



Case report

Severe penile fracture with bilateral corpus cavernosum rupture, complete urethral rupture and scrotal haematoma associated with sexual intercourse: A case report



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ABSTRACT

Introduction and importance: Despite the fact that a penile fracture is a rare emergency, it can cause morbidity in the patient, especially in terms of sexual life. If cases are not properly managed, irregularities in the penis will emerge, leading to more complicated problems. We present a case report of severe penile fracture associated with sexual intercourse.

Case presentation: A 50-year-old man complained of soreness in his penis during sexual intercourse. The patient also has urethrorrhagia and is unable to urinate. Physical examination reveals the "Eggplant Deformity" in the penis. The operation was carried out and revealed bilateral corpus cavernosum rupture, complete urethral rupture, and ruptured Buck's fascia. The corpus cavernosum and other structures were repaired primarily, followed by an end-to-end anastomosis of the urethra. Four months later, the patient had no serious complaints, only a minor penis deviation. He can easily void and having intercourse.

Clinical discussion: In most situations, the penile fracture can be determined nearly entirely based on the patient's medical history and physical examination. In dubious circumstances, further tests such as ultrasonography and MRI can be conducted. If a penile fracture is discovered, surgery should be undertaken. Ruptures of the corpus cavernosum, tunica albuginea and Buck's fascia can be sutured primarily. The urethral can be reconstructed using an end-to-end anastomosis. Scrotal haematomas should be evacuated and drained to prevent persistent scrotal haematomas.

Conclusion: Immediate surgery in cases of severe penile fracture provides good outcomes for erectile function, micturition and sexual intercourse with minimal complications.

1. Introduction

A laceration of the corpus cavernosum or a penile fracture caused by trauma to the erect penis is considered an emergency in urology [1]. Penile fracture is one of the less common injuries during sexual activity. The majority of lacerations are unilateral, with bilateral lacerations occurring in approximately 2 to 10 % of cases. Urethral injuries are uncommon, accounting for 9 to 20 % of penile fractures [2].

Due to vigorous sexual intercourse, the erect penis detaches from the vagina and collides with the perineum or pubic bone, resulting in a fracture. The penile structures are lacerated when intracavernosal pressure rises stronger than the tunica albuginea's elastic strength.

Many studies have found that immediate surgical exploration is superior to conservative treatment. Immediate surgery produces minimal complications and better long-term results, particularly in erectile function and penile curvature [3–5]. However, no publication exists on treating a severe penile fracture with bilateral corpus cavernosum rupture, urinary retention due to complete urethral rupture and scrotal haematoma. This case was reported in accordance with the SCARE guidelines [6].

2. Presentation of case

A man in his 50s arrived at our facility on his own, complaining of a

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swollen penis for 4 h before admission. The patient was having intercourse with his wife when he felt a “crack” feeling, followed by detumescence of the penis, extreme discomfort, urethrorrhagia and unable to void. The patient has no previous medication or allergy history. There was no history of metabolic disease.

A characteristic eggplant deformity on the penis was discovered during a physical examination (Fig. 1). The penis was swollen and deviated to the right, with significant haematoma running from the proximal penis to the scrotum.

The results of all laboratory tests were typical. The involvement of the urethra was assessed by retrograde urethrography (RUG). RUG showed there was a rupture of the pendular urethra and a rupture of the right corpus cavernosum as shown in Fig. 2.

The operation was performed on an emergency basis, 2 h after patient came, by the chief resident with 4.5 years of urology training. The penile skin was degloved to the proximal healthy tissue after a circumferential incision in the subcoronal. The anterior urethra was entirely ruptured, and also the corpus cavernosum was ruptured bilaterally (Fig. 3). Buck's fascia is also torn, which causes haematoma to spread all the way to the scrotum. No disrupted vasculature was found.

Polyglactin 4.0 sutures were used to provide a tension-free end-to-end urethral anastomosis. Polyglactin 3.0 sutures are used to suture the corpus cavernosum. After the corpus cavernosum was repaired, an artificial erection test was performed. Fluid leakage and penile curvature were not present. The second suture layer was dartos fascia, and the skin was closed with plain catgut 3.0 (Fig. 4). The Penrose drain was used to drain the scrotal haematoma through multiple scrotal incisions. The haematoma and edema were then handled with scrotal support.

He was discharged on the fifth postoperative day after Penrose drain production was reduced. He was discharged with a 16 Fr catheter that he was supposed to keep for 21 days.

The patient returned for outpatient visits on the seventh postoperative day. The surgical wound appeared to be in good shape. The patient was seen again on the 21st postoperative day, and the urethral catheter was withdrawn. Uroflowmetry and post-void residual (PVR) tests were employed to assess the operation's success. Uroflowmetry revealed a Qmax of 21 ml/s, an average flow rate of 14.4 ml/s, and voided volume of 197 ml with a minimum PVR of 18.7 cm³. The outcome was considered satisfactory.



Fig. 1. Eggplant deformity of the penis.

Four months later, the patient was re-evaluated. Because of his isolated location and inadequate transportation, the patient refused to come. Phone and internet follow-up were employed in telemedicine. The patient was delighted with the outcome. The patient can now void and interact sexually with his wife without experiencing any discomfort. In the clinical image taken four months after surgery (Fig. 5), the penis was slightly deviated to the left.

3. Discussion

Penile fracture, caused by blunt trauma to the erect penis, is a urological emergency. The majority of these penile fractures occur during sexual activity, with a minor percentage occurring during masturbation, falling out of bed with an erect penis, and other penile trauma [7,8]. Meanwhile in the Middle Eastern countries, the practice of “taghaandan” or self-bending of erect penis to achieve detumescence, contribute to high incidence of penile fracture at that region [9,10].

Bilateral corpus cavernosum rupture with urethral involvement is a rare occurrence. In one study by Panella et al., found only two cases of penile fracture with bilateral corpus cavernosum rupture with urethral involvement [7] and the study by Barros et al. reported finding 15 out of 288 (5.2 %) overall penile fracture cases involving bilateral corpus cavernosum rupture and complete urethral rupture from his 20-year experience in Brazil [8]. Cases of penile fracture accompanied by scrotal haematoma have so far only been reported in one publication [11], however, bilateral corpus cavernosum and complete urethral rupture were not present.

The majority of penile fractures are straightforward to identify. A key diagnostic finding in the initial evaluation is the classic triad of haematoma, detumescence, and snapping sound [8]. The integrity of the penis fascia determines haematoma distribution. Blood extravasation is limited to the penis if Buck's fascia is intact, if Buck's fascia is lacerated, a butterfly haematoma develops, extending to the scrotum, perineum, and pubis [1]. In cases of penile trauma with a scrotal haematoma, a differential diagnosis should be made by rupture of deep dorsal penile vessels with haematoma extravasation outside Buck's fascia, rupture of superficial dorsal penile vein or non-specific dartos bleeding. Imaging studies of the penis, such as ultrasonography and MRI, can be done in doubtful case.

The most typical approach for exploring the anatomical location of the injury is a circumferential subcoronal incision with degloving to the proximal region of the penis. Because the location of the ruptured tissue was doubtful due to the presence of a massive haematoma across the penile structure up to the scrotum, a circumferential subcoronal incision was performed in this case. This incision allows a thorough examination of the corporal body, which can aid in the discovery of a contralateral corporal body or urethral lesions and make repair easier [12]. If the exact position of the injury was known prior to surgery, it would be advantageous to perform the exploration through the midline penis incision. This incision has the advantage of minimizing tissue exploration, which reduces postoperative adverse effects such as penile curvature and erectile dysfunction [13].

The corpus cavernosum is repaired utilizing the watertight closure principle, which is subsequently demonstrated via an artificial erection test. The management for urethral rupture in penile fractures is the same as for male anterior urethral injuries, namely urethral surgical exploration and reconstruction with or without a suprapubic catheter. It's difficult to define the boundaries of healthy urethral tissue for repair because of contusions and haematomas in the spongiosum tissue. According to certain experts and the literature, suprapubic catheterization should be done first, followed by urethroplasty once the contusion and haematoma have subsided [14]. There is no substantial difference in outcome between immediate and delayed urethral reconstruction, according to several studies.

In this case, we performed an immediate urethral exploration and reconstruction because we were concerned that a suprapubic catheter

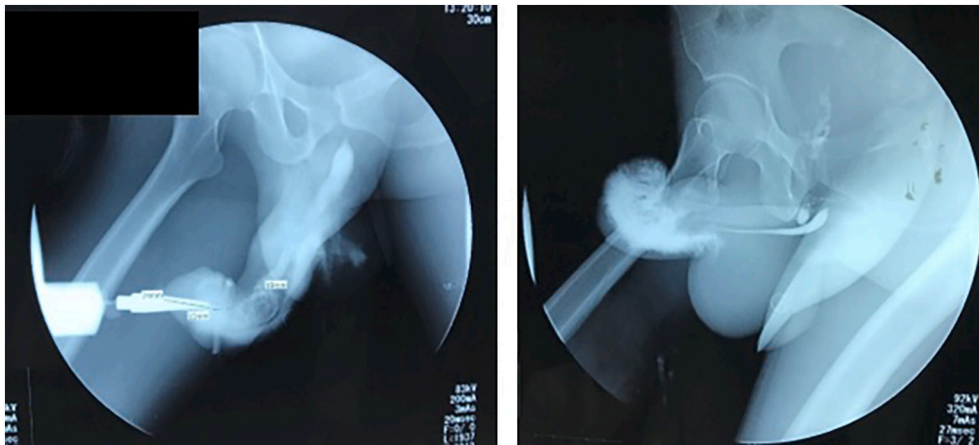


Fig. 2. Pre-operative RUG.

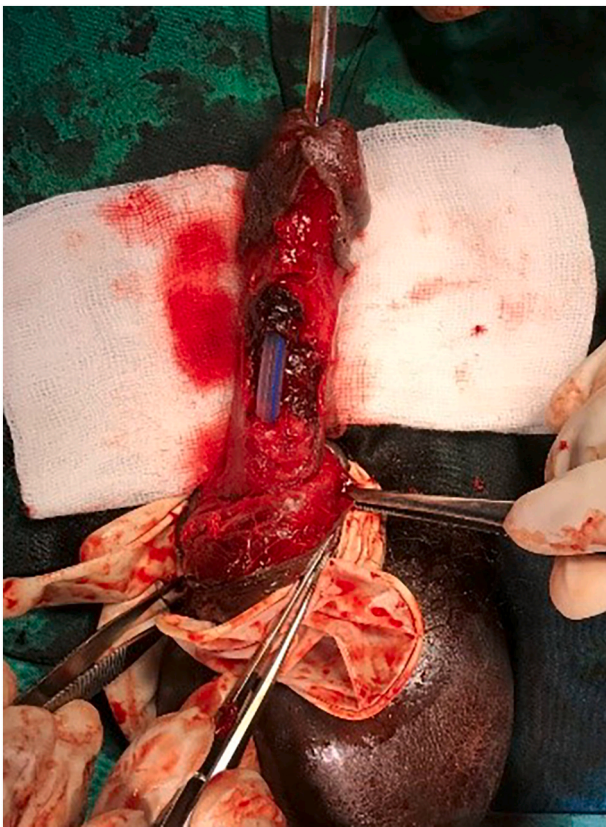


Fig. 3. Bilateral corpus cavernosum rupture and complete urethral rupture.

would result in additional morbidities like surgical site infection, urinary tract infection, bladder stones, urine leakage upon catheter release, and patient discomfort. EAU guideline also recommends to do the immediate exploration and reconstruction for anterior urethral injury in case of penile fracture [15]. Barros also stated that in his 11 years of experience, primary urethral reconstruction associated with penile fracture yields good results with minor sequelae [8]. The urethra was reconstructed with polyglactin 4.0 sutures. The tunica albuginea and Buck's fascia were repaired primarily. To prevent blood from clotting in the scrotum, we made multiple incisions in the scrotum and inserted a penrose drain. It's also crucial to provide scrotal support.

After four months of follow-up, normal uroflowmetry revealed that immediate repair and reconstruction of the urethra resulted in



Fig. 4. Post-operative appearance of the penis.

satisfactory results with no complaints during micturition. This patient had a minor penile curvature to the left when the penis was erect, but no pain was reported, and the condition did not interfere with sexual intercourse. Overall, the patient expressed contentment and satisfaction with the outcome of his procedure. The limitation of this case is that the patient declined to visit the hospital due to his remote location, therefore we were unable to perform the radiological follow-up, i.e. RUG.

4. Conclusion

Penile fracture is a rare urological emergency, especially when there is a urethral injury. Penile fracture can be diagnosed with a clinical examination and a medical history. Surgical investigation and repair of defects associated with penile fractures should be done as soon as possible within 24 h to avoid complications. In a patient with a severe penile fracture caused by bilateral corpus cavernosum rupture compounded by complete urethral rupture, this case report indicates that early surgery can result in a favorable outcome with few sequelae.



Fig. 5. Four months after surgery. Penis looks deviated to the left.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

- Made Adi Wiratama: Conceptualization, Design, Resources, Data Collection, Writing Manuscript

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- Lukman Hakim: Conceptualization, Resources, Supervision, Review and Editing

Registration of research studies

Not applicable.

Guarantor

Lukman Hakim.

Declaration of competing interest

The authors declare no conflict of interest.

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