From the Chairman’s Desk

The USC Institute of Urology is continuing to expand its research, clinical practice and collaborations, both nationally and internationally. We recently had our first annual conference titled “Practical Urology” with invited well-known lecturers from all over the world. We had over 170 attendees. The USC Urology team also recently led an international urologic symposium with the Sir H. N. Reliance Foundation Hospital and Research Center located in Mumbai, India. The symposium focused on advances in urologic robotic surgery and featured live surgeries, case study presentations and lectures. USC Urology also had a hugely successful presence at the 2016 AUA in San Diego, with multiple high impact presentations, including 3 award winning abstracts. USC Urology also hosted a pre-AUA meeting on our health science campus, with lectures, hands-on courses and live surgeries. In this edition of UIP, we are reporting some of these and we hope that you enjoy it!

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Editor’s Corner

In this issue of UIP, we are back to our traditional track with 2 urology cases; one from our pediatric urology team and the other from urologic oncology division. We are also providing an exciting report from our first annual practical urology conference that was held in Feb 2016 at USC health campus as well as our attendance in Mumbai international urology symposium. You may find information on the upcoming meetings and conferences that our department will be hosting through the remainder of this year in the back of this UIP edition. We look forward to having you join us soon!

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Minimally Invasive Pre-transplant Native Nephrectomy with Creation of a Continent Uretero-vesicostomy

OBJECTIVES:
1. Know the indications for removal of native kidneys in renal transplant candidates.
2. Understand the value of native ureter for patients who may require renal transplantation.

CASE:
The patient is a 7-year-old boy with a history of posterior urethral valves. Despite early ablation he progressed to stage IV chronic kidney disease. At birth, he had high-grade vesicoureteral reflux bilaterally. Over time the left-sided reflux resolved, while the right-sided reflux persisted into a small dysplastic right kidney. Urodynamic studies noted good bladder compliance and an excellent capacity. Unfortunately, he was unable to empty completely without intermittent catheterization per urethra. His GFR was estimated to be about 15-29 ml per min with a small portion of the overall function from the right side.

WHAT WE DID:
We used Robotic Assisted Laparoscopic techniques to perform a right native nephrectomy with creation of a continent vesicostomy using the native right ureter. The initial port placement consisted of a 12mm umbilical port, two 8mm robotic arm ports, and a 5mm accessory port (Figure 1). The native nephrectomy was performed using this configuration with the table rotated to the patient’s left side and the robot positioned to the right. The ureter was transected near the ureteropelvic junction to preserve as much tissue as possible. The kidney was placed into a specimen bag and extracted later in the case.

For the second portion of the procedure, the table was reconfigured to remove rotation and tilted to Trendelenburg position. The robot was repositioned to the foot of the bed.
and a single additional robotic arm port was placed in the left lower quadrant (Figure 2). The detrusor muscle was incised leaving the mucosa intact. A urinary catheter was used to instill and remove irrigation fluid from the bladder during creation of this submucosal tunnel. The tunnel was considerably longer than typically created for a simple anti-reflux procedure. An intracorporeal 12 fr catheter segment was used to ensure ease of catheterization.

The proximal ureteral segment was then passed through the abdominal wall via the right lower quadrant robotic arm port site where it was matured to the skin.

**DISCUSSION:**

The North American Pediatric Renal Trials and Collaborative Studies registry identifies urological conditions including renal dysplasia and obstructive uropathy as the cause of more than 30% of end stage renal disease (ESRD) in children. A high nadir serum creatinine measurement can identify boys at high risk for ESRD and bladder dysfunction can accelerate functional decline.

Optimizing urinary tract function is an important role of the pediatric urologist.

When approaching patients with neurogenic bladder dysfunction, ESRD patients may require interventions to improve storage function, including augmentation cystoplasty, outlet procedures for continence, or assistance with emptying such as a continent catheterizable vesicostomy (Mitrofanoff versus Yang-Montie). These measures can be critical to preserving renal allograft function.

The native ureter can be a useful source of healthy tissue to achieve lower urinary tract functional goals prior to transplantation. Large dilated ureters can be fashioned into patches for augmentation cystoplasty, obviating the need for intestinal harvest and associated risks of incorporating intestinal segments into the urinary tract. In the case presented above, we chose to use the native ureter as a continent catheterizable channel for bladder emptying. Patients with posterior urethral valves are ideal candidates for continent vesicostomies as they often have poor emptying yet they have intact somatic sensation which makes catheterizations uncomfortable. The dilated ureter from high grade vesicoureteral reflux has the advantages of increased caliber to accommodate larger catheters and a more robust vascular supply. Extravesical reimplantation allows for adequate continence along with preservation of distal vascular supply.

Upper tract issues can be encountered in the post transplant period as well. Renal harvest and backbench preparation can lead to compromised distal ureteral vascularity. Resulting ischemia may lead to stricturing or even ureteral necrosis. Ureteropelvic junction obstructions can occur in the transplanted kidney as well. In these cases, the native ureter can be used to optimize allograft drainage.

Pre-transplant nephrectomy is required in a number of situations including uncontrolled hypertension, severe nephrotic syndrome, and with recurrent pyelonephritis associated with severe vesicoureteral reflux.

In very young patients with polycystic kidney disease nephrectomy is required to improve lung function and/or to make room for an adult sized renal allograft. When nephrectomy is performed, the native ureter should be preserved as high as possible as a potential tissue for reconstructive procedures. As noted above, these tissues are ideally suited for a number of important potential applications.

**References:**


3 P Kokorowski and J Routh. Metabolic and Malignant Consequences of Intestinal Augmentation of the Urinary Tract in Children. CML Urol 2011; 17(2):29-38

Optimal use of Blue Light Cystoscopy vs. traditional cytology and white light cystoscopy

OBJECTIVES:
1. To identify cases for optimal use of Blue Light Cystoscopy
2. To identify limitations of traditional cytology and white light cystoscopy

CASE PRESENTATION:
Pt is a 68 y/o male with a history of gross hematuria and nephrolithiasis. He attributed the hematuria to stones, and delayed care for several months. Ultimately, he had another episode of gross hematuria and sought urologic consultation. Office cystoscopy was suspicious for bladder carcinoma. Pathology from TURBT showed high grade Ta disease and CIS. Patient underwent induction BCG x 6. Repeat TUR 6 weeks after completion of BCG showed persistent High Grade Ta and CIS. He was referred for second consultation. In-office cystoscopy was suspicious for persistent disease, but there were various healing sites within the bladder. I was also worried about bladder neck involvement.

WHAT I DID:
After a discussion with the patient about the various treatment options, including salvage intravesical chemotherapy and radical cystectomy, the patient was most interested in pursuing radical cystectomy. However, he was not interested in a cutaneous diversion. We decided to reassess the bladder and specifically bladder neck and prostatic urethra to aid in discussion of urinary diversion.

The patient underwent cystoscopy/TUR using cysview and blue light cystoscopy. Intra-operatively, we saw extensive blue light-positive, white light-negative lesion surrounding the old biopsy site. The bladder neck had some irregular uptake of cysview, though differentiation from a “tangential view” was difficult. There was quite a bit of inflammation in the trigone, making ureteral orifice identification difficult.

Several biopsies were taken. Pathology confirmed CIS adjacent to old biopsy sites, CIS at the bladder neck, and multifocal high grade Ta disease. Patient underwent radical cystectomy with final pathology consistent with biopsy. Urethral margin and prostatic urethra were free of disease, and Studer orthotopic diversion was performed.
DISCUSSION:

Studies have shown Blue Light Cystoscopy (BLC) using hexaminolevulinate (Cysview) can improve the detection of non-muscle invasive bladder cancer (NMIBC) compared to white light cystoscopy (WLC) alone. Our experience with USC prospective registry confirms the advantages of BLC using Cysview. BLC significantly increases detection rates of CIS and high-grade lesions as well as low grade papillary tumors compared to WL cystoscopy alone. Prior BCG therapy appears to have no effect on BLC accuracy.

Described imitations of Cysview and Blue light include prior use of BCG, as there may be a higher false positive rate of biopsy. Additionally, while cysview is not FDA approved for use in detection of CIS, the American Consensus Committee on Cysview determined that detecting occult CIS is one of the biggest advantages of use of blue light cystoscopy and cysview.

In this patient, we were able to determine that he had quite a large volume of residual CIS, not otherwise appreciated. We were also able to detect CIS at the bladder neck. With this information, we were able to have appropriate pre-operative counseling and guidance regarding urinary diversion options.

Fig. 1 Detection of bladder lesions using white light and blue light cystoscopy

References:

5. Diagnosis and Treatment of Non-Muscle Invasive Bladder Cancer: AUA/SUO Guidelines, Updated May 2016
Urology leaders gather for first USC-Urology Annual Conference

The first USC-Urology annual conference: Practical Urology, held Feb. 4-6 2016 at the Health Sciences Campus of USC, offered a state-of-the-art showcase of practices in urology from national and international leaders in the fields of urology, oncology, female urology, reconstructive and others. There were more than 170 participants from 9 different countries and 22 companies also participated in the exhibition. Organized by a senior executive team of Institute of Urology, the course included live surgeries, interactive discussions and more.

“The USC Team is a great innovator and emerging leader in urology,” said Paul Russo, MD, a urologic oncology surgeon at Memorial Sloan Kettering Cancer Center in New York who also was a guest faculty member at the conference and discussed some concepts from kidney cancer.

With the focus of the conference on practical urology, many of the lectures and master classes focused on covering conventional and complex cases as well as reviewing surgical practices.

“This meeting is very important because it’s telling all about practical urology so we can spread all of this new information to practicing urologists all across the country,” said Stacy Loeb, MD, an assistant professor in the urology and population health departments at NYU School of Medicine in New York who also was a guest faculty member at the conference. “I think this has great potential to affect patient care.”

The next conference will be held Feb. 2-4, 2017.

“USC Urology put together a first-rate conference,” said Joel Sheinfeld, MD, deputy chief, urology service and William G. Cahan Chair in Surgery at Memorial Sloan Kettering who also was a guest faculty member at the conference. “They’re covering the topics with state-of-the-art lectures and current concepts across the gamut of the disease, so it’s very good.”

The prestigious national and international guest faculties also included William Catalona, M.D. from Northwestern University, Neil Baum, M.D. from Louisiana State University Medical School, Ralph Clayman, M.D. from UC Irvine, Thomas Herrmann, M.D. from Hanover medical School, Antonio Pompeo Lima, M.D. from Sao Paulo, Brazil, Mark Soloway, M.D. from Memorial Healthcare system in Florida, Claus Roehrborn, M.D. and Allen Morey from UT Southwestern Medical Center, Victor Nitti, M.D. from NYU School of Medicine and Manoj Monga, M.D. from Cleveland clinic.
USC Institute of Urology shares robotic surgery expertise in India

Building on its relationship with the Sir H. N. Reliance Foundation Hospital and Research Center located in Mumbai, the USC Institute of Urology led an international urology symposium at the hospital Feb. 20-21. The symposium focused on advances in robotic surgery for urology cases and featured live surgeries, case study presentations and lectures.

During one of the live surgeries, Inderbir S. Gill, MD, founding executive director of the USC Institute of Urology, performed a partial nephrectomy to remove a cancerous tumor on a patient’s kidney. Prior to the surgery, Gill and his team utilized a 3-D printed model of the patient’s kidney to prepare for the complexities of the procedure.

“Such 3-D models help us to explain the nuances of the surgery to the patient,” Gill explained. “Also, junior surgeons and students learn better. We have also developed a simulator, which is patient-specific, that allows the doctor to operate on the 3-D model before operating on the real organ.”

The conference was chaired by Gill, who was accompanied by Monish Aron, MD, professor of clinical urology and co-director of robotic surgery and advanced laparoscopy at the USC Institute of Urology. A total of 20 national and international faculty members spoke at the seminar.

“Cases of urological cancers, especially prostate cancer, are on the rise in India,” said Gustad Daver, MD, medical director, Sir H.N. Reliance Foundation Hospital. “Robotic surgery has revolutionized minimal access surgery, especially in the field of urology. Working with the USC Institute of Urology to offer this international symposium is our effort to bring the best international practices to Mumbai for citizens of India.”
USC Institute of Urology Upcoming Conferences

**Radical Cystectomy Course**
This course will provide comprehensive nuts and bolts technical review with live demonstrations and video presentations for robotic and open bladder cancer surgeries.
**Date & Location:** September 23-24, 2016;
Aresty Auditorium, USC Health Science Campus

**Complications in Robotic and Laparoscopic Surgery**
This course will discuss specific laparoscopic and robotic surgery cases and corresponding complications.
**Date & Location:** October 28-29, 2016,
Aresty Auditorium, USC Health Science Campus

**Resident’s Preceptorship in MIS**
This conference will cover the progress and future of robotic and laparoscopic surgery through live surgeries and case presentations. Limited to national and international urology residents.
**Date & Location:** November 4-5, 2016;
Aresty Auditorium, USC Health Science Campus

**Apprentice Course**
This course provides an in-depth review of the entire spectrum of robotic and laparoscopic urologic surgery. Close mentoring by expert USC faculty OR observation, practical didactic talks, and breakfast/lunch sessions with faculty.
**Dates & Location:** July 11-15, 2016,
September 26-30, 2016, November 14-18, 2016
USC Institute of Urology, USC Health Science Campus

For more information on the USC Institute of Urology or our upcoming events, please contact Regina Rezex at rezex@med.usc.edu.