

# Isolated Urethral Injury After Coitus-Related Penile Trauma

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Penile fracture is an uncommon injury associated with blunt trauma to the erect penis. The classical findings are of a tear in the tunica albuginea of the corpus cavernosum and rapidly expanding hematoma. The presence of hematuria or urinary retention raises the suspicion of concomitant urethral trauma and requires further evaluation with retrograde urethrogram. This patient, who presented with typical features of penile fracture and urinary retention, was found to have an isolated disruption of the anterior urethra on urethrogram and surgical exploration.

## CASE PRESENTATION

A 37-year-old heterosexual male presented to the emergency room complaining of pain, progressive penile swelling, and deformity after sexual intercourse. He reported that he was engaged in sexual activity and described a cracking sensation associated with pain and detumescence. He denied any unusual sexual activity and reported the incident happened in the missionary position. He was unable to urinate after the incident. He had no medical or urological history.

Physical examination revealed a swollen, flaccid penis with ecchymosis and moderate-sized hematoma of the penile shaft. There was blood noted at the urethral meatus. The penis was extremely tender to palpation with a palpable mass at the ecchymotic area.

In light of the patient's inability to void and the physical findings, a retrograde urethrogram was performed. This demonstrated a significant extravasation of contrast, suggesting an injury of the proximal penile urethra (Fig. 1).

The patient was taken to the operating room and given prophylactic cefazolin and gentamicin intravenously. A circumferential subcoronal incision was made, and the skin was separated from Buck's fascia along the entire penile shaft. A large hematoma was found on the right side of the penis, and after dissection, the tunica albuginea over the corpus cavernosum was found to be intact. Further dissection revealed a tear in the corpus spongiosum, and complete transection of the proximal penile urethra, at the junction of the bulbar and

pendulous portions. The urethral edges were ~1 cm apart, appeared viable, and were easily opposed without tension. After evacuating the hematoma, and achieving hemostasis, the urethra was closed using interrupted 4-0 monofilament polyglyconate sutures (Maxon; United States Surgical, Norwalk, Connecticut). The closure was performed in two layers, closing the mucosa first, then the submucous layer. A 14-Fr Foley catheter was left in place. The corpus spongiosum was closed as an additional layer, by using interrupted 4-0 glycolide/lactide copolymer sutures (Polysorb; United States Surgical). The subcutaneous tissue was then reapproximated using 4-0 glycolide/lactide sutures, and the circumferential subcoronal incision was closed with 4-0 chromic sutures. The patient was subsequently admitted for further observation. On postoperative day 1, the patient was discharged home with the Foley catheter in place.

Follow-up cystourethrogram at 10 days showed minimal residual mucosal irregularity at the site of repair, without extravasation (Fig. 2). The Foley catheter was removed, and the patient was subsequently able to void to completion without difficulty. At 6-week outpatient follow-up, the patient did not have any urinary complaints and had normal sexual function.

## DISCUSSION

The penis is composed of three columns of tissue: the corpus cavernosum, on the left and right of the penile dorsum, and the corpus spongiosum on the ventrum of the penis. The tunica albuginea bands together the two columns of corpus cavernosum. The corpora cavernosa are composed of sinusoids that become engorged with blood during erection. The corpus spongiosum does not contribute to penile rigidity but contains the urethra.

Penile fracture occurs after sudden blunt trauma or lateral force to the erect penis. This typically causes a tear in the thinned and stiff tunica albuginea covering the corpus cavernosum. In this case, the patient presented with a prototypical history for penile fracture with associated urinary retention, but was found to have a tear of the corpus spongiosum with urethral disruption, and intact corpus cavernosum.

Trauma during sexual intercourse is reported to be responsible for approximately one third of all cases of penile fracture. The female-dominant position is most commonly reported to be responsible, and injury occurs when the penis strikes the perineum or pubic symphysis.<sup>1</sup>

Patients often describe a popping or cracking sound, associated with detumescence. On inspection, the diagnosis is often evident because of significant deformity, presence of swelling, and ecchymosis. The penis is often deviated away

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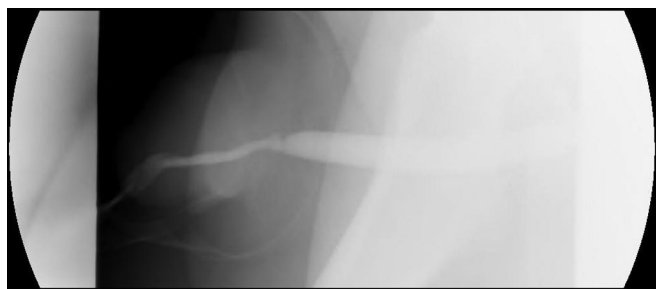
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**Figure 1.** Retrograde urethrogram indicating extravasation of contrast.



**Figure 2.** Postoperative urethrogram. Minimal mucosal irregularity at site of repair.

from the side of injury because of the presence of hematoma. If Buck's fascia is intact, ecchymosis is confined to the penile shaft; however, if the Buck's fascia is violated, ecchymosis can spread over the perineum, scrotum, and lower abdominal wall.

The reported incidence of urethral injury associated with injury to the corpus cavernosum is 10% to 38%.<sup>2</sup> Combined injuries typically manifest with hematuria, blood at the urethral meatus, dysuria, or acute urinary retention. In this scenario, retrograde urethrography is mandatory and typically shows extravasation of contrast.<sup>3</sup>

In our case, urethral trauma was properly diagnosed before exploration, but we unexpectedly encountered that it was an isolated injury. To our knowledge, there are no similar cases reported. It is particularly unusual that the patient was practicing normal sexual activity in the missionary position when he sustained this injury. Our hypothesis is that this injury occurred due to ventral force on the penis, bending it dorsally, to tear the spongiosum and the urethra, but leaving the cavernosum intact.

The literature suggests that surgical treatment of penile fracture is associated with fewer complications and better long-term outcome than conservative management.<sup>4</sup> The surgical repair, typically, consists of evacuation of hematoma, proper identification of the site of injury and repair of the tunica albuginea, and any known urethral injury.<sup>5,6</sup> The corpora spongiosum should be explored when its damage is evident or in cases of bilateral corporal injury, when a high incidence of associated urethral trauma is encountered.<sup>7</sup>

A circumferential subcoronal degloving incision allows excellent exposure of the penile tissues necessary for corporeal repair and, if it is necessary, urethral reconstruction. Primary repair of urethral injury is successful in the majority of cases with a low incidence of stricture formation.<sup>8</sup>

In summary, this case highlights the potential for urethral injury associated with penile trauma during sexual intercourse. A high index of suspicion should be maintained for such injuries, with a liberal use of retrograde urethrography. The classical clinical presentation of a penile fracture does not preclude the damage to corpus spongiosum with possible urethral injury, even if the tunica albuginea remains intact.

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