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Penile fracture with urethral rupture - case report

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Abstract

Introduction

Penile fracture is a rupture of the tunica albuginea of the corpus cavernosum caused by an erect penis injury. It is noticed that hematomas always accompany penile fractures. We present a rare case of penile fracture between corpus cavernosus and urethra without hematoma formation.

Case Presentation:

A 41-year-old male patient presented to the emergency department due to a continuous flow of blood from his urethra, which started an hour earlier due to a penile injury during vigorous sexual intercourse. There was no audible 'snap' sound, but the incident was followed by severe pain and immediate loss of tumescence. His bleeding continued until surgery. No hematoma was observed – Figure 1. A urethrography was performed, and afterward, an experienced urologist inserted a catheter without encountering any resistance. The patient was diagnosed with rupturing the tunica albuginea of the corpus cavernosum and the urethra. No hematoma was found, and primary revision was performed. Urethra and tunica albuginea was sutured. After four weeks catheter was removed. The patient recovered with good uroflowmetry results and did not report erectile dysfunction.

Conclusions

Rapture of tunica albuginea to the urethra may cause severe bleeding without formation of the hematoma and "eggplant deformity." Therefore, early intervention is crucial to sustain erectile function and avoid urethral stricture.

Keywords:

penile fracture; urethral rupture; hematomas in penile ruptures; urology; injuries in urology

Introduction

Penile fracture is rupture of the tunica albuginea of the corpus cavernosum caused by an erect penis injury [1]. The data so far show that 88.5% of penile fractures occur during intercourse. The literature specifies that the main etiological positions are sex in the "woman-on-top" and "doggy style" positions [2]. Penile fracture

typically manifests as a sudden hematoma and ecchymosis followed by a sudden "eggplant deformity" [3]. Penile fractures accompanied by urethral fractures are uncommon and occur in approximately 1-38% of cases [4, 5]. It is noticed that hematomas always accompany penile fractures in the cases researched by Derouiche et al. [6]. Our presented case is peculiar because the patient came in with a penile fracture without a present hematoma.

Case report

A 41-year-old male patient presented to the emergency department due to a continuous flow of blood from his urethra, which started an hour earlier due to a penile injury during vigorous sexual intercourse - there was no audible 'snap' sound, but the incident was followed by severe pain and immediate loss of tumescence. His bleeding continued until surgery. No hematoma was observed. An ultrasound examination was performed, during which no hematoma signs were confirmed. As a consequence, urethral bleeding was suspected. An urethrography was performed and afterward, an experienced urologist inserted a catheter without encountering any resistance – figure 2. The patient was diagnosed with a rupture of both the tunica albuginea of the corpus cavernosum and the urethra – figure 3, 4. No hematoma was found and primary revision was performed – figure 5. The patient was discharged home the next day. After about seven days, a local infection developed. After being admitted to the hospital, the patient had a suprapubic cystostomy installed and antibiotic therapy was instituted. After two weeks, the catheter was removed and after another four weeks cystostomy were removed – figure 6. The results of the uroflowmetry test were normal - $Q_{max} = 33 \text{ ml / s}$, and the curve course was normal – figure 7.



Figure 1. Urethrography revealed a direct inflow of contrast into the corpus cavernous.



Figure 2. The catheter was placed before surgery. No hematoma is visible while continuous bleeding is present.

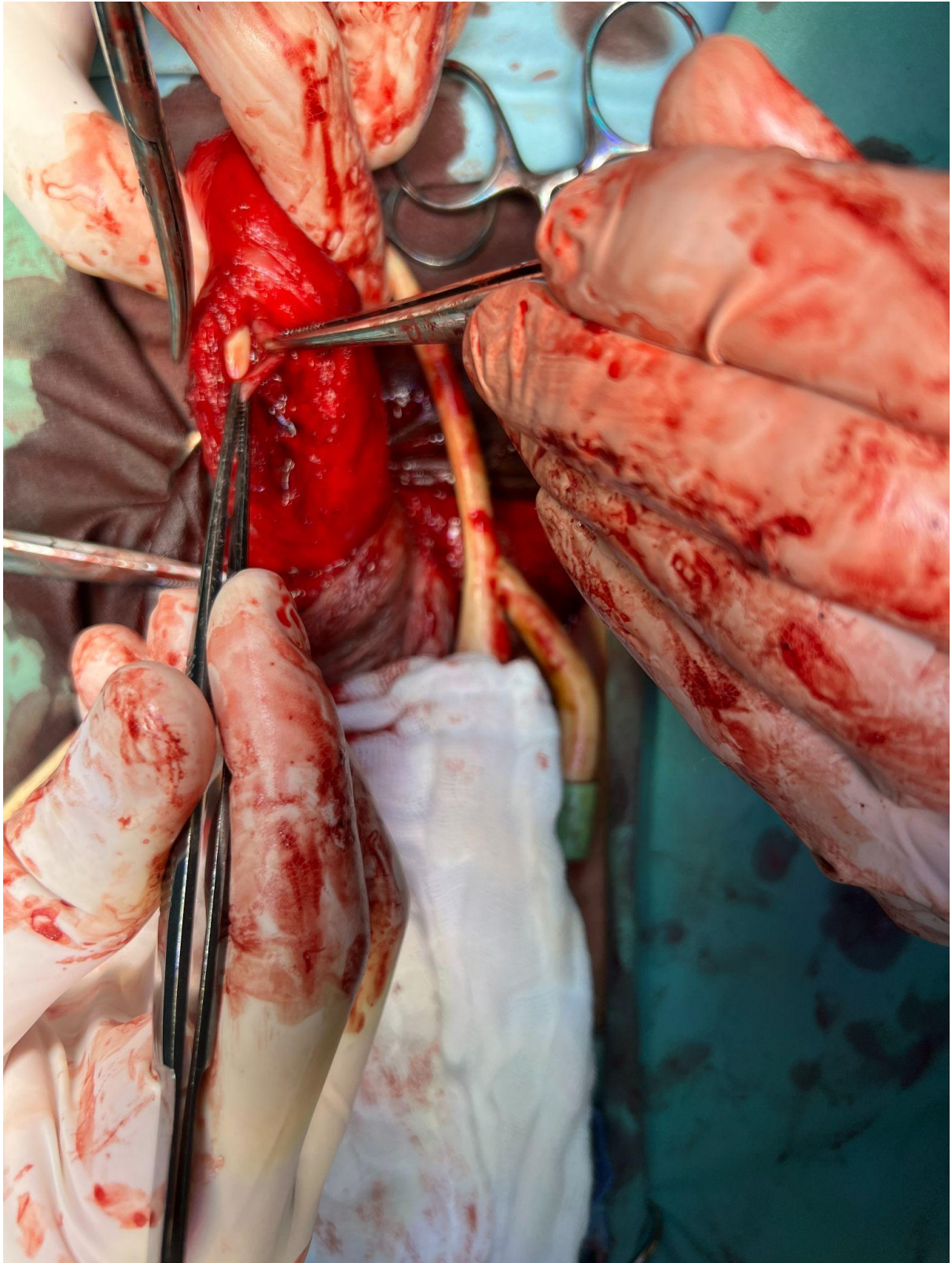


Figure 3. The presence of a ruptured urethra was revealed. The catheter is visible inside of the urethra.

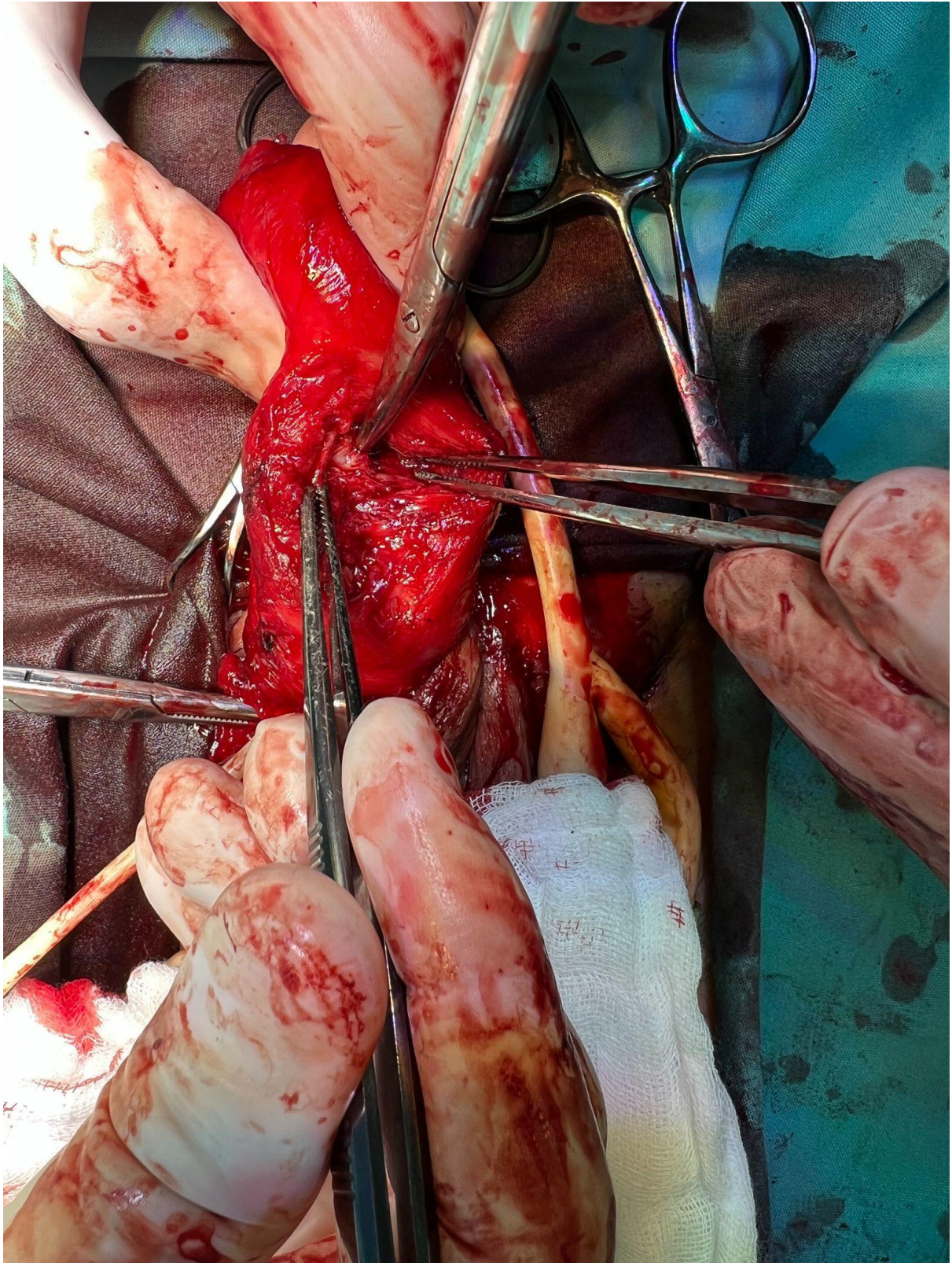


Figure 4. Ruptured tunica albuginea is presented.



Figure 5. The picture shows the urethra and tunica albuginea after finishing laying stitches.



Figure 6. The picture shows healed penis after removing the catheter and cystostomy tube.

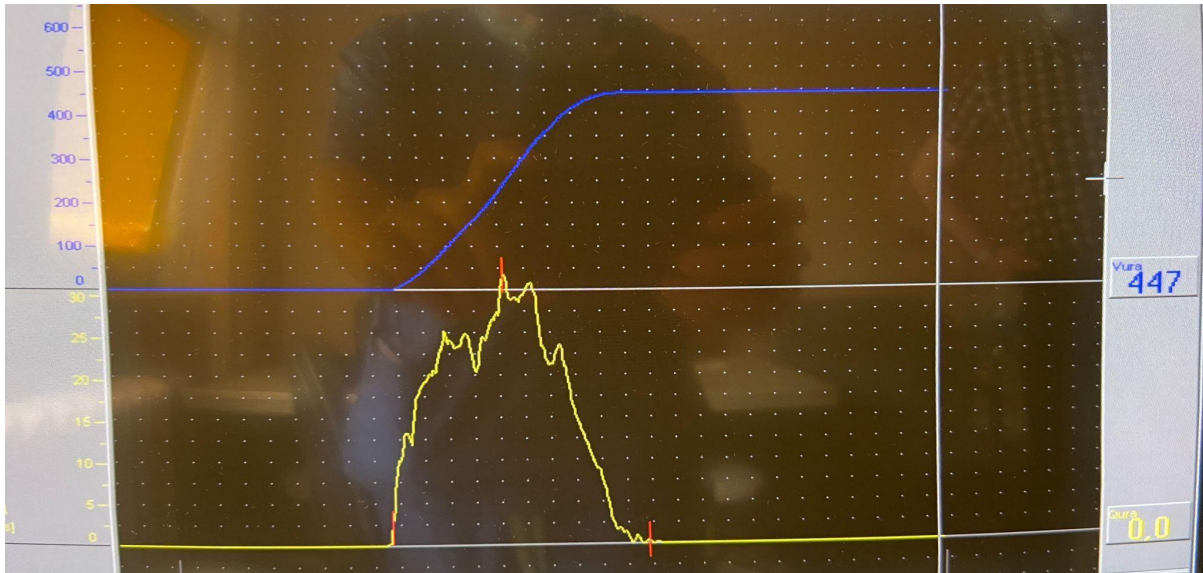


Figure 7. The diagram shows uroflowmetry with proper Qmax and the shape of the uroflowmetric curve (yellow line). No post-void residual volume was observed. The total voided volume was 447 ml (blue line).

Discussion

If a subcutaneous hematoma is found without breaking the continuity of the tunica albuginea of the penis, no surgical intervention is required, but ice packs and non-steroidal analgesics are recommended [7]. In patients with diagnosed penile fractures, emergency surgery is recommended, which consists of restoring the damaged tunica albuginea and evacuating the hematoma. A circular incision of the penile skin proximal to the glans groove and denudation allows access to the damage site. However, the latest data indicate that a longitudinal incision is often used at the site of damage to the tunica. The method of closing a broken casing is to apply a continuous suture - made of absorbable material [8]. European Association of Urology Guidelines state that the catheter should remain min. for 2 weeks, until the urethra heals.

Penis fractures described in the literature indicate that postoperative complications were found in 9% of patients. The most commonly reported complications were superficial wound infections and impotence, which were reported in 1.3% of the cases. Early postoperative complications include penile abscess, undiagnosed urethral damage, penile curvature and remaining hematomas requiring delayed surgical interventions. Therefore, conservative treatment is not recommended. The most common late complications reported were fibrosis of the tunica albuginea and penile curvature in about 30% of cases and impotence in up to 62% of cases [8, 9]. Most authors recommend immediate surgery in cases of damages to the urethra in penile fractures. Literature shows that after immediate surgery, the majority of patients, in exact 91.6%, achieved an adequate erection. In long-term observation of patients, the physiological behavior of erections and urination were demonstrated after the reconstruction of the corpus cavernosum and urethra. The above results indicate the effectiveness of the recommended treatment method. [10]

Risk of urethral stricture

Research indicates that only 2% of cases of immediate urethral reconstruction after penile trauma are associated with urethral stricture [11]. Furthermore, data from the United States estimates that the incidence of penile fracture is estimated as 1.02 per 100 000 males [12]. Nine to twenty percent of these injuries resulted in a concomitant urethral injury [13, 14]. Barros et al. reported that 85 cases out of 888 penile fractures, which were reported in men with penile fractures, had caused urethral injuries [15]. Considering all these cases, only two cases of urethral stricture were reported in patients with both a penile fracture and urethral injury. In conclusion, about 3% of urethral strictures resulted from penile fractures. The gathered data shows a relatively low incidence of urethral stricture in patients with penile and urethral injuries [16].

Clinical manifestations

The diagnosis is based mainly on the medical history and findings made during the physical examination [17]. The fracture is described as sudden with a significant 'popping' sound followed by pain and immediate detumescence. In most penile fractures the external appearance is characterized as the so-called "eggplant" deformity [17]. Shafi et al. reported that one of the most common manifestations of PF is hematoma (29.8%) [18, 19]. Amit et al. reported that penile fractures might be associated with urethral trauma in 1% to 38% of cases [20]. The urethral injury should be suspected in cases with blood at the meatus, hematuria and difficulty in

voiding. Argwal et al. found that 24 % of patients with penile fracture had an associated urethral injury and there is a 23.5% incidence of urethral injury with penile fracture [17].

Minimal urethral injuries can be managed with urinary diversion or direct suture of the tear, but in severe urethral injury or complete urethral rupture, spatulated, mucosa to mucosa, tension-free anastomosis over urethral catheter is needed [1, 10].

Conclusions

Rapture of tunica albuginea to the urethra may cause severe bleeding without formation of the hematoma and "eggplant deformity". Early intervention is crucial to sustain erectile function and avoid urethral stricture.

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