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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LEARNING OBJECTIVES:
1. Review the impact of undescended testicles and inguinal hernia repair on male fertility.
2. Determine the role for partial orchiectomy in the management of small testicular masses.
3. Assess the options for paternity in men with azoospermia.

CASE
This is a healthy 35 year old male with an 18 month history of primary infertility. He had a history of a left undescended testicle, for which he underwent orchidopexy at 2 years of age. He also underwent right inguinal hernia repair with mesh at 20 years of age. His libido, erections and ejaculation were intact. A review of systems for other causes for reproductive impairment was negative.

His wife was 33 years old and had a normal female factor evaluation.

Examination revealed a well-developed and androgenized male. He had no visual field defects or gynecomastia. He had bilateral inguinal scars. His genitourinary exam demonstrated that the left testis was small at 12 cc, with a long axis length of 2 cm, high-riding in the scrotum, and therefore difficult to palpate. The right testis was normal sized at 20 cc, with a length of 4.5 cm, and firm. Bilateral vasa were palpable and there was no varicocele.

Because the difficult exam and prior undescended testis, a scrotal ultrasound was obtained. This identified a 6 mm right testis mass, concerning for malignancy (Figure 1).

Two semen analyses were checked, which demonstrated normal volume azoospermia. Gonadotropin testing revealed: FSH 7.0 mIU/mL (normal 1.6-8 mIU/mL), LH 4.7 mIU/mL (normal 1.5-9.3 mIU/mL), and total testosterone 325 ng/dL (normal 270-1000 ng/dL). Since he had a sperm concentration of < 5 x10⁶/mL, he had karyotype and Y chromosome microdeletion testing, both of which were normal. Serum tumor markers (hCG, LDH, AFP) were checked because of the testicular mass, and were within normal range.

WHAT WE DID
Since we needed to determine if: 1) spermatogenesis was present and 2) the mass represented a malignancy, we decided to proceed with excision of the left testicular

Figure 1. Testicular ultrasound demonstrating a 6mm mass, concerning for malignancy

Figure 2. Intraoperative microscopy demonstrating spermatozoa within the obstructed testicle
mass (testis sparing surgery) and concurrent intra-operative biopsy of the adjacent normal testicular tissue.

Intraoperative ultrasound was used to identify and excise the mass with a rim of normal tissue. Frozen pathology revealed a focus of Leydig cell hyperplasia, with no malignancy. Sampling of the adjacent tissue revealed no mature spermatozoa. Rare spermatids were found, and since there have been reports of successful fertilization using these (1), they were frozen for possible future use.

The couple was counseled of their options for fertility, including donor sperm, adoption or surgical exploration of the right testicle for possible sperm extraction. Since in vitro fertilization (IVF) is more successful with spermatozoa (spermatids are only used on an experimental basis), we decided to look for sperm within the right testis. We placed him on clomiphene citrate for 3 months prior to his surgical exploration, since this has been shown to increase surgical sperm retrieval rates in men with azoospermia (2). Of note, this is an off-label use of this medication.

The patient underwent a right microsurgical testicular sperm exploration. While spermatogenesis was not at normal levels, mature sperm were found (Figure 2). He was likely obstructed on the right side from his prior inguinal hernia repair with mesh. The couple underwent a successful IVF cycle with 8 embryos. One of these was implanted and the wife is presently pregnant with a baby boy.

**DISCUSSION**

There were several factors to consider in the management of this couple.

Based on the patients examination, semen analyses and hormone levels, it was not clear if he had an obstructive or production etiology for his azoospermia (or a combination). The distinction between obstructive and nonobstructive azoospermia may usually be made by exam and gonadotropin levels; Men with FSH 7.6 mIU/mL or greater, or testicular long axis 4.6 cm or less, usually have nonobstructive azoospermia (3). This patient’s FSH was in the higher range of normal (7.0 mIU/mL), but he had a history of bilateral inguinal operations, which could have resulted in vasal or epididymal obstruction. This picture was not completely consistent with either a production or a blockage issue. This is a patient who we would consider a percutaneous biopsy to determine if spermatogenesis is present.

Undescended testicles demonstrate varying degrees of hypospermatogenesis, and earlier orchidopexy results in greater preservation of reproductive function (4). This patient’s discrepancy in testicular size was consistent with the left testis being undescended. Ultimately, it was not producing sperm.

The testis mass was 6 mm and on the same side as the undescended testicle. Undescended testicles are associated with an increased risk of both malignancy and infertility. This mass was small and the tumor markers were negative. While radical orchiectomy may be an acceptable option for testicular masses < 2 cm (5). This is particularly germane given this patient’s border-line low testosterone level (325 ng/dL), as the unnecessary removal of additional testicular tissue may have predisposed him to earlier symptomatic hypogonadism (and the risks of testosterone replacement therapy).

**References:**


LEARNING OBJECTIVES:
1. To identify why the adult urethral stricture patient after childhood hypospadias repair differs from the general population.
2. To recognize how to properly treat the adult urethral stricture patient after childhood hypospadias repair.

CASE:
A healthy 18 year old male with was referred to the office without any voiding complaints other than a noticeable increase in urinary staining of his undergarments. His past surgical history was remarkable for bilateral orchidopexy and mid-shaft penile hypospadias repair at age two. As a result personal embarrassment, he concealed these wetting symptoms from his mother for several years.

Attempted cystourethroscopy and retrograde urethrography were unsuccessful due to a severely stenotic urethral meatus. Observed voiding demonstrated an acceptable, downward directed urinary stream. Close physical inspection of the ventral penile shaft with loupe magnification revealed a 2 mm pinpoint urethrocrotaneous fistula.

WHAT WE DID:
Stage One
The patient was placed supine on the operating table and prepped and draped in standard surgical fashion. After several unsuccessful attempts at urethral intubation with a glidewire, a urethromeatoplasty was performed. An incision was made at the ventral 6 o’clock position for 2 cm until healthy urethral mucosa was encountered. The urethral mucosa was re-approximated to the penile skin with interrupted 4-O PDS suture to accommodate proximal placement of a 16-Fr red rubber catheter.

Our attention then turned to the urethrocrotaneous fistula (Figure 1) which was 3 cm proximal to the urethromeatoplasty. A circumferential elliptical incision was made with 3 X 3 cm dimensions to completely remove the fistula tract and perform a first stage Johanson urethroplasty. The remaining healthy urethral plate was carefully re-anastomosed to the skin with several interrupted 4-O PDS suture with a resultant penile urethrostomy (Figure 2). A 16-Fr urethral catheter was removed ten days later.
Stage Two

After three months, the patient was placed supine on the operating table and prepped and draped in standard surgical fashion. The urethra easily accommodated a 16 Fr red rubber catheter. An elliptical 3 X 4 cm circumferential incision was then made around the penile urethrostomy (Fig. 3). The superficial tissue and skin were carefully mobilized to preserve blood supply. Re-tubularization of the urethral plate with a running, tension free, watertight anastomosis was performed with 4-O PDS suture (Fig. 4). Three additional layers of periurethral tissue were utilized for coverage of the urethral suture line. The skin was then closed (Fig. 5) and a 14- Fr urethral catheter was removed ten days later in the office.

**DISCUSSION:**

Hypospadias, the most common congenital penile anomaly occurs in 1/300 live births. Although numerous surgical techniques have been developed, no single method is considered the standard of care. Urethral strictures and fistulas are known complications of hypospadias repairs.

The incidence of urethral stricture after hypospadias surgery in pediatric populations occurs in about 6.5% after short follow-up. However, urethral strictures can occur decades after initial surgical correction. Although urethral strictures and fistulas present as long-term complications, the true incidence is unknown.

Adult urethral stricture patients with previous hypospadias repair differ from the usual population of stricture patients. First, despite severe urethral strictures, they sometime present without voiding complaints. Second, these patients have complicating problems seldom seen in other stricture patients including renal failure and urethocutaneous fistula. Third, they have a poor quality of tissue which requires more complex repairs such as staged Johanson operations with or without buccal grafts.

Adult urethral stricture disease after childhood hypospadias repair continues to be a challenge for Reconstructive Urologists. Poor tissue quality with concomitant urethrocutaneous fistula do represent major factors influencing surgical strategy. Two-stage urethroplasties with or without buccal mucosal grafts can achieve durable long-term results. We suggest patients undergoing childhood hypospadias repair receive life-long follow-up to detect latent urethral strictures.

**Reference:**

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.