

CASE REPORT

Pediatric penile fracture with severe urethral disruption: An unusual presentation

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ABSTRACT

Herein, we report a rare case of pediatric penile fracture with severe urethral avulsion, caused by bicycle fall. The patient was an eight-year-old boy that referred to emergency department with the moderate degree of swelling, ecchymosis and penile deformity. He was not able to void. Scrotal and testicular examination were normal. Ultrasonography demonstrate soft tissue swelling along the penile body, spongiosal and cavernosal linear tearing with ventral hematoma of the basal penis. Reterograde urethrography demonstrated extravasation of the contrast media on the one third portion of the proximal penile urethra. After degloving incision, gentle urethroplasty was performed with buccal mucosal graft. The corpora cavernosa was repaired airily with fine continual absorbable suture.

Key words: penis, fracture, urethral injury, children

INTRODUCTION

Penile fracture is an urological emergency caused by the disruption of the tunica albuginea with rupture of the corpus cavernosum.¹ The first case of penile fracture was reported by Arab physician 'Abul Kasem around 1,000 years ago in cordoba.² In general, causes of penile fracture depending on the socio-cultural, marital status, masturbating habits and different ways of sex in society.³ In western societies, usually penile fracture caused by trauma during vigorous vaginal sex which is due to slipping out of the penis from vagina and strike to perineum or pubic bone.⁴ In Middle East, manipulation is a common factor. Other causes such as accidental fall is indeed a rare and unfortunate cause of injury. For example, in the literature review by Eke in 2002 one from 1331 penile fracture reported from falling out of bed during sleep, when penis was erect.⁵ In the study of Mr. De Rose and colleagues, chronic inflammation and perivascular lymphocytosis or fibrosclerotic changes in structure of tunica albuginea encountered as risk factors for penile fracture.¹¹ Partial or complete urethral injury can be accompanied by it. There are only scarce reports of pediatric penile fracture in the literature. Even fewer are presents about accompanied severe urethral injury in this situation.⁶ We present a rare



Figure 1, Longitudinal and transverse ultrasound images show the tearing of tunica (red arrow) and intracavernosal haematoma (yellow arrow).

case with both penile fracture and severe strip type urethral avulsion in an eight years old boy secondary to bicycle falling.

CASE REPORT

An eight-year-old boy referred to the emergency room with meatal bleeding and inability to void after falling on bicycle. History taken from the patient's father, represented the erect situation of penis immediately before bicycling, during the voiding. Physical examination revealed penis deformity, some degree of ecchymosis around the base of the penis and the penoscrotal junction. Scrotal and testicular examination were normal. Ultrasound from the scrotal view demonstrate soft tissue swelling along the penile body, spongiosal and cavernosal linear tearing with ventral hematoma of the basal penis (Fig. 1). Reterograde urethrography demonstrated significant extravasation of the contrast media (Fig. 2).

In the operating room, after Circumferential subcor-

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Figure 2, Retrograde urethrography demonstrate remarkable extravasation of contrast medium into the periurethral space (arrow).

onal degloving incision, Buck's fascia was opened transversely. there was deep tearing of the ventral surface of the right corpora (Fig. 3A), and nearly complete urethral disruption with ventral avulsed mucosal strip at penile urethra (Fig. 3B).

The corpora cavernosa was repaired airily with fine continual 3-0 Vicryl stitch. The mucosal strip of injured urethra was removed and urethroplasty was performed with buccal mucosal graft with interrupted 4-0 Vicryl sutures. The patient was discharged on postoperative day 3 with an antibiotic and 10 Fr silicon Foley catheter in place. Fifteen days postoperatively, a retrograde urethrogram was performed and showed no evidence of extravasation (Fig. 4). The catheter was removed 17 days postoperatively. After one year follow up, voiding pattern and erection are normal.

DISCUSSION

Penile fracture occurs when intracavernosal pressure reach to more than 1,500 mmHg.⁷ The thickness of the tunica albuginea in the flaccid state (approximately 2 mm) decreases in erection to 0.25- 0.5 mm, and is therefore more vulnerable to traumatic injury.⁸ Pe-

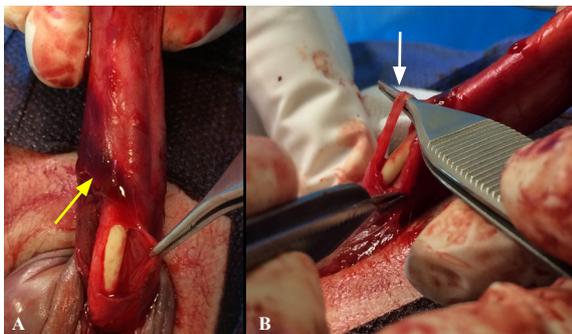


Figure 3, Tearing of the ventral surface of the right corpora (A) and severely injured urethra with avulsed mucosal strip (B).



Figure 4, Reterograde urethrography demonstrate remarkable extravasation of contrast medium into the periurethral space (arrow).

nile fracture is associated with a sudden cracking or popping sound, pain and immediate detumescence. Local swelling of the penile shaft develops quickly, due to enlarging haematoma. Bleeding may spread along the fascial layers of the penile shaft and extend to the lower abdominal wall if Buck's fascia is also ruptured. The rupture of the tunica may be palpable. A thorough history and examination usually confirm the diagnosis, but in some cases, imaging may be useful.⁸ Cavernosography, ultrasonography (USG) or magnetic resonance imaging (MRI) can identify lacerations of the tunica albuginea in unclear cases, or provide reassurance that the tunica is intact. If a concomitant urethral injury is suspected, a retrograde urethrogram (RUG) may be performed but flexible cystoscopy under anaesthesia during exploration/ repair is more usually employed.⁹ Subcutaneous haematoma, without associated rupture of the cavernosal tunica albuginea, does not require surgical intervention. In these cases, non-steroidal analgesics and ice-packs are recommended. The repair of the tunica albuginea can be obtained by using absorbable sutures, with good long-term outcome, and protection of potency. Post-operative complications were reported in 9%, including superficial wound infection and impotence in 1.3%.¹⁰ The conservative management of penile fracture is not recommended and increases complications, such as penile abscess, missed urethral disruption, penile curvature, and persistent haematoma requiring delayed surgical intervention. Late complications after conservative management were fibrosis and angulations in 35% and impotence in up to 62% for severe injuries.¹¹

Although abrupt bending of the erected penis that occur during forceful uncontrolled intercourse or aggressive masturbation can break the markedly thinned and stiff tunica albuginea, and encountered as the most common cause of penile fracture in literature review, also sudden blunt trauma of the erected penis such as falling, account as a rare etiology of penile fracture. This form of trauma if occur in flaccid penis, usually complicated by soft tissue (skin, subcutaneous, corporeal, and urethral) contusion, rather than fracture.¹²

In our presentation, sharp tearing of tunica albuginea and accompanied sharp disruption of the urethra, without detectable skin or other soft tissue contusion, absolutely suggest the erect situation of penis at the moment of falling. Also, history taken from the patient's father, confirm this situation. Because, immediately before bicycling, he observed the erected penis of baby during voiding. The incidence of accompanied urethral injury reported 3 to 20%. Urethral injury is usually associated with damage of two corpus cavernous.⁶ The damage of urethra is usually partial and total damage is rare. From 1992 to 2015, only 22 cases of complete urethral injury has been reported in the english literature.⁷ To date, There are only scarce reports of pediatric penile fracture in the literature. Even fewer are reports of urethral injury in this situation.³ Concomitant tear in the urethra without substantial urethral tissue loss is repaired at the same time.¹³ A small laceration can be repaired by simple closure, while a complete rupture requires spatulation of the disrupted ends and anastomotic repair or rarely application of flap or graft substitution.¹⁴ For our case, because of the distractional pattern of urethral injury, buccal mucosal graft was selected for coverage of urethral defect.

CONCLUSION

There are only rare reports of pediatric penile fracture in the literature. Even fewer reports are presents about accompanied severe urethral injury in this situation. Perfect diagnosis, management and follow up are necessary for prevention of catastrophic long term complications.

CONFLICT OF INTEREST

None.

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