Middle Black Sea Journal of Health Science / Mid Blac Sea J Health Sci
August 2024; 10(3): 286-292

CASE REPORT **DOI:** 10.19127/mbsjohs.1505091

Case Report: Management of Penile Fracture with Urethral Injury in Two Patients

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Received: 26 June 2023, Accepted: 05 July 2024, Published online: 31 August 2024

Abstract

Penile fracture is a trauma accompanied by sudden pain, swelling, loss of erection, deviation, and ecchymosis along with a breaking sound in the penis. It can be accompanied by urethral injuries in 11-22% of patients, occurring due to force/blunt trauma to the erect penis. In this case report, we present two cases of penile fracture with accompanying urethral injury, occurring approximately one month apart. In our first case, surgical repair was performed approximately 1 hour after the incident, and in the second case, it was performed approximately 2 hours after the incident. Ultrasound (USG) was used as radiological imaging in both cases. In the second case, suspicion of urethral injury was mentioned in the USG. In both cases, a subcoronal circumferential incision was made, and the penile skin was degloved up to the radix. Damaged areas in the intraoperative tunica albuginea and urethra were observed in both cases. Postoperatively, the penile bandage of the first case was removed on the 4th day, and that of the second case was removed on the 6th day. The catheter was removed on the 20th day in both cases. In both cases, no loss of erection or penile deviation was observed at the 3-month postoperative follow-up. No clinical or uroflowmetric findings compatible with urethral stenosis were found in the 2nd and 3rd months post-op. The current approach to penile fractures is emergency surgical decompression and repair.

Keyword: Penile Fracture, Urethra Rupture, Trauma

Suggested Citation: Dural B, Büyüktepe Ö. Case Report: Management of Penile Fracture with Urethral Injury in Two Patients Mid Blac Sea Journal of Health Sci, 2024;10(3):286-292.

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INTRODUCTION

Penile fracture is an uncommon urological trauma. It is defined as the rupture of the tunica albuginea surrounding the corpus cavernosum after blunt trauma to the erect penis. The most common causes are sexual intercourse, forced

flexion, masturbation and rolling over with 46%, 21%, 18% and 8.2% respectively (3). The usual mechanism of injury is the penis slipping out of the vagina and striking the symphysis pubis or perineum. Patients usually hear a cracking sound when the penis is bent, and then come to the hospital with sudden loss of erection, angulation of the penis, pain, swelling and ecchymosis. While the fracture mostly occurs in the tunica albuginea surrounding a single corpus cavernosum, there are cases in which both corpus cavernosums are affected. In some cases, injuries involving the dorsal nerve of the penis, vessels and urethra may occur. Urethral injury accompanying penile fracture is not a common condition and has been reported in 11-22% of cases (2). In cases where the urethra is affected, urination problems may accompany the clinical picture. Among the imaging methods, penile Doppler USG (ultrasonography), pelvic MRI (magnetic resonance imaging) and retrograde urethrography can be performed to evaluate the urethra. MRI may also be helpful in the diagnosis of urethral rupture (4). The recommendation of European and American Urology guidelines for the standard treatment of penile fracture is early surgical intervention (5).

CASE 1

A 31-year-old male patient was admitted to the emergency department with complaints of pain, swelling, discoloration, deformity, and urethral bleeding in the penis accompanied by a sudden loss of erection during sexual intercourse. The patient reported that the incident occurred half an hour prior to presentation. In the physical examination, a hematoma on the dorsal side of the penis, pain on palpation, and ventral deviation of the penis were detected. Penile fracture was considered in the patient. The patient underwent emergency penile superficial USG. A dense collection area (hematoma?) extending to the urethra lumen, measuring 17 mm in its thickest part and extending proximally, was observed on the right lateral wall of the corpus spongiosum in the distal part of the penis, and there was an appearance that might be compatible with a defect on the right lateral wall of the corpus spongiosum. The echogenicity of the corpus spongiosum had increased. The vascular blood supply of the corpus cavernosum was natural. In the right cavernosum, there was irregularity in the lateral wall and an iso-hypoechoic heterogeneous appearance that might be compatible with hematoma. The situation was explained to the patient, and he was taken for emergency surgical repair.

Following spinal anesthesia, a 14 F silicone catheter was inserted in the supine position under sterile conditions and urine output was observed. Afterwards, an incision was made at the penis circumcision line and it was opened with sharp and blunt dissections all around, down to Buck's fascia. An approximately 2 cm

opening was seen in the midline of the penis at the edge of the right corpus cavernosum, and it was seen that there was a hematoma inside, which was cleaned as shown in Fig. 1. It was observed that the tear line was advancing towards the urethra. The urethra and cavernosa were separated from each other. The torn urethral section was repaired with 4.0 Vicryl. Afterwards, the cavernous body was repaired with 3.0 Vicryl as shown in Fig. 2. It was closed by combining it with the upper fascia. Then, the skin was closed with 4.0 rapid. The procedure was completed by applying appropriate dressing and wrapping it with a printed bandage. The patient's postoperative period was uncomplicated, the penile bandage was removed on the 4th day, and he was discharged. The patient's catheter was removed on the 25th postoperative day. Qmax: 27 post-void residual (PVR): 70 cc. No erection problems were detected at the 3-month follow-up, and the patient did not describe any symptoms suggestive of urethral stenosis. Diagnostic urethroscopy was performed on the patient, who complained of thinning during urination at the 4th-month follow-up, and no urethral stricture was detected.

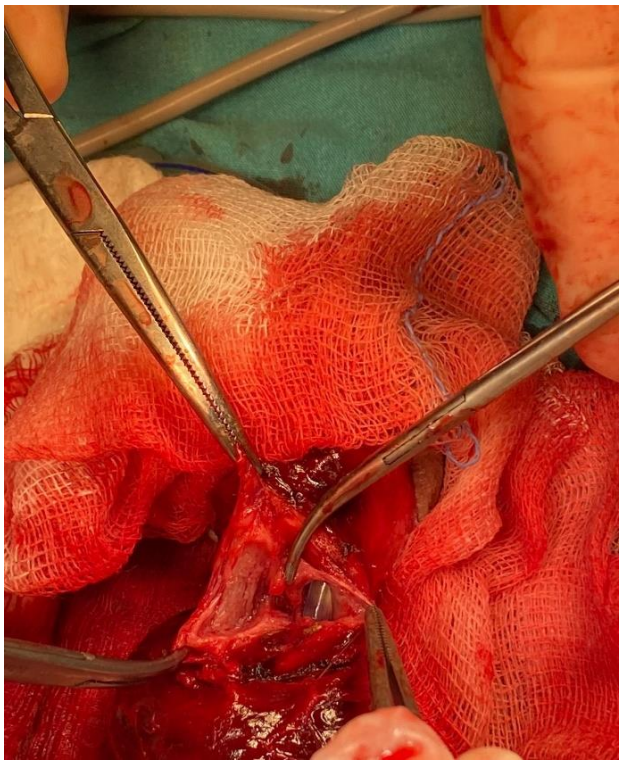

Figure 1. Penile surgical exploration showing defect in the corpus cavernosum and urethra

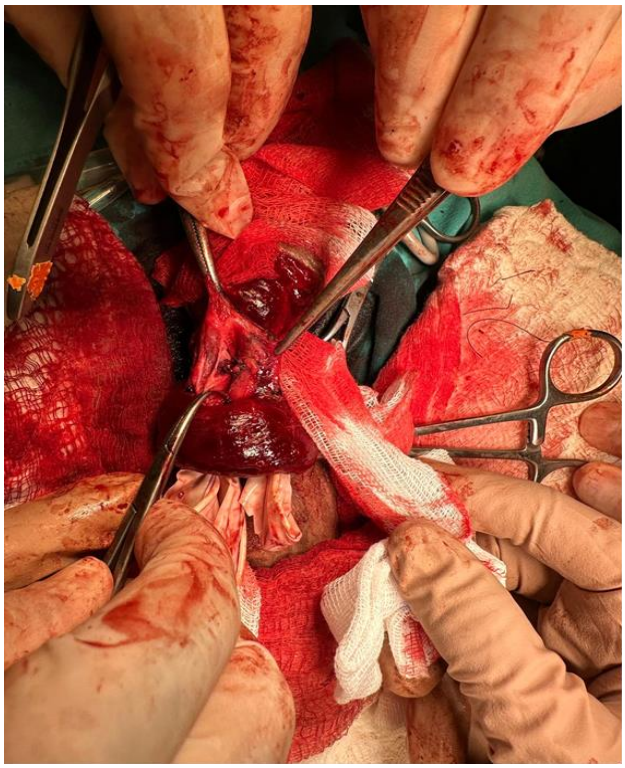

Figure 2. Picture of cavernose body and urethra after sutured

CASE 2

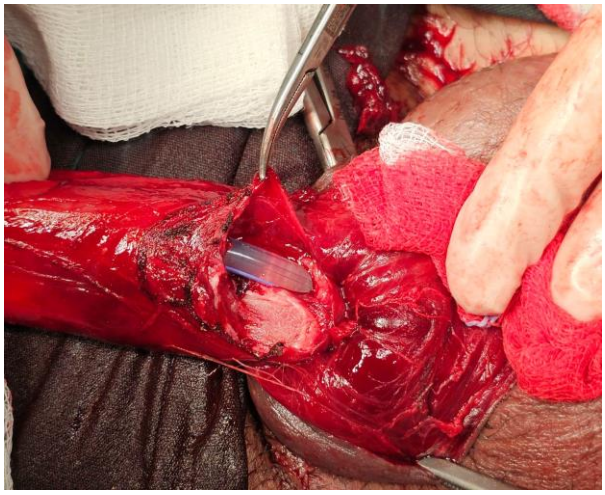

Figure 3. A defect of corpus cavernosum and urethra

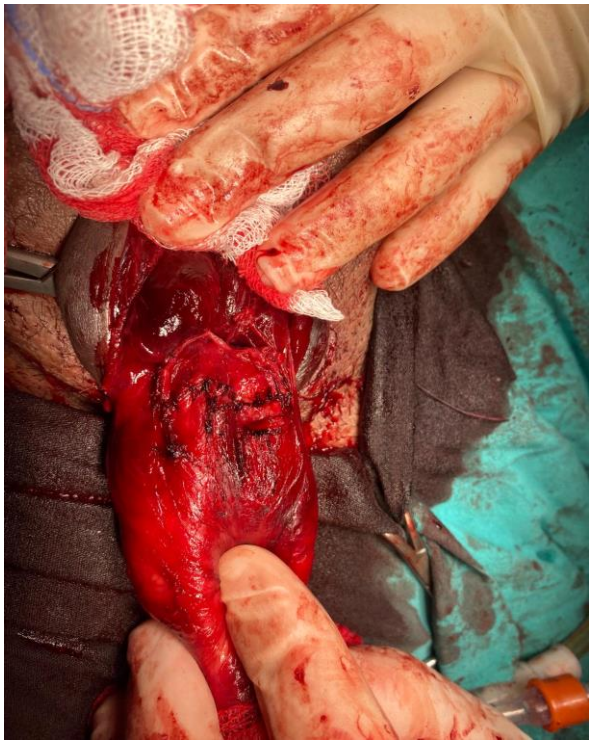

Figure 4. Sutured corpus cavernosum and urethra

A 35-year-old male patient was admitted to the emergency department with complaints of pain, swelling, discoloration, deformity, and urethral bleeding in the penis accompanied by a sudden loss of erection during sexual intercourse. The patient reported that the incident occurred two hours prior to presentation. In the physical examination, a hematoma on the dorsal side of the penis, pain on palpation, and ventral deviation of the penis were detected. Penile fracture was considered in the patient. The patient underwent urgent penile superficial USG. In the superficial USG performed on the penis, no significant defect was observed in the corpus cavernosum structures, and a blood supply signal was obtained on RDUS examination. Approximately 1 cm distal from the penis dorsum, a heterogeneous hypoechoic area of approximately 40x17 mm in size surrounding the corpus spongiosum, which is primarily considered as a hematoma area, was observed and was suspicious for urethral injury. The current situation was explained to the patient, and he was taken into emergency surgery for repair.

Following spinal anesthesia, a 16 F silicone catheter was inserted in the supine position under sterile conditions and urine output was observed. Afterwards, an incision was made at the penis circumcision line and it was opened with sharp and blunt dissections all around, down to Buck's fascia. An approximately 2 cm opening was seen on the ventral surface of the middle/root part of the penis at the edge of the right corpus cavernosum, and it was seen that there was a hematoma inside as shown in Fig. 3, which was cleared. It was observed that the tear line was advancing towards the urethra. The urethra and cavernosa were separated from each other. The torn urethral section was

repaired with 4.0 Vicryl. Then the cavernous body was repaired with 3.0 Vicryl (Fig. 4). It was closed by combining it with the upper fascia. The skin was then closed with 4.0 rapid. The procedure was completed with appropriate dressing. The patient's postoperative period was uncomplicated, the penile bandage was removed on the 6th day, and he was discharged. The patient's catheter was removed on the 20th postoperative day. No erection problems were detected at the 3-month follow-up. The patient did not describe any symptoms that would suggest urethral stenosis. In the 2-month post-operative uroflowmetry performed on the patient, Qmax: 26, Postvoidal residual urine (PVR): 0, and in the 3-month control uroflowmetry, Qmax: 27, PVR: 50 cc.

DISCUSSION

In our first case, surgical repair was performed approximately 1 hour after the incident, and in the second case, it was performed approximately 2 hours after the incident. USG was used as radiological imaging in both cases. In the second case, suspicion of urethral injury was mentioned in the USG. In both cases, the penile skin was degloved up to the radix with a subcoronal circumferential incision made on the penis. In both cases, intraoperative tunica albuginea and damaged areas in the urethra were observed. Postoperatively, the penile bandage of the first case was removed on the 4th day, and that of the second case was removed on the 6th day. In both cases, the catheter was removed on the 20th day. In both cases, no loss of erection or penile deviation was observed at the 3-month postoperative follow-up. No clinical or uroflowmetric findings compatible with urethral stenosis were observed in the 2nd and 3rd postoperative months. The current approach to penile fractures is emergency surgical decompression and repair.

Penile fracture occurs as a result of the rupture of the corpus cavernosum, which has increased pressure when the erect penis is forced and exposed to blunt trauma. Penile fracture is associated with a sudden cracking or popping sound, pain, and sudden swelling. Local swelling of the penile shaft develops rapidly due to the expansion of the hematoma. If Buck's fascia is also torn, bleeding can spread through the fascial layers of the penile shaft and extend into the lower abdominal wall. Sometimes the tear of the tunica can be felt by hand. Less severe penile injuries can be distinguished from penile fractures because they are not usually associated with detumescence. During erection, the tunica albuginea thins from 2 mm to 0.25-0.5 mm, which creates an environment predisposing to penile fracture, that is, making the penis more vulnerable to traumatic damage. In order for the tunica albuginea to rupture, the pressure inside it must exceed 1500 mmHg (5). During sexual intercourse, the erect penis hitting the symphysis pubis or perineum, getting stuck between it, or manipulations to

create detumescence in the erect penis play a role in the etiology of penile fracture (6). It is reported in the literature that the most common cause of penile fracture is trauma during position change during sexual intercourse (33-60%). Other reasons include sudden movements during nocturnal erection, falling out of bed, and masturbation. McEleny et al. claim that the incidence of penile fracture increases in positions where the female partner is on top during sexual intercourse. The largest series in the literature belongs to Atar et al., which includes three hundred patients. The diagnosis and treatment methods are similar to our cases. Classic findings include a breaking sound in the penis, sudden onset of pain, instant loss of erection, swelling, ecchymosis, and deviation in the penis. McEleny et al. defined this appearance of the penis as "eggplant deformity" or "aubergine sign" (6). The hematoma is usually limited to the penis by Buck's fascia. If Buck's fascia is also perforated, the hematoma may progress to the scrotum and perineum. In 10-30% of cases, there are additional injuries to the corpus spongiosum and urethra. Microscopic hematuria, while a warning sign of urethral injury, has a positive predictive value of only 50%. In these cases, urinary extravasation, inability to urinate, and in delayed cases, urethral stenosis may occur. Penile fracture is typically diagnosed through a careful history and physical examination. In suspicious cases, cavernosography, classical and/or color Doppler ultrasonography, magnetic resonance imaging, angiography, and in cases with suspicion of urethral trauma, urethrography examinations may be performed. Penile ultrasonography and magnetic resonance imaging methods have limited success in diagnosis (1-3). Although the treatment of penile fracture cases is debated, the standard treatment is emergency surgery. In surgical treatment, the hematoma is evacuated, the torn tunica albuginea is repaired, and the surgery is terminated after bleeding control. Early surgical repair in the treatment of penile fracture has significant advantages compared to conservative treatment, due to its low morbidity, good functional results, and short hospital stay, and is the recommended method of treatment. Two of our cases underwent emergency surgery and were discharged without complications in the early postoperative period. With early surgical repair, complications such as penile curvature, fibrotic plaque formation, and painful erection are largely prevented, sexual function is preserved, and hospital stay is reduced. Late complications after conservative treatment include fibrosis and angulation in 35% and impotence in up to 62% (7). Early surgical intervention results in significantly less erectile dysfunction than conservative intervention. There were fewer patients developing plaques/nodules in those undergoing early surgery than conservative management. Those conservatively managed

were more likely to develop penile curvature as opposed to those surgically managed. Pooled analysis of 14 studies (511 participants) demonstrates significantly fewer complications with immediate surgery (1). The patient should be evaluated in the emergency department and urology consultation should be requested with an indication for urgent surgery to prevent complications that may arise due to delay. Patients in this diagnosis group may have difficulty applying to the emergency department because they are embarrassed, which may cause delays in their treatment. It would be appropriate for emergency physicians to empathize, respect the feelings of shame and privacy of patients who apply with these complaints, and examine them in an isolated environment.

CONCLUSION

Penile fracture is a urological emergency that occurs as a result of direct trauma to the erect penis and/or strain during sexual intercourse. It is appropriate to quickly evaluate these patients in the emergency department and request consultation from the urology service for emergency surgery. The use of advanced diagnostic methods for diagnosis is not cost-effective, and its use is not recommended except in suspicious cases and the presence of urethral rupture.

Ethics Committee Approval: The presented study is qualitative and consent was obtained by giving information about the study by one-toone interviews with the subjects who agreed to participate. The study was carried out by paying attention to the Declaration of Helsinki.

Peer-review: Externally peer-reviewed

Author Contributions: Concept: BD, Design: BD, ÖB Data Collection and Processing: BD, ÖB, Analysis and Interpretation: BD, Writing: BD, ÖB

Conflict of Interest: The author declared no conflict of interest.

Financial Disclosure: The authors declared that this study has not received no financial support.

REFERENCES

1. Amer T , Wilson R , Chlosta P , AlBuheissi S , Qazia H , Fraser M , et al. Penile Fracture: A Meta-Analysis. Urol Int, 2016. 96: 315.
2. Mydlo JH. Surgeon experience with penile fracture. J Urol 2001;166:526-8. 2
3. Koga S, Saito Y, Arakaki Y, Nakamura N, Matsuoka M, Saita H, et al. Sonography in fracture of the penis. Br J Urol 1993;72:228-9 3
4. Fetter R, Gartman E. Traumatic rupture of penis. Case report. Am J Surg 1936;32:371-2.
5. Jack GS, Garraway I, Reznichek R, Rajfer J: Current treatment options for penile fractures. Rev Urol 2004;6:114-120
6. Ateyah A, Mostafa T, Nasser TA, Shaeer O, Hadi AA, Al-Gabbar MA: : Penile fracture:

surgical repair and late effects on erectile function. J Sex Med 2008;5:1496-1502

7. Haas C A, BrownS L, Spirnak J P: Penile fracture and testicular rupture. World J Urol, 1999. 17: 101