

Post-traumatic urethrocutaneous fistula with pelvic fracture in a boy: A case report and literature review

Charu Tiwari, Hemanshi Shah, Jayesh Desale, Deepa Makhija

Department of Pediatric Surgery, TNMC & BYL Nair Hospital, Mumbai Central, Mumbai, Maharashtra, India

Abstract

Traumatic genitourinary injuries especially urethral injuries are rare in children. Most of these injuries occur in conjunction with a pelvic fracture after blunt trauma. These injuries call for an immediate diagnosis and appropriate management. Good results have been reported after delayed repair. However, urethral stricture, incontinence and erectile dysfunction are the known complications. We report a traumatic urethral injury causing urethrocutaneous fistula in a seven year boy.

Keywords

Pelvic fracture; traumatic urethral injury; suprapubic cystostomy; delayed repair.

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Corresponding Author: Prof. Dr. Hemanshi Shah,

Dept of Pediatric Surgery, TNMC & BYL Nair

Hospital, Mumbai Central, Maharashtra, India.

E-mail: hemanshishah@gmail.com

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Introduction

Most pediatric urethral injuries are a result of pelvic fractures after high-impact blunt trauma [1]. Unfortunately, such injuries are becoming more and more common in childhood, especially in developing countries [2]. Diagnosis should be suspected

in cases with blood at meatus associated with pelvic fractures. Immediate bladder drainage via a suprapubic cystostomy, or urethral realignment, are the initial management options. Immediate primary repair may be possible in girls [2]. Results are usually good with delayed urethroplasty for such injuries. The common complications of pelvic fracture-associated urethral injury include urethral stricture, incontinence and erectile dysfunction [1,2]. We report a seven year old boy with pelvic

fracture and posterior urethral injury causing an urethrocutaneous fistula.

Case Reports

A 7 year-old boy was referred from a peripheral hospital with suprapubic cystostomy in situ. He had history of pelvic trauma 2 months back with pelvic fracture, right thigh fracture and urinary retention. Suprapubic cystostomy was done at a peripheral hospital for urinary retention. He was admitted with complaints of passing urine through a fistula between scrotum and anus and decreased urine output from suprapubic cystostomy (SPC). On examination, there was a single fistulous opening between scrotum [Fig. 1] and anus and pyuria from the SPC. X Ray KUB suggested multiple radio-opaque opacities in bladder and urethra, suggesting calculi [Fig. 2].



Fig. 1. Clinical photograph of the patient showing the urethrocutaneous fistula (Black arrow).



Fig. 2. Plain X-ray KUB showing calculi in the bladder and urethra

On SPC gram, the fistulous tract could be seen up to the perineum [Fig. 3].



Fig. 3. SPC gram of the patient showing the fistulous tract.

Cystoscopy through the native urethra revealed normal urethra till the membranous part. Cystoscopy through the perineal opening revealed many impacted calculi in the fistulous tract, dilated posterior urethra and a large calculus in the bladder. Laser lithotripsy was done for the urethral calculi. Suprapubic cystolithotomy and proximal end to end urethroplasty were performed after 6 months [Fig. 4].

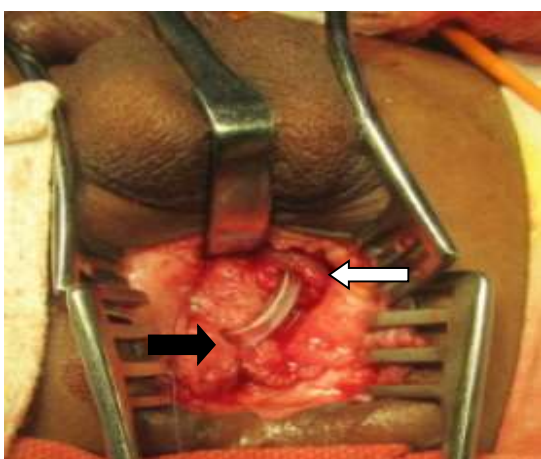


Fig. 4. Intra-operative photo showing the proximal (White arrow) and distal (Black arrow) ends of the urethra during urethroplasty.

Post-operative recovery was uneventful. The patient is doing well on follow-up.

Discussion

Urethrocutaneous fistulas can be congenital or acquired. The congenital urethral fistulas are due either to segmental arrest of the

embryonic mesoderm that fails to encircle the developing groove at the localization of the fistula or to embryonic blowout behind the distal congenital obstruction [3,4]. Acquired urethral fistulas are usually sequelae of neoplasms, trauma, infections or post-surgical [3]. These fistulas may end in the soft tissue of the perineum or open at the perineal skin or the penis itself. Alternatively, they can end in the rectum, vagina, uterus or the hip. There have also been reports of fistulas ending in the scrotum, corpus spongiosum or the corpus cavernosum [5-7].

Traumatic urethral injuries are rare injuries in children and are often associated with pelvic fractures [1]. The incidence of pelvic fracture associated urethral injury (PFUI) has been estimated to be 2.4–7.5% [1,8,9]. The most common reported mechanism of injury is trauma associated with pedestrian impact by motor vehicles (71%), followed by passengers in motor vehicles (24%) [1,10,11]. Anatomical differences contribute to the higher incidence of such injuries in children, i.e., the delicate tissues of an immature pelvis, the relative intra-abdominal position of the bladder, and an underdeveloped prostate (leading to an unprotected posterior urethra) in boys [1].

The history of pelvic fracture, or any external penile or perineal trauma in a child

can suggest acute urethral trauma [12,13]. Each millimeter of displacement of the symphysis or inferomedial pubic bone is associated with a 10% higher risk of injury to the urethra [2]. On examination, blood at the meatus and/or gross hematuria is associated with urethral injury potentially resulting in urinary retention [1,13]. In such cases, urethral instrumentation should be avoided until the urethra is imaged [13]. Digital rectal examination in children with trauma is an unreliable finding, but needs to be done to rule out a concurrent rectal injury [1,13,14].

In an unstable patient, an attempt to pass a urethral catheter may be required. If there is any difficulty, a suprapubic catheter should be inserted under ultrasound guidance [13]. After stabilization of the patient's general condition, retrograde urethrography (RGU) usually aids in the diagnosis [1]. Dynamic retrograde urethrography is the gold standard for evaluating urethral injury, and permits classification of the injury and guides subsequent management [13,15,16].

However, this is not possible in females where endoscopic evaluation with cystoscopy and vaginoscopy under general anesthesia is preferred to confirm the diagnosis [1]. During the late post-traumatic period, a combination of antegrade cystourethrography and RGU can be carried

out to assess the site, severity and length of injury as well as the function of the bladder neck [1,13,4]. If there is doubt from the accuracy of VCUG/RGU, either MRI to determine the course of the fistula tract or endoscopy through the suprapubic tract can be used [1,4,13,17]. The role of Ultrasonography is limited in posterior urethral injuries.

The management of pediatric PFUI presents a challenge as there is no clear-cut established consensus or algorithm [1]. There is still controversy between those supporting early intervention to realign the urethra and drain the pelvic hematoma and those supporting initial suprapubic cystostomy alone with delayed repair of the ensuing urethral defect [1,4,13,17]. Acute treatment options include primary endoscopic realignment performed during the first 10 days after the injury and immediate open urethroplasty. However, immediate open urethroplasty is usually experimental and therefore not indicated. Delayed formal urethroplasty at, or later, than 3 month after injury is the procedure of choice and the gold standard for treating posterior urethral distraction defects. This allows for healing of associated injuries, damaged skin and tissues and pelvic hematoma [13].

The length of time of suprapubic

catheterization could be a disadvantage [18]. In our case here, posttraumatic urethral fistula was repaired primarily in the late period. Post-operative recovery was

uneventful. The patient is doing well on follow-up.

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