

## Case Report

# A Double Tragedy of Coexisting Penile Fracture and Urethral Injury: A Case Report and Review of Literature

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### Abstract

Penile fracture coexisting with urethral injury is very rare.

We present a 35-year-old businessman with complaints of penile pain and a popping sound during sexual intercourse. Examination revealed a deformed phallus consistent with eggplant deformity, blood at the tip of the meatus and suprapubic swelling. A diagnosis of penile fracture coexisting with urethral injury and acute urinary retention was made. Immediate surgical intervention revealed a 1.5 x 0.5cm ventral transection of the mid-bulbar urethral and the right corpus cavernosum. He subsequently had urine diversion via suprapubic cystostomy, repair of ruptured tunica albuginea covering the corpora and urethroplasty over a size 16-FR silicone urethral catheter. Patient did well postoperatively with normal urination two weeks postop following removal of urethral stent.

Penile fracture coexisting with urethral injury is a rare but serious urological emergency. Prompt detection and surgical intervention are crucial for a successful outcome.

**Keywords:** Albuginea, Injury, Penile Fracture, Tunica, Urethra,

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## Introduction

Penile fracture (PF) is defined as the rupture of the tunica albuginea of the corpus cavernosum due to blunt trauma to an erect penis [1,2,3]. This injury may or may not involve urethral damage, which can significantly impact diagnosis and management (4). Penile fracture accompanied by urethral injury is uncommon [4,5].

Anatomically, the penis is a dual-function organ for urination and reproduction, positioned within the urogenital triangle. It consists of three main parts: the glans, body, and root. The paired corpora cavernosa, enclosed by the tunica albuginea, facilitate erection, while the corpus spongiosum houses the urethra [6,7].

Penile fracture associated with urethral injury is rare, occurring at a rate of 3.9% [7,8].

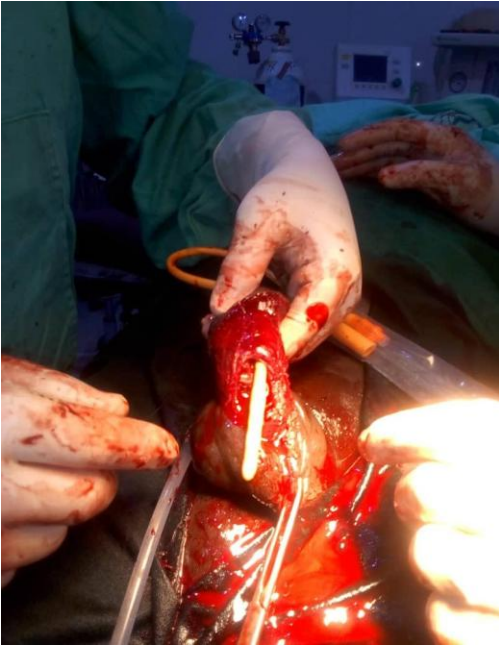
We aimed to report a case of penile fracture coexisting with urethral injury and review of literature.

## Case Presentation

A 35-year-old businessman presented at the emergency room with complaints of sudden penile pain and a popping sound during sexual intercourse. There was associated penile swelling, blood at the tip of the penis and inability to pass urine of 2 hours duration. He is not a known hypertensive or diabetic patient with no known drug allergy. The patient was afebrile, anicteric, not pale, well hydrated, and had stable vital signs. Significant findings on examination were those of a deformed phallus consistent with eggplant deformity, blood at the tip of the meatus and suprapubic swelling (Figure 1). A diagnosis of penile fracture coexisting with urethral injury and acute urinary retention was made. The pack cell volume, urea and creatinine were 38%, 4.5mmol/l and 87umol/l respectively. Urethrogram was not done due to the emergency condition of the patient, and in addition, it is not routinely done due to its high false negatives from hematoma. The patient was prepared and had immediate surgical intervention. A subcoronal degloving incision was made, which revealed a 1.5 X 0.5cm ventral transection of the mid-bulbar urethral and the right corpus cavernosum (Figure 2). He subsequently had urine diversion via suprapubic cystostomy, repair of the ruptured tunica albuginea covering the corpora and urethroplasty over a size 16-FR silicone urethral catheter (Figures 3, 4). Patient did well postoperatively with normal urination two weeks postop following removal of urethral stent. On follow-up at six weeks postoperatively, he was voiding well per urethra after removal of the urethral stent.



**Figure 1. Penile fracture with blood from the urethral meatus**



**Figure 2: Penile fracture coexisting with urethral injury**



**Figure 3: Post-repair of penile fracture and urethral injury**



**Figure 4. Patient in the post-operative care unit**

### Discussion

Penile fracture coexisting with urethral injury is an uncommon urological emergency. The incidence varies based on location from 1% to 38%. Reports from Asia and the Middle East document relatively low rates, ranging from 0% to 3%, whereas significantly higher incidences of 20% to 38% have been reported in the United States and Europe. These regional differences may be attributed to variations in the mechanism of injury, timing of presentation, diagnostic evaluation, and reporting patterns. [10-13]

Penile fractures most commonly occur in middle-aged men; Our patient was 35 years which is consistent with findings from multiple studies, which recorded the average age of patients is between 30 and 50 years of age. However, any age group can be affected, as noted by Eke et al. [1,14]

In terms of causes, geography plays a surprising role. In the Western world, most cases result from accidents during sexual intercourse, whereas in the Middle East and Northern Africa, self-inflicted penile bending, known as the 'Taghaandan' manoeuvre, is the usual culprit. Additionally, cases can result from masturbation or from accidentally rolling over in bed onto an erect penis [14,15]. Coital trauma is frequently associated with high-energy impact, increasing the risk of urethral involvement. Western studies have reported higher rates of urethral rupture in PF cases linked to sexual intercourse, with incidences reaching 38% in some regions. The greater mechanical stress exerted on the penis during vigorous or misaligned penetration contributes to the severity of the injury. An Irish study has highlighted sexual intercourse as the primary cause of severe penile injuries (10). Additionally, a Brazilian study investigated the connection between sexual positions and PF severity, suggesting that positions like doggy style generate greater stress on the erect penis, potentially increasing the risk of urethral injury [14,15,16].

In contrast, non-coital trauma, such as masturbation or penile manipulation, typically involves low-energy impact, reducing the likelihood of urethral involvement. A large Iranian study involving 352 PF cases found that despite 76.4% of fractures being caused by tagaandan (forceful bending of the penis to induce detumescence), only five cases had associated urethral rupture [12].

Diagnosing urethral injury in PF primarily depends on patient history, particularly symptoms such as difficulty urinating, urinary retention, or urethral bleeding. The index patient presented with sudden penile pain and a popping sound during sexual intercourse. There was associated penile swelling, blood at the tip of the penis, and an inability to pass urine for 2 hours prior to presentation [16-18]. Ofoha et al had 75% of patients presenting within two days of the event [19].

A retrograde urethrogram (RUG) can help confirm urethral injury, although it carries a risk of false-negative results, possibly due to hematoma masking the defect. Consequently, routine use of RUG is not always recommended in clinical practice [16-19].

Immediate surgery for urethral injury in penile fractures has been recommended, with the benefit of satisfactory erections. Immediate surgery was performed on the index patient following confirmation of the penile fracture. On surgical exploration, a 1.5 x 0.5 cm ventral transection of the mid-bulbar urethra and the right corpora cavernosa was found. We diverted the retained urine via suprapubic cystostomy to relieve the urinary retention and repaired the ruptured tunica albuginea covering the corpora. We also performed urethroplasty over a size 16-FR silicone urethral catheter.

The objective of treating PF with associated urethral injury is to preserve sexual potency and recover normal micturition function. The treatment consists of tension-free end-to-end anastomosis under a transurethral catheter. A circular subcoronal incision followed by further penile degloving is the best described surgical approach, allowing good exposure of the corpus cavernosum and urethra, besides identification and repair of any concomitant urethral injury. The corpus cavernosum is treated using interrupted 3-0 polyglactin sutures. Partial urethral tearing is primarily treated with simple 5-0 polyglactin sutures over an 18 French catheter. In cases of complete urethral injury, the treatment consists of tension-free end-to-end anastomosis after sufficient dissection of the urethra on both sides of the tear. The postoperative duration of urethral catheterization depends on the complexity of observed lesions. Generally, the urethral catheter is left for 10-14 days in cases of partial injury and for 14-21 days in cases of complete lesion [20,21]. Some authors recommend suprapubic cystostomy in cases of complete circumferential rupture. They believe that it is safer to place a suprapubic catheter and recommend keeping it closed for at least 3 days after urethral catheter removal to ensure adequate and normal voiding before its removal.

Regarding sutures, absorbable materials like polyglactin are generally favoured, typically applied in an interrupted fashion. An alternative suture technique is the simple running fashion, as noted by Hoag *et al.* Suture sizes often range between 2-0 and 4-0, with 3-0 being the most used. Some surgeons opt for non-absorbable, polypropylene sutures, usually applied in an inverted fashion. Advocates for non-absorbable sutures contend that they offer prolonged support, but they may lead to complications such as stitch granulomas and palpable knots. It is important to note that no studies have definitively proven the superiority of one suture material over another [9,21,22]. We used an interrupted, absorbable (polyglactin) suture for the repair.

The index patient did well postoperatively with normal urination two weeks post-op following the removal of the urethral stent.

Studies have shown that long-term follow-up demonstrates that most patients maintain normal erectile and voiding functions after reconstruction. Postoperative outcome was satisfactory after three weeks, consistent with previous reports [21].

## Conclusion

Penile fracture is an uncommon urological emergency, particularly in cases with urethral involvement. Urethral injury should be suspected in the presence of clinical signs, such as urethral bleeding, hematuria, and urinary retention. Diagnosis is usually clinical, and complementary diagnostic methods are not usually required. Urgent urethral reconstruction is mandatory and produces satisfactory results with low levels of complications.

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