractor port was placed in patient 1.
In patient 1, the descending colon was dissected medially off of Gerota’s fascia. The gonadal vein and ureter were identified in a location more anterior than typical. The gonadal vein was traced to the left renal vein. The main left renal artery was also identified. A para/pre-aortic lymph node dissection was performed to identify the inferior mesenteric artery as well as the artery to the renal isthmus. The kidney was then mobilized within Gerota’s fascia. The peri-nephric fat was cleared off of the mass and the adjacent renal parenchyma. Mobilization of the kidney was difficult due to the renal isthmus. Intra-operative ultrasound was used to mark the margins of the renal mass. The main left renal artery and the artery to the isthmus were clamped using two bulldog clamps each. The mass was then resected with a small rim of normal renal parenchyma and grossly negative margins. The base of the resection bed was oversewn using a #3-0 V-Loc suture. The renorrhaphy was completed using six interrupted #1 vicryl sutures and a sliding clip technique. Total warm ischemia time was approximately 21 minutes. Hemostatic agents were applied.
In patient 2, the cecum and ascending colon were dissected medially off of Gerota’s fascia. The duodenum was Kocherized to expose the inferior vena cava and right renal vein. The right ureter and renal pelvis were identified in an anterior location to the renal isthmus. The right main renal artery and vein were skeletonized. The kidney was then mobilized within Gerota’s fascia. The peri-nephric fat was cleared off of the mass and the adjacent renal parenchyma in the upper pole location. Intra-operative ultrasound was then used to mark the margins of the renal mass. The right renal artery and vein were clamped using two bulldog clamps. The lower pole / isthmus renal artery was left unclamped. The mass was then resected with a small rim of normal renal parenchyma and grossly negative margins. The base of the resection bed was oversewn using two #3-0 V-Loc sutures. The renorrhaphy was completed using a continuous horizontal mattress #0 V-Loc suture with a sliding clip technique. Total warm ischemia time was approximately 27 minutes. Hemostatic agents were applied.

Results: The final pathology for patient 1 revealed pT1b, Fuhrman grade 3, clear cell renal cell carcinoma measuring 4.1 cm with negative surgical margins. His post-operative serum creatinine nadir was 0.81 mg/dL. The final pathology for patient 2 revealed pT1a, Fuhrman grade 2, clear cell renal cell carcinoma measuring 4.0 cm with negative surgical margins. His post-operative serum creatinine nadir was 0.81 mg/dL.

Conclusions: While robotic assisted laparoscopic partial nephrectomy in a horseshoe kidney can be challenging due to difficult mobilization and aberrant vascular anatomy, a successful outcome can be feasibly accomplished.

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UNIVERSITY OF ARIZONA TECHNIQUE FOR FULLY PERFUSED OPEN PARTIAL NEPHRECTOMY
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Presentation to be made by Dr. John Michalak

Objectives: Traditional partial nephrectomy involves vascular clamping. The benefits include a nearly bloodless field and improved visualization, resulting in a technically easier operation with less blood loss, but at the expense of ischemic damage, nephron loss, and potential long term renal insufficiency. Even partial or segmental clamping places that respective portion of the kidney at risk. In contrast, fully perfused partial nephrectomy offers the potential for excellent nephron sparing results compared with traditional vascular clamping. This technique is especially beneficial to certain subsets of patients, including those with a solitary kidney or preoperative renal insufficiency. The purpose of this video is to demonstrate the technique of fully perfused open partial nephrectomy as it is performed at the University of Arizona Medical Center in Tucson, AZ.

Materials and methods: Informed consent was obtained from a patient undergoing partial nephrectomy to allow intraoperative videography and presentation of the edited film at the 2015 AUA Western Section. No patient identifiers were included. The video was taken intraoperatively and demonstrates techniques for fully perfused partial nephrectomy by a University of Arizona urologic oncologist. The footage was then edited and narrated to produce an 8-10 minute long instructional video.

Results: A short, instructional video for educational purposes was created to demonstrate how a fully perfused partial nephrectomy is performed at the University of Arizona Medical Center.

Conclusions: Fully perfused open partial nephrectomy, while more technically demanding, is a feasible alternative to traditional partial nephrectomy with vascular clamping and may be the preferred technique, especially in patients with preoperative renal insufficiency or a solitary kidney.

Source of funding: None
ROBOTIC-ASSISTED LAPAROSCOPIC EXCISION OF MULTIFOCAL URETERAL AND RENAL PELVIS POLYPS

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(Presentation to be made by Dr. Osbun)

Introduction: Fibroepithelial polyps are a rare cause of upper urinary tract obstruction in children. While endoscopic management is preferred in many cases, large or multi-focal polyps may preclude endoscopic management. Presented here is a case of a 9 year old with large, multifocal obstructive ureteral and renal pelvis polyps managed with robotic-assisted excision.

Patient and Methods: After previous evaluation with a retrograde pyelogram confirmed the presence of obstructive polyps, a robotic-assisted approach was chosen. Standard robotic set-up for upper urinary tract surgery was planned, utilizing two robotic surgeon arms and a working port for the bedside assistant. A ureterotomy was made in the proximal ureter, exposing the ureteral polyps. Counter-incisions were made distally on the ureter in order to identify additional polyps and the anterior portion of the ureter was opened to expose all involved urothelium. Polyps were excised with electrocautery. Intra-corporeal ureteroscopy confirmed the excision of all significant disease. The ureterotomy was closed in a water-tight, running anastomosis over a ureteral stent.

Results: Final pathology confirmed the presence of fibroepithelial polyps of the urinary tract. The patient is currently without signs or symptoms of recurrent obstruction. An ultrasound seven months postoperatively shows near complete resolution of his hydronephrosis.

Conclusions: Robotic-assisted laparoscopy is a safe and feasible alternative to endoscopic treatment of fibroepithelial ureteral polyps. The robotic platform may be especially applicable for large or multifocal polyps of the ureter or renal pelvis.

Sources of Funding: None
Introduction: Blue light cystoscopy (BLC) using hexaminolevulinic acid has been shown to improve the detection of non-muscle invasive bladder (NMIBC) during cystoscopy and transurethral resection of bladder tumors. The product has been available in Europe (Hexvix®) for over a decade and in the US (Cysview®) is being used in select centers. In the video we demonstrate use of Cysview® for detection of different stages of urothelial carcinoma, its role in detection of cancer in the margin of previous resection and the efficacy of blue light cystoscopy in detecting obscured or tumor-covered ureteral orifices.

Methods: From April 2012 to May 2015, 252 patients underwent BLC and TURBT at our institution. Several cases are highlighted in the video demonstrating cystoscopy view under white light (WL) and blue light (BL) with pathology results.

Results: BLC with Cysview® to detect NMIBC is demonstrated in 3 select cases as seen in figure 1. The top images are under WL cystoscopy and the bottom images demonstrate the same view under BL cystoscopy. The fluorescent areas were biopsied and revealed a tumor inside diverticulum to be high-grade pT1 plus CIS in the patient on the left; Flat lesion to be CIS in the middle; and bed of previous resection site that revealed CIS. Most of these lesions were WL negative and BL positive.

Conclusions: Use of blue light cystoscopy with Cysview® can help with the detection of NMIBC as well as CIS in patients undergoing TURBT for bladder cancer. Other indications for using BLC is detecting tumoral involvement of previous resection margins and finding elusive ureteral orifices.

Figure 1. Cystoscopy in patients under white (top) and blue (bottom) light.
CONCOMITANT URETHRAL SLING AT THE TIME OF ROBOTIC PROSTATECTOMY USING AN IN SITU VASCULARIZED ROTATIONAL PERITONEAL FLAP
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(Presentation to be made by Dr. Tom Feng)

Objectives: Post prostatectomy stress urinary incontinence is a common and bothersome problem in men undergoing surgery for prostate cancer. Many men ultimately require surgical intervention for correction of their incontinence. We sought to create a novel surgical technique that could be performed concomitantly at the time of robotic prostatectomy to decrease pad usage and improve continence post operatively, thus improving quality of life and potentially decreasing the need for future surgical intervention. Our objective was to describe our initial experience with this technique.

Materials and Methods: The novel technique consists of a suburethral hammock using a vascularized flap of peritoneum, called the “Ramin Sling”. During the dissection of the seminal vesicles through the posterior cul de sac, a 4 cm flap of peritoneum is raised off the posterior bladder. The flap is attached to the remainder of the peritoneum, maintaining its vascularity. Upon completion of the prostatectomy and bilateral pelvic lymphadenectomy, the flap is placed onto the prostatic fossa with the peritoneal surface facing the anastomosis. The posterior urethral stitch is placed through the cut edge of the peritoneal flap and then on to the posterior bladder neck. Three such sutures are placed at 5, 6 and 7 o’clock at the urethra, edge of peritoneal flap, and bladder neck. These sutures are individually tied, thereby bringing in the three structures. Then the remainder of the urethrovesical anastomosis is performed. An absorbable suture is placed along each lateral aspect of the peritoneal flap at the level of the anastomosis. Each suture is then driven through the periosteum of the pubic bone directly anterior to the anastomosis. Each suture is tied, thereby lifting the urethrovesical anastomosis and placing it back in its normal anatomic position and angle. We analyzed pad usage at 1 month follow-up to 24 months follow-up in patients who underwent this urethral sling.

Results: 113 men had complete two year follow-up available. Average age was 63 years and average pretreatment PSA was 9.15 ng/mL. The majority of men had clinical T1c disease with Gleason grades 6 and 7. All men underwent robotic assisted laparoscopic prostatectomy and bilateral pelvic lymph node dissection with concomitant sling. At one month postoperatively, pad usage per day was reported as 0 pads in 36% of men, 1 pad in 21%, 2 pads in 11%, and 3 or more pads in 32%. Pad use decreased over time with less than 6% of patients reporting using more than 1 pad per day at 24 months follow-up. (Figure 1). No clinical urine leaks, episodes of urinary retention or bladder neck contractures were reported. No significant voiding complaints since the introduction of the male sling were observed.

Conclusions: This novel technique of performing the “Ramin sling” using a well vascularized peritoneal flap at the time of robotic prostatectomy is a safe and effective method that appears to improve early return of continence. More information is needed to recommend its universal use, including a randomized control trial.

Source of funding: None

Figure 1: Trends of pad usage following male sling at the time of robotic prostatectomy
Introduction and Objectives: Suburethral synthetic mesh is commonly utilized to treat stress urinary incontinence. However, suburethral mesh implantation can result in devastating complications such as erosion, extrusion, infection, chronic pain, and irritative voiding symptoms. Mesh is often surgically removed due to symptoms but removal can pose challenges when operative records are not available, portions of mesh have been removed in prior surgeries, and mesh position has changed, or is simply not palpated on physical exam. Translabial ultrasonography is an inexpensive and useful diagnostic tool that can detect suburethral synthetic mesh. The purpose of this study was to evaluate a group of Urology trainees’ ability to identify pelvic landmarks, localize and assess completeness of suburethral mesh after brief instruction with a focused teaching protocol.

Methods: A retrospective study was conducted on a cohort of 20 female patients mean age of 58 years old (35-81 yo) who were seen in the urology clinic with a history of suburethral mesh placement. They all underwent translabial ultrasound by an ultrasonographer for symptomatic urologic complaints including; dyspareunia (50%), incontinence (60%), pelvic pain (55%), lower urinary tract symptoms (60%), and recurrent UTI (20%). Eight urology trainees went through a 15-minute teaching protocol on anatomical landmarks and techniques of translabial ultrasound mesh detection in addition to review of 2 training cases from the cohort. The trainees then reviewed the remaining 18 translabial ultrasound studies from the cohort and were asked a total of 126 questions including identification of anatomical planes, pelvic structures in different planes, mesh presence, disruption of mesh, and its location along the urethra. The overall correct response rate of all questions was collected and analyzed by Fisher’s Exact test was used for statistical analysis, with p<0.05 considered significant.

Results: Overall, trainees answered correct on average 83.9% (105/126) of all questions. Per category the average trainee was able to correctly identify the anatomical plane in 94.4% (17/18) of questions, detect presence of mesh in 95.8% (17/18), determine mesh disruption in 83.3% (15/18), correctly identify pelvic anatomical structures in 83.3% (15/18), and determine location of mesh in correspondence to the urethra in 72.2% (13/18). The trainees’ correct response rates were less than 75% for the following tasks; identification of the rectum or vagina in the sagittal view (73.4%), determination of the laterality of disrupted mesh (72.2%), and localization of suburethral mesh along the urethra (73.4%). There was no significant difference in overall correct response rates when stratified by urology trainee level (URO 0-URO 4).

Conclusions: Urology trainees can learn in a reasonable time how to identify anatomical landmarks on translabial ultrasound and consistently detect the presence of suburethral mesh. Translabial ultrasound may be utilized by urologists to aid in preoperative planning for mesh removal and clinical diagnostics for symptomatic mesh.

Source of Funding: none
Objectives: We demonstrate in this video the ability to completely remove sacrocolpopexy mesh in a minimally invasive fashion.

Materials and Methods: A woman with a history of previous sacrocolpopexy developed debilitating pelvic pain, obstructive voiding symptoms, and had a posterior apical mesh exposure on exam. She was found to have sacral osteomyelitis, for which she received intravenous antibiotics. She desired complete mesh removal.

Results: This was completed with robotic-assisted laparoscopy. Operative time was four hours, five minutes. Estimated blood loss was 25 milliliters. She was discharged home on post-operative day one.

Conclusions: Sacrocolpopexy mesh can be completely excised successfully in a minimally invasive fashion.

Source of Funding: None.
ROBOTIC-ASSISTED LAPAROSCOPIC SACROCOLPOPEXY USING AUTOLOGOUS ILIOTIBIAL BAND
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(Presentation to be made by Dr. Seth Cohen)

Objectives: In the setting of significant apical prolapse, sacrocolpopexy offers an effective option for surgical repair. We demonstrate in this video a technique for performing a minimally invasive sacrocolpopexy using a native tissue graft.

Materials and Methods: We use the Crawford device for harvest of autologous fascia from the lower extremity iliotibial band. A robotic-assisted laparoscopic sacrocolpopexy is then performed using the iliotibial band as the native tissue graft.

Results: The patient tolerated the surgery with minimal blood loss; she remains over three months out from surgical reconstruction with resolution of her apical prolapse.

Conclusions: It is feasible to harvest fascia from the lower extremity and place it as a native tissue graft when performing a robotic-assisted laparoscopic sacrocolpopexy.

Source of Funding: None.
EXCISION OF A LARGE PARAURETHRAL LEIOMYOMA
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(Presentation to be made by Dr. Emily Adams-Piper)

Objective: The purpose of this video is to demonstrate the technique for surgical excision of a large paraurethral leiomyoma and review pathophysiology and approach to treatment of paraurethral leiomyomas.

We present the case of a 20 year old virginal woman referred to our university medical center for evaluation of a 5 centimeter vulvar mass. After office evaluation, she underwent pelvic MRI, exam under anesthesia, cystourethroscopy and biopsy. Work up demonstrated the mass to be a distal, paraurethral, benign leiomyoma. Following biopsy pathology results, the patient underwent definitive surgical management with superomedial paraurethral mass excision, distal urethral reconstruction and cystourethroscopy. The relevant anatomy and the technique of the surgical excision are demonstrated in this video. Final pathology confirmed complete excision of benign leiomyoma with its capsule. The patient is doing well postoperatively, continent and highly satisfied.

Leiomyomas are a rare cause of periurethral masses and often have minimal associated symptoms. Paraurethral leiomyomas present at a mean age of 40-44 years old and this case presents the second youngest patient described in the literature. With approximately 400 total cases of bladder and urethral leiomyoma published, it has been found that these masses are rarely malignant. However, it is important to obtain pathologic diagnosis of all solid urethral, vulvar, and vaginal masses. Surgical resection of paraurethral leiomyoma requires detailed knowledge of the location of the mass and the anatomy of the female urethra to enable resection with minimal complication and successful subsequent reconstruction.

Conclusion: There is a broad differential for periurethral masses with which the female pelvic surgeon should be familiar. Paraurethral leiomyoma represents one rare cause of a solid periurethral mass. Successful management requires detailed preoperative work up and thorough understanding of the relevant anatomy to enable removal of the mass and to minimize complications.

Source of Funding: None
Objectives: We demonstrate a technique for anterior vaginal prolapse repair using a native tissue graft composed of fascia harvested from the lower extremity.

Materials and Methods: This video demonstrates the use of fascia harvested from the lower extremity, the iliotibial band, to repair anterior vaginal wall prolapse. Two strips of fascia are sutured together, creating an autologous graft that is then suspended under the anterior vaginal wall using the double-pronged retropubic passer. The graft is fixated to the anterior vaginal wall with vicryl sutures and the anterior vaginal wall is reconstructed over the autologous fascial graft.

Results: The surgery was completed in an outpatient setting and she was discharged home within 23 hours. She remains over three months out from surgery with resolution of her anterior vaginal wall prolapse.

Conclusions: This method of anterior vaginal wall repair offers patients another feasible option for the management of symptomatic prolapse using a native tissue graft.

Source of Funding: None.
Purpose: Minimally invasive management of urethral stricture disease is an option for patients with recurrent stricture disease, those who are poor surgical candidates, and those who are hesitant to undergo surgical management. The UroLume® urethral stent is a mesh tube designed to keep the urethra open at the area of obstruction and can be applied transurethrally in an office procedure. Failure has been reported and requires additional procedures for management. We present a method of removal of a UroLume® urethral stent with dorsal inlay buccal mucosa graft urethroplasty in one stage.

Methods: We present a video of a 46 year old male with a urethral stricture who had a UroLume® stent placed 5 years prior to surgery at an outside facility. He had been complaining of increasing obstructive symptoms and was found to have a proximal bulbar stricture on retrograde urethrogram. In the operating room, cystoscopy was performed, which showed the stent in place. The stent was palpated and marked on the skin and the incision was made. We dissected to the urethra. The urethra was mapped and rolled dorsally with 4-0 Vicryl® stay sutures. The urethra was incised dorsally over a 24 french bougie just proximally to the UroLume® stent through the stent to healthy urethra. The stent was opened and wires were removed until the stent was completely removed. A 6x2 cm buccal mucosa graft was harvested and prepared. The graft was anastomosed proximally with a 4-0 PDS® suture, tacked in place with 4-0 chromic suture, and the anastomosis was continued after a silicone catheter was inserted. We then reapproximated the muscle, subcutaneous fat, and Colle’s fascia with Vicryl® suture. The skin was closed with 4-0 Monocryl®.

Results: The case was uncomplicated and the patient was discharged on postoperative day #1. Catheter was removed on postoperative day #17 after pericatheter retrograde urethrogram showed a patent bulbar urethra. He has been doing well since surgery.

Conclusions: UroLume® stent removal at the time of buccal mucosa graft inlay urethroplasty in a single-stage procedure is a simple, safe and feasible option in selected patients.

Source of Funding: None
Objectives: Ureteral obstruction is one of the most commonly reported urologic complications after kidney transplantation, often occurring within the first 3 months after surgery. Transplant ureteral strictures occur in about 5% of cases. When successfully treated, long term damage to the renal allograft may be avoided. Surgical repair, however, is often complicated by dense fibrosis surrounding the structures of the allograft in the iliac fossa. We describe a case of a transplant ureteral stricture in a 52 year old female that was ultimately treated with a robot-assisted pyelovesicostomy. To our knowledge, this is the first such description of this case performed robotically.

Materials and Methods: A 52 year old female with a history of end stage renal disease secondary to diabetes and hypertension underwent a deceased donor renal transplant. A non-refluxing ureteral anastomosis was performed in the fashion of Lich-Gregoir over a ureteral stent. Her postoperative course was complicated by a urine leak which initially resolved with drain placement. Subsequently, hydronephrosis was noted, and an antegrade pyelogram revealed a ureteral stricture close to the anastomotic site. We were able to place an antegrade ureteral stent and attempted conservative management. The stent was removed at 8 weeks, but the stricture quickly recurred. A nephrostogram again showed a ureteral stricture. The patient underwent a robotic pelvic exploration on 3/4/15. After extensive dissection we concluded that the transplant ureter was severely strictured throughout its course and not suitable for reimplantation. Therefore, the transplant renal pelvis was anastomosed directly to the bladder.

Results: The patient tolerated the surgery well. There were no complications. The stent was removed and an antegrade nephrostogram was performed at 4 weeks post-operatively showing no leak and what likely constituted mild inflammation at the anastomosis. Thus, the nephrostomy tube was left in place and capped, and a nephrostogram at 8 weeks post-op showed excellent drainage from the transplant kidney to the urinary bladder. The nephrostomy tube was removed at that time and the patient has remained free of complications with excellent allograft function.

Conclusions: Robotic pyelovesicostomy is a suitable option in patients with kidney transplant ureteral strictures. The intrabdominal robotic-assisted approach affords excellent visualization, and allows for a precise, tension-free anastomosis.

Source of Funding: None
ULTRASOUND-GUIDED RENAL ACCESS FOR PERCUTANEOUS NEPHROLITHOTOMY: A DESCRIPTION OF THREE NOVEL ULTRASOUND-GUIDED TECHNIQUES

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(Presentation to be made by Dr. Carissa Chu)

Objectives: Ultrasound-guided renal access for percutaneous nephrolithotomy (PCNL) is a safe, effective, and low-cost procedure commonly performed worldwide, but a technique underutilized by urologists in the United States. The purpose of this paper is to familiarize the practicing urologist with methods for ultrasound guidance for percutaneous renal access.

Methods: We discuss two alternative techniques for gaining renal access for PCNL under ultrasound guidance. We also describe a novel technique of using the puncture needle to reposition residual stone fragments to avoid additional tract dilation.

Conclusion: With appropriate training, ultrasound-guided renal access for PCNL can lead to reduced radiation exposure, accurate renal access, and excellent stone-free success rates and clinical outcomes.

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LASER DIRECT ALIGNMENT RADIATION REDUCTION TECHNIQUE (DARRT) FOR PERCUTANEOUS NEPHROLITHOTOMY ACCESS
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(Presentation to be made by Patrick W. Yang*)

Objectives: Patients with large renal calculi treated with percutaneous nephrolithotomy (PCNL) are at risk for high radiation exposure as they routinely undergo radiation during diagnosis, treatment, and follow-up. In an attempt to reduce the radiation exposure of stone patients treated with PCNL, we have developed a novel access technique called the Laser Direct Alignment Radiation Reduction Technique (DARRT). The purpose of this video is to demonstrate this technique.

Materials and Methods: This video demonstrates the Laser DARRT in a 42-year-old male with a large right renal staghorn calculus. In this technique, the patient was placed in the prone split-leg position to allow access to both the urethra and flank. Utilizing a flexible cystoscope, an angle-tipped glidewire was placed into the right kidney from below and converted to a super-stiff guidewire. Over the super-stiff guidewire an ureteroscope was inserted using a fluoroless technique and was used to identify the optimal calyx for access. A portable C-arm equipped with a laser aiming beam was brought in over the flank region and used to target the ureteroscope tip through the 11th intercostal space. Once the tip of the ureteroscope, the access needle tip, and the needle hub of a 20 gauge Chiba needle were aligned, the laser beam was used to maintain proper alignment during needle insertion. Several taps of fluoroscopy were also used to confirm correct needle orientation. The needle was advanced until the tip was identified ureteroscopically. The stylet was removed and a 2.2 Fr stone basket was used to pull a 0.018 mandril wire into the ureter. Using an Aprima access sheath, the mandril wire was converted to a super-stiff guidewire. Stone fragmentation was accomplished using a combined ultrasonic/pneumatic lithotripter. Stone free status was noted intraoperatively using both flexible nephroscopy and ureteroscopy and was confirmed using continuous fluoroscopy. A nephrostomy tube, JJ stent and multipurpose reentry catheter were placed fluoroscopically at the conclusion of the procedure.

Results: The video will demonstrate the successful use of the Laser DARRT in this 42 year old male. Total operative time was 3 hours and 45 minutes. Estimated blood loss was 40 mL. Fluoroscopy time required for access was 6.5 seconds and the total fluoroscopy time for the entire procedure was 9.7 seconds. A low-dose CT scan on the morning after surgery demonstrated that the patient was stone free and the patient was discharge home on postoperative day 1 with no complications.

Conclusions: The Laser DARRT is a simple radiation reduction technique for establishing percutaneous renal access that is much easier to learn and use than PCNL using only ultrasound guidance. Use of the laser sight during needle insertion allows the surgeon to obtain tactile feedback without receiving radiation exposure to his hands. We feel that this procedure can simplify access in patients undergoing fluoroscopically guided renal access and shows significant promise as a method to reduce radiation exposure to both the patient and surgeon.
Objective: Ectopic ureteral insertion is a rare condition. Ectopic ureters in males may present with flank pain, lower urinary tract symptoms, or epididymoorchitis. We present a case of a male patient with a dysplastic, ectopic, left kidney with an ectopic ureter managed with robotic-assisted laparoscopic nephroureterectomy.

Case Presentation: A 10 year old male presented with chronic, left epididymal pain. Urinalysis was unremarkable. The patient was born with a solitary functioning right kidney detected on prenatal ultrasound. Additionally, he had a known left sided pelvic cyst, consistent with a nonfunctioning, ectopic, left kidney. The ectopic, dysplastic, left kidney had been followed with regular ultrasounds and the dilated renal pelvis had increased in size by 8 mm over the last five years. Routine ultrasound demonstrated a 4.5 cm, tubular, cystic structure behind the bladder. Follow up MRI revealed an atrophic, ectopic, dilated left kidney with ectopic ureter inserting into the left seminal vesicle. The patient was taken for robotic assisted laparoscopic left nephroureterectomy. Pathologic analysis revealed an ectopic ureter with associated epithelial-lined cyst. No renal parenchyma was identified in the pathologic specimen. There were no complications. Estimated blood loss was 20 milliliters. The patient was dismissed from the hospital on postoperative day 1.

Conclusions: Robotic-assisted laparoscopy proved to be a safe and efficacious platform for dissection and removal of an ectopic, nonfunctioning kidney with an ectopic ureter draining into the seminal vesicle. All structures were accessed from a single docking point, and the procedure was well-tolerated, providing a minimally-invasive option for management of this congenital abnormality.

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