

## Does Urethral Bleeding in Penile Fracture Foretell Colossal Trauma? Case Series

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### ABSTRACT

Penile fracture is a tear of tunica albuginea leading to disruption of corpora cavernosa secondary to vigorous sexual intercourse. Urethral injury can be associated with a penile fracture in 3-20% patients. Urethral bleeding is a common symptom of urethral injury, which may or may not be present. Urethral bleeding suggests urethral injury, which implies severe disruption of corpora cavernosa and corpus spongiosum. Repair of tunica albuginea and spongiosum done promptly results in normal erectile function with minimum chances of urethral stricture. We report 3 cases of fracture of the penis with a urethral injury resulting from sexual intercourse.

**Keywords:** Penile Fracture, Tunica Albuginea, urethral Injury, IIEF (International Index of Erectile Function).

### INTRODUCTION

Fernstrom first described penile fracture in 1957. Initially, he recommended conservative treatment, then surgery, if needed. The underlying mechanism is sudden bending of the penis by hitting on bone during vigorous intercourse or bending of penis during masturbation leading to increase in intracorporeal pressure exceeding the tensile strength of tunica albuginea. The presentation of penile fracture is variable depending upon the severity of injury and time to presentation.<sup>[1]</sup> It is a urological emergency that requires surgery to prevent long term sequel of trauma, i.e., persistent penile swelling, curvature, corporeal fibrosis, and erectile dysfunction. The patient presents with a typical history of a sudden pop out with detumescence of the penis. History and clinical diagnosis are sufficient for diagnosis; however, ultrasound evaluation by an experienced sonologist may be beneficial in some situations. On examination, typical eggplant deformity is found in most of the patients. Urethral injury in the penile fracture is a rare injury.<sup>[2,3]</sup> We are presenting 3 cases of urethral injury associated with penile fracture:

#### Case 1:

A 30 years gentleman presented to the emergency

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department with painful swelling of the penis during sexual intercourse. The pain had a sudden onset and

was preceded by an audible snapping and prompt detumescence during sexual intercourse. The patient had pain, swelling, deformity of the penis, and urethral bleeding.



**Figure 1: Penile fracture with urethral injury a. Penile eggplant deformity, b,c. Shows disrupted corpora cavernosa and urethra, d,e. repair of the urethra with vicryl 4-0 and tunica albuginea with vicryl 3-0, f. The postoperative picture on 7<sup>th</sup> postoperative day is showing resolution of swelling.**

On examination, he had a painful eggplant deformity, urethral bleeding, and urinary retention. The penile fracture was suspected, and surgical exploration was done through circumpenile incision. Tunica albuginea of right corpora cavernosum and urethra were found lacerated transversely. After evacuating the associated hematoma, the urethra was closed primarily with 4-0 vicryl sutures over a 16 Fr silicon catheter and the tunica albuginea was repaired with 3-0 vicryl sutures. Postoperatively antibiotics, analgesics, and diazepam were given.

The urethral catheter was removed at two weeks. He was further followed up with the history, IIEF score, and uroflowmetry at 3, 6, 12 months. At 12 months, the patient had an IIEF score of 22/25, no penile curvature, and normal urinary flow.

**Case 2:**

A 25-year-old male presented to the emergency department, eight hours after sustaining penile injury during intercourse with a woman on top position. The pain had a sudden onset and was preceded by an audible snapping and prompt detumescence. The patient had urethral bleeding after the incident.

On examination, he had a painful penile swelling, urethral bleeding, and no urinary retention. The patient was taken to the emergency operation theatre and explored.

On exploration, a hematoma was found with active bleeding from disrupted corpora cavernosa both sides and from corpus spongiosum. After evacuating the hematoma, the urethra was closed primarily over 16 Fr Foley's catheter by with 4-0 vicryl sutures. The tunica albuginea of both corpora were repaired with 3-0 vicryl suture. The postoperative period was uneventful.

The Foley's catheter was removed at two weeks. The patient voided well after Foley's removal. He was reassessed at three months with an IIEF score of 21/25, with normal uroflowmetry. At 12 months, the patient had an IIEF score of 22/25, no penile curvature, and normal urinary flow.

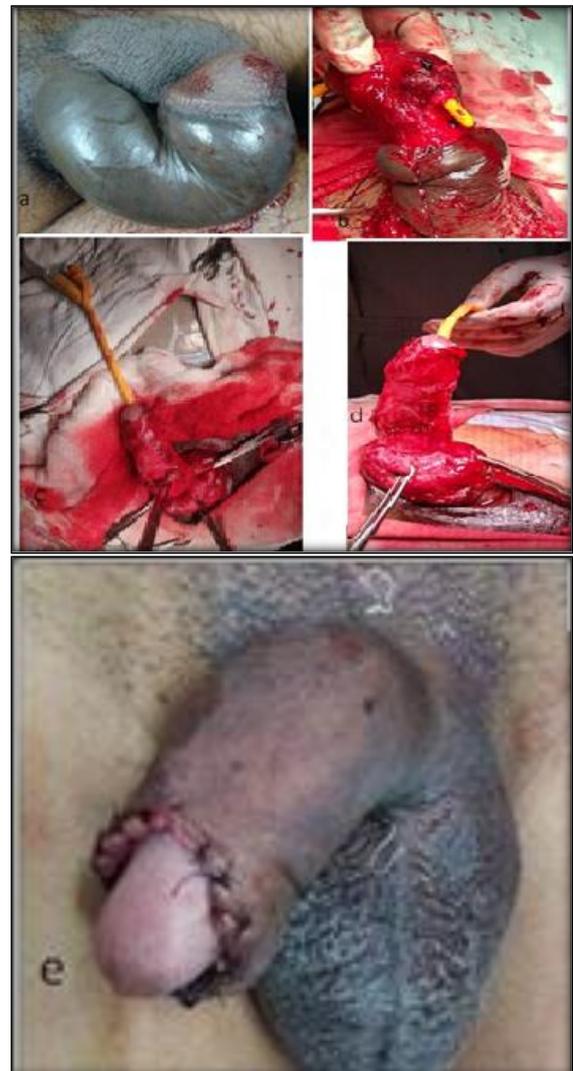
**Case 3:**

A 43 years gentleman presented with urethral bleeding, urine mixed with blood, with penile swelling. He gave a history of penile swelling after sexual intercourse with the female on top position. He had blood at meatus and eggplant deformity. The defect in tunica albuginea was palpable on examination.

The patient was taken to the emergency operation theatre, circumcoronal incision was given. Degloving of the penis was done till the root of the penis. On exploration, hematoma was found. After irrigating the penis with saline, transverse laceration involving urethra and bilateral corpora cavernosa were found. The urethra was repaired with vicryl 4-0 over 16 Fr Foley's catheter. Both corpora cavernosa were repaired with interrupted sutures of vicryl 3-0. The postoperative period was uneventful. Foley's catheter was removed at two weeks. The patient had normal voiding and IIEF score of 19/25 at three months. The patient was re-examined at six months and twelve months with an IIEF score of 21/25 with normal urine flow.



**Figure 2: Penile fracture with urethral injury a. Eggplant deformity in penile fracture, b. RGU suggests suspected contrast extravasation, c. shows disruption of bilateral corpora with urethral injury, d,e,f. after repair normal erect and turgid penis.**



**Figure 3: Penile fracture with urethral injury, a. Eggplant deformity in fracture penis, with urethral bleeding, b. urethral injury, c. Urethral disruption repaired with vicryl 4-0, d. Gitte's test show erect and turgid penis with no leak, e. The postoperative view at two weeks shows subsided penile swelling.**

## DISCUSSION

Penile fracture results during vigorous intercourse, due to buckling of the penis as it slips out of the vagina and hits hard bony surface or perineum. Penile fractures can sometimes occur during masturbation. The tunica albuginea is one of the toughest and resistant fascias of the human body. It is composed of elastin and collagen with inner circular and outer longitudinal layers. The tunica can withstand pressure up to 1500 mm of Hg. Its likelihood to fracture is high during erection, as its diameter thins out from 2 mm to 0.5 mm due to high intracorporal pressure. The tunica albuginea is thinnest at the ventrolateral sides, so chances of fracture are maximum at these sites.

The tunica albuginea lacerations are transverse and always distal to the suspensory ligament.<sup>[2,3]</sup> The typical mechanism of penile fracture is penis hitting pubic bone or perineum, resulting in a sudden increase in intracorporeal pressure exceeding burst pressure or tensile strength of tunica albuginea at the weakest point. Other mechanisms of injury are rolling over the erect penis, falling on the erect penis, and self-manipulation (the practice of Taqaandan).<sup>[4,5]</sup>

The main presenting features of penile fracture are penile swelling, detumescence, urinary difficulty, hematuria, penile pain, and urinary retention. On examination, eggplant deformity is seen in almost all patients. Sometimes the penile swelling can extend up to scrotum, perineum, and suprapubic regions. The swollen penis usually deviates from the side opposite to the site of injury of tunica albuginea.<sup>[2,5]</sup> Urethral injury in penile fractures varies between 3% and 22%. The urethral injury is mostly partial and is often associated with the break of both corpora cavernosa. Urethral bleeding and urinary retention are the most frequent signs of associated urethral trauma.<sup>[6]</sup> In some cases, urethral injury detected during surgery only. In our case series, all three patients had urethral bleeding, and one patient had retention of urine.

Many authors advise retrograde urethrography in case of clinical suspicion of urethral injury.<sup>[7,8]</sup> We did not do it for most of our patients. We believe exploration on clinical and examination findings is sufficient to diagnose the urethral injury. The management of the penile fracture is surgery, and conservative treatment is reserved for delayed presentation or extraordinary circumstances. Urethral injury in penile fracture always warrants surgical repair even with delayed presentation. The management of the urethral injury consists of a spatulation and repair without tension. Perurethral catheter is left in situ for two weeks.<sup>[3]</sup> Touiti and Mangin used the multi-perforated catheter to drain the urethra for five to ten days.<sup>[6]</sup> Some authors have also placed suprapubic catheters for 2 to 3 weeks.<sup>[9,10]</sup> In our case series, RGU was done in one

patient, which was suspicious of urethral injury. However, all cases had urethral injury diagnosed intraoperatively. They had a significant penile injury, i.e., disruption of bilateral corpora cavernosa in two patients and one corpora cavernosum in one patient. The corpora cavernosal and urethral injuries were repaired in the emergency operative room under spinal anesthesia. Our experience in this case series suggests that urethral bleeding in penile fracture patient is associated with severe injuries of the penis, i.e., bilateral corporal disruption, complete corporal disruption, and urethral injury. Prompt repair was done in an adequate manner on 16 Fr Foley's catheter results in good short and long-term results. Follow-up, erectile dysfunction does not correlate with the severity of the penile fracture, if these injuries are repaired well in time.

## CONCLUSION

Urethral bleeding suggests urethral injury, which implies severe disruption of corpora cavernosa and spongiosum. Operative intervention for penile fracture helps in the resolution of penile swelling, pain and curvature. Repair of tunica albuginea and spongiosum done promptly results in normal erectile function with minimum chances of urethral stricture.

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