

CASE REPORT

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Penile fracture with urethral injury: a case report of rare double trouble

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Abstract

Background A penile fracture occurs when the tunica albuginea of penis tears during erection. Penile fracture is a rare but serious injury that occurs when the erect penis sustains a traumatic force. It is characterized by a sudden snapping or popping sound, followed by immediate pain, swelling, and discoloration. Its association with concomitant urethral injury is very rare. This case study describes such a rare case.

Case presentation In this case study, we present the case of a 47-year-old man who experienced sudden pain and lost erection with a popping sound while having sexual intercourse. There was bloody discharge from the urethral opening and showed the distinct sign of an "Eggplant Deformity." This result confirmed the diagnosis. Immediate surgical intervention revealed damage to the left corpora and urethra. The procedure involved repairing the tunica albuginea covering the corpora tissue and reconstructing the damaged urethra. The surgery went smoothly without complications. The patient reported satisfactory erectile function and normal urination on follow-up visit after 2 months.

Conclusion Penile fracture with urethral injury is a rare but serious emergency. Prompt detection and surgical intervention are crucial for optimal outcomes and minimal complications. Depending on severity, either catheterization or repair may be necessary.

Keywords Fractured penis, Urethral trauma, Urethroplasty, Case report

Background

Fracture of the penis, also known as a traumatic injury to the penis, is a rare occurrence during sexual activity, particularly in the "Female Superior" position (Morey *et al.* 2022). This kind of injury can also lead to urethral damage, resulting in total or partial tears. However, its prevalence remains uncertain due to underreporting of cases. In the USA, higher incidence is reported among sexually active males aged 30 to 50 (Morey *et al.* 2022). In Asian

nations, the occurrence of linked urethral injury is notably lower, ranging from 3 to 6%, compared to the Western world where it ranges from 20 to 25% (Amer *et al.* 2016). Symptoms of penile fracture include sharp pain, loss of erection, penile bruising and swelling. Signs of urethral injury may include difficulty urinating, hematuria and bleeding at the opening of the urethra (Mirzazadeh *et al.* 2017; Barros *et al.* 2020). Many studies have shown that repairing penile fractures early and immediately after the injury can result in lower complications and improved outcomes. However, recent research has indicated that the long-term results of early repair (within 24–48 h) compared to delayed repair (up to 7 days) are similar in patients who do not have urethral involvement [13]. The urgent exploration of penile fracture and urethral injury is imperative due to the potential for a range of complications, including urine extravasation and the formation

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Fig. 1 Egg Plant deformity

of strictures. Our case report presents one such rare case involving fracture in corpora cavernosum (left) and associated urethral injury.

Case presentation

A 47-year-old man came to the outpatient department with a sudden and severe swelling of his penis, accompanied by a rapid loss of erection three hours earlier. This occurred during intercourse in the "Female Superior" position, when he heard a "popping" sound and immediately felt discomfort and pain, resulting in the loss of his erection. The patient also noticed blood originating from the urethral meatus. There were no comorbidities or the review of system and drug history were unremarkable. Upon examination, a significant hematoma was found extending from the base to the tip of his penis. A characteristic deformity resembling an "Eggplant Deformity" could be seen (Fig. 1). The laboratory tests were normal and he had surgical exploration of the penile injury. A circumferential sub-corona skin incision was made and the penis was degloved (Fig. 2). Further examination revealed a rupture in the two of third tunica albuginea and a type 5 (Unified Anatomic Mechanical Classification of Urethral Injuries), approximately 1cm, partial injury to the anterior urethra (Fig. 3). The left corpora rupture was involving two-thirds of the corpora cavernosum (Fig. 3). The area of injury was cleaned and the hematoma was evacuated. The tunica albuginea was then carefully sutured together to repair the ruptures in left corpora cavernosum. The injured urethra was realigned, its edges were spatulated and then repaired over a stent (size 16Fr urethral catheter) using vicryl 4.0" (Fig. 4). This allowed for the successful reconstruction of the urethra using



Fig. 2 Degloving of penis

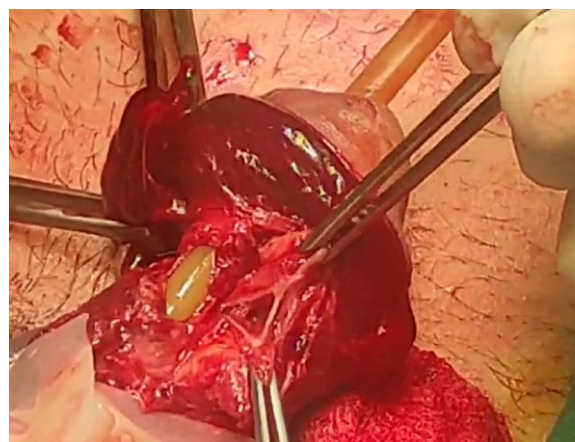


Fig. 3 Foleys popping out of urethral rupture site and left corporal rupture

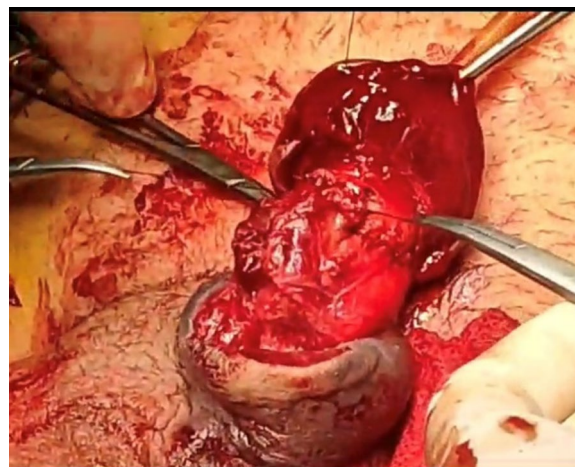


Fig. 4 After repairing urethra and left corpora

small sutures 4.0 made of a synthetic absorbable material. Artificial erection was induced intraoperatively to test the repair. The drain was placed and surgical site was closed with sutures and elastic tubular bandage was applied to the head of the penis (glans penis). No complications occurred during the postoperative period. The patient was sent home with a 16-French (fr) foley catheter, which remained in place to assist with urine drainage. The patient was discharged on 3rd day and called up for follow-up visits on the 5th day after the surgery. The stitches were removed on 14th day. During the visit on 22nd day, the foley catheter and tubular bandage was removed (Fig. 5). The patient was allowed to have intercourse after 60 days. On follow-up after two months, the patient had a satisfactory sexual outcome with no difficulties in urination.

Discussion

Penile fracture coupled with urethral damage is an uncommon occurrence. Different literature reports a wide range of associations with urethral rupture, varying from 1 to 38% (Amit et al. 2013). Penile fractures can be caused by vigorous sexual activity, during which the erect penis strikes against the pubic bone or perineum. Other possible etiologies include forceful flexion to reduce arousal, masturbation, movement in bed, and by the use of an injection used for peyronies disease (collagenase *Clostridium histolyticum*). There are more rarer circumstances leading to penile fractures, including one patient who was kicked by a cow and another who was injured

while masturbating with a vacuum cleaner (Amer et al. 2016). Sexual intercourse and masturbation are among the most prevalent factors contributing to the development of this particular condition (Eke 2002; Moslemi 2013).

These injuries are more likely to occur due to the thinning of the tunica albuginea; this structure usually measures 2.4 mm during a state of rest, but only 0.25 to 0.5 mm while erection. The corpus spongiosum and urethra may sometimes also be affected, but rarely (Morey et al. 2022; Persaud et al. 2019; Beilan et al. 2018). A penile fracture diagnosis is generally effortless because of the presence of common symptoms. It is usually signaled by a popping sound, followed by rapid detumescence, intense pain, swelling of the penis, and what has been deemed the "Eggplant Deformity." Additionally, blood discharge from meatus, blood in urine and disruption during voiding can be seen as evidence of a urethral injury (Barros et al. 2020; Persaud et al. 2019). In our case specifically, the patient reported hearing a loud cracking sound, and other signs such as detumescence, swelling and pain were present. Furthermore, there was urethral bleeding which further lead to diagnosis of a urethral damage.

The primary approach for managing a penile fracture is early exploration and surgical repair. However, findings from existing literature indicate that there are variable outcomes associated with both early and delayed repair. Experts generally agree that urgent surgery leads to the fastest recovery of erectile function and improved cosmetic appearance (Kominsky et al. 2019). According to the available data, patients who underwent surgical management experienced fewer complications compared to those managed conservatively. Specifically, 88.6% of patients who received surgical intervention reported sufficient erections for intercourse without any voiding dysfunction or penile curvature, whereas only 66.7% of patients managed conservatively achieved similar outcomes. The advantages of surgical management over conservative therapy have been extensively studied and universally acknowledged. A systematic review and meta-analysis conducted by Wongal et al. concluded that there is no statistically significant difference in rates of erectile dysfunction (ED) and tunical scar formation when comparing early repair (performed within 24 h of injury) with delayed repair (performed after 24 h). Although surgical repair remains the gold standard for penile fracture, the study suggested that a brief delay in surgery may be acceptable for certain patients based on individual circumstances or medical considerations (Wong et al. 2017).

An exploration, hematoma evacuation, and repair of the ruptured left copora were performed as early as possible. Subcoronal circumferential incisions are the preferred surgical technique. This technique allows optimal



Fig. 5 22nd day visit after Foley's removal

exposure to the corpus cavernosum and proximally remove the entire penile skin. Besides providing adequate visibility of the corpus spongiosum, a degloving incision prevents urethral injuries from being missed (Morey et al. 2022; Kominsky et al. 2019). A single procedure leads to successful repair in our case, including evacuation of clots, tunica albuginea closure with water-tight sutures, and urethroplasty was performed.

Conclusions

Penile fracture with concomitant urethral injury is a rare but serious urological emergency. It is important to detect bleeding from the urethral opening or hematuria immediately, as these symptoms may require surgical intervention. While additional diagnostic tools are usually not necessary in most cases due to easily recognizable signs through clinical examination, prompt surgery and repair of the defect are recommended for optimal outcomes and minimal complications. Depending on the severity of the case, either urethral catheterization or urethral repair would be conducted. Overall, it is essential that penile fracture accompanied by urethral injury receives urgent attention and adequate surgical management for long-term benefits.

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Author contributions

FH, AA and HS contributed equally (data acquisition, data analysis, drafting of manuscript, critical revision of the manuscript). U.N, A.S, M.A helped in writing: All authors have read and approved the manuscript.

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Availability of data and materials

Data can be requested from corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval was not applicable. Written informed consent from the patient was obtained for anonymized information to be published in this case report.

Consent for publication

Consent for publication is taken from the patient.

Competing interests

The authors declare no potential competing interests with respect to the research, authorship, or publication of this article.

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