PSA kinetics. Even when anastomotic biopsies document only benign tissue, the study of PSA doubling time is usually characteristic of the coexistence of residual cancerous cells. Local recurrence of prostate cancer is usually clinically suspected based on PSA kinetics and is usually characterized by a prolonged doubling time (>10 months) in a patient with a Gleason score of 2–7, a positive surgical margin, and absence of seminal vesicles or lymph nodes involvement. Currently these patients may be treated by means of radiation therapy. In our experience both color Doppler transrectal ultrasound and dynamic contrast enhanced MR, followed by TRUS-guided biopsies are useful modalities for early detection and confirmation of local recurrence of prostate cancer. These modalities however, should be used only when confirmation of local recurrence of prostate cancer is mandatory or in other words will modify the patient's clinical management.

Dr. Adilson Prando
Chief, Department of Radiology and
Diagnostic Imaging
Vera Cruz Hospital
Campinas, São Paulo, Brazil
E-mail: aprando@mpc.com.br

UROGENITAL TRAUMA

Urethral and bladder neck injury associated with pelvic fracture in 25 female patients

Black PC, Miller EA, Porter JR, Wessells H
Department of Urology, University of Washington School of Medicine and Harborview Medical Center and Harborview Injury Prevention Research Center, Seattle, Washington, USA
J Urol. 2006; 175: 2140-4

Purpose: We describe the presentation, diagnostic evaluation, management and outcome of female urethral trauma.
Materials and Methods: All female patients treated at Harborview Medical Center between 1985 and 2001 with urethral injury were identified by International Classification of Diseases 9th revision code. Approval of the Human Subject Division was obtained and patient charts were reviewed. The Urogenital Distress Inventory Short Form, the Incontinence Impact Questionnaire Short Form and the Female Sexual Function Index were sent to the patients.
Results: A total of 25 patients (13 adults, 12 children) with a mean age of 22 years (range 4 to 67) met inclusion criteria. All had pelvic fracture related to blunt trauma. They represented 6% of all female patients treated in the same review period with pelvic fracture. Blood was seen at the introitus in 15 patients and 19 had gross hematuria. Of the injuries 9 were avulsions, 15 were longitudinal lacerations and 1 was not further specified. Primary repair was performed in 21 patients and 4 were treated nonoperatively. There were 5 patients who required secondary procedures including fistula repair in 4 and continent urinary diversion in 1. At a mean followup of 7.3 years (range 1.6 to 14.4) 9 of 21 patients (43%) had moderate or severe lower urinary tract symptoms and 8 of 13 (38%) had sexual dysfunction (FSFI score less than 26.55). Conclusions: Female urethral and bladder neck injury occurs with pelvic fracture, presents with gross hematuria and/or blood at the introitus, and requires operative repair for avulsions and longitudinal lacerations. These patients are at risk for significant sexual and lower urinary tract dysfunction.

Pelvic fracture urethral injuries in girls

Podestá ML, Jordan GH
Urology Unit, Department of Surgery, Hospital de Niños Ricardo Gutiérrez, Associated Hospital to the University of Buenos Aires, Argentina
J Urol. 2001; 165: 1660-5

Purpose: Injuries to the female urethra associated with pelvic fracture are uncommon. They may vary from urethral contusion to partial or circumferential rupture. When disruption has occurred at the level of the proximal urethra, it is usually complete and often associated with vaginal laceration. We retrospectively reviewed the records of a series of girls with pelvic fracture urethral stricture and present surgical treatment to restore urethral continuity and the outcome.
Materials and Methods: Between 1984 and 1997, 8 girls 4 to 16 years old (median age 9.6) with urethral injuries associated with pelvic fracture were treated at our institutions. Immediate therapy involved suprapubic cystostomy in 4 cases, urethral catheter alignment and simultaneous suprapubic cystostomy in 3, and primary suturing of the urethra, bladder neck and vagina in 1. Delayed 1-stage anastomotic repair was performed in 1 patient with urethral avulsion at the level of the bladder neck and in 5 with a proximal urethral distraction defect, while a neourethra was constructed from the anterior vaginal wall in a 2-stage procedure in 1 with mid urethral avulsion. Concomitant vaginal rupture in 7 cases was treated at delayed urethral reconstruction in 5 and by primary repair in 2. The surgical approach was retropubic in 3 cases, vaginal-retropubic in 1 and vaginal-transpubic in 4. Associated injuries included rectal injury in 3 girls and bladder neck laceration in 4. Overall, postoperative followup was 6 months to 6.3 years (median 3 years).
Results: Urethral obliteration developed in all patients treated with suprapubic cystostomy and simultaneous urethral realignment. The stricture-free rate for 1-stage anastomotic repair and substitution urethroplasty was 100%. In 1 girl, complete urinary incontinence developed, while another has mild stress incontinence. Retrospectively the 2 incontinent girls had had an associated bladder neck injury at the initial trauma. Two recurrent vaginal strictures were treated successfully with additional transpositions of lateral labial flaps.
Conclusions: This study emphasizes that combined vaginal-partial transpubic access is a reliable approach for resolving complex obliterative urethral strictures and associated urethrovaginal fistulas or severe bladder neck damage after traumatic pelvic fracture injury in female pediatric patients. Although our experience with the initial management of these injuries is limited, we advocate early cystostomy drainage and deferred surgical reconstruction when life threatening clinical conditions are present or extensive traumatized tissue in the affected area precludes immediate ideal surgical repair.

Editorial Comment

The above two articles illustrate the difficulty in diagnosing and managing the complications of female urethral injury from pelvic fracture. Such injuries can occur in up to 6% of all female pelvic fractures. Obviously, life threatening pelvic fractures and associated injuries need to be stabilized and reduced first, as part of traumatic resuscitation.

Female urethral injuries from pelvic fracture are due to severe mechanisms of injury, with many injuries being urethral disruption injuries. Female urethral injuries are mainly bladder neck injuries that extend into the urethra and/or avulsion injuries. Presenting signs of urethral injury are blood at the introitus or gross hematuria. Avulsion injuries are mostly diagnosed upon attempted catheterization. Associated vaginal injury in very common (up to 87%) and ranges from an anterior vaginal wall laceration to circumferential disruption. Despite the above, up to 40% of female urethral injuries are missed at the time of injury. A high index of suspicion is key to making the diagnosis reliably. In the acute setting we advocate immediate repair of the urethral and the vaginal injuries, since if only a supra-pubic tube is placed, the urethra typically obliterates, or urethrovaginal fistula and/or vaginal stenosis results. Bladder neck injuries should also be repaired in the early post injury period (up

to 2 weeks after) in order to prevent subsequent incontinence. Extensive surgical reconstruction is otherwise needed for such patients. If the patient is unstable, repair can often wait a few days until she is stable.

In prepubertal girls, where the pelvis is narrow and space limited, repair of urethral stenoses is very difficult. Often times, a combined vaginal and abdominal approach in needed for successful reconstruction – and often may require a partial or total pubectomy. In such cases, an interposition flap of omentum is important to prevent bladder and bowel herniation.

If the patient is incontinent after injury or repair, the urethra is typically fixed and rigid. In such cases, we have placed a bladder neck artificial sphincter, with good dryness. Unfortunately, the bladder is often too scarred to mobilize the bladder enough to do a bladder neck reconstruction, such as a Kropp or Young Dees Leadbetter

Dr. Steven B. Brandes
Associate Professor, Division of Urologic Surgery
Washington University in St. Louis
St. Louis, Missouri, USA
E-mail: brandess@wustl.edu

PATHOLOGY

Partial atrophy on prostate needle biopsy cores: a morphologic and immunohistochemical study

Wang W, Sun X, Epstein JI
Department of Pathology, The John Hopkins Medical Institutions, Baltimore, MD 21231, USA
Am J Surg Pathol. 2008; 32: 851-7

Partial atrophy is the most common benign mimicker of prostate cancer on needle biopsy. Of 3916 prostate needle core biopsy cases received in our consultation service over a period of 3 months (March 1, 2007 to May 31, 2007), 170 cases (4.3%) with partial atrophy were diagnosed as atypical glands by outside pathologists and prospectively identified. We supplemented our material with 108 cases of partial atrophy sent to our consultation service in 2006 from a single institution, which frequently uses a triple cocktail stain [p63, high molecular weight cytokeratin (HMWCK), alpha-methyl acyl-Coa racemase (AMACR)]. The morphologic features of the 278 cases and immunohistochemistry of 236 cases (198 with prostate cocktail and 38 with only basal cell makers) were analyzed. Forty-eight of 278 (17.3%) partial atrophy cases were mixed with postatrophic hyperplasia. Enlarged nuclei were visible in 43/278 (15.5%) cases, with prominent nucleoli seen in 58/278 (20.9%) cases (30 cases associated with nuclear enlargement). Of 198 cases with a prostatic cocktail stain, 48 (24.2%) had a cancer pattern for both basal cells and AMACR (p63-, HMWCK-, and AMACR+), 14 (7.1%) had a cancer pattern for basal cells (p63-, HMWCK-, and AMACR-), 89 (44.9%) had a cancer pattern for AMACR (p63+, HMWCK+, and AMACR+), and 47 (23.7%) had a totally benign pattern (p63+, HMWCK+, and AMACR-). Of the 198 cases using the cocktail stain, 136 (68.7%) had positive basal cell staining. The percentage of basal cells labeled with the combination of p63/HMWCK was: < 5% in 42 (21.2%) cases, 5% to 75% in 58 (29.3%) cases, and > 75% in 36 (18.2%) cases. An additional 38 cases immunostained only for p63 and/or HMWCK was negative in 2 (5.2%) cases, < 5% (13.1%) in 5 cases, 5% to 75% in 19 (50%) cases, and > 75% in 12 (31.6%) cases. In conclusion, partial atrophy is a benign mimicker of adenocarcinoma both as a result of its routine morphologic features and its immunohistochemical profile. Recognition of the classic morphology of partial