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Distal corpora cavernosa erectile dysfunction secondary to delayed tricoporal penile fracture presentation: case report

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Abstract

Erectile dysfunction is a psychosocially traumatic condition that can occur from numerous aetiologies. A rare consequence of delayed presentation of penile fracture is the localized erectile dysfunction. It can be averted in patients with penile fractures with early presentation, early recognition and diagnosis with emergency surgical treatment.

This is a 32-year-old trader who presented with a 3-week history of erectile dysfunction localized to the distal phallic region. He had a 2-week antecedent history of misdiagnosed penile fracture. The clinical, endoscopic, and intraoperative findings confirmed tricoporal penile fracture with obliterated proximal and distal corpora cavernosa stumps for which he had surgical reconstruction with a resolution of symptoms.

Surgical reconstruction despite delayed presentation of penile fracture plays a vital therapeutic role to guarantee both anatomical and functional restoration.

Keywords: Corpora cavernosa, delayed presentation, erectile dysfunction, penile fracture

Introduction

Erectile dysfunction is a clinical problem in which an individual is unable to attain and sustain an erection that is strong enough to allow for penetrative coital activity [1]. It can result from numerous aetiologies [1]. For instance, it could result from untreated penile fracture or seen following its treatment [2]. The isolated or localized erectile dysfunction to an anatomical part of the penis is rare. In such situations, patients achieve strong and satisfactory erections often involving only the proximal part of the phallus and with a weakness of the distal part of the penis [3]. The aetiology of isolated or localized erectile dysfunction can be found locally in most cases. On the other hand, when erectile dysfunction is global, causes may be local or remote from the phallus or systemic.

Penile fracture is one of the local causes of erectile dysfunction among other reports such as corpora cavernosa fibrosis [3]. Penile fracture refers to the rupture of the tunica albuginea, a fibrous covering that envelops the corporal bodies of the penis [4]. It typically manifests with a pop or crack sound, detumescence and penile haematoma. It is a dreadful urological emergency requiring early presentation, emergency penile exploration and corporal repair to guarantee the complete return of sexual and sometimes urinary function. It commonly presents as a unicorpora tear but can rarely be seen as a bicorpora tear. At times, there may be associated urethral injury in patients with bicorporal penile fracture. Its delayed presentation to the health facility may be complicated by sexual or urinary dysfunction. This study aims to report a patient with delayed presentation of tricoporal penile fracture that developed isolated or localized erectile dysfunction due to corpora cavernosa obstruction.

Case Report

A 32-year-old trader presented with a 3-week history of loss of erection localized to the distal part of the penis. It was characterized by normal erection involving the proximal half and loss of erection at the distal half of the penis. It was associated with a frustrating and unsatisfactory penetrative coital experience. He had a 2-week prior history of vigorous coitus with his spouse. In the process, the erect penis inadvertently missed the introitus and hit the mons pubis. There was an associated pop sound, sudden penile pain, detumescence, and bleeding per urethra warranting presentation to a secondary health facility where he was managed non-operatively: including intravenous fluid infusion, antibiotics, analgesics, and an indwelling urethral catheter passed and left in situ for two weeks before removal.

He had an indwelling urethral catheter passed and left in situ for two weeks before removal. Subsequently, he observed loss erection of this distal part of his penis.

The physical examination was unremarkable. Vital signs were within normal limits. The key finding on the examination was a fusiform enlargement of the distal phallic region (Figure 1a) which is atypical of the eggplant deformity of the penile fracture [Figure 1b].

The laboratory investigations were unremarkable. The penile ultrasound did not demonstrate corpora tear. The urethroscopy showed findings of partial corporal cavernosa tear or defects on the ventral aspect with obliterated proximal and distal corpora cavernosa stumps and complete urethral transection separated by a cystic cavity with patent stumps (Figures 2a and 2b).

Fig 1: Delayed atypical presentation to the urology clinic. A), Circumcised phallus with fusiform soft tissue swelling distally (red arrow) and B), The inset image showing typical acute penile fracture presentation [eggplant deformity] seen in another patient managed by the team (red arrow)

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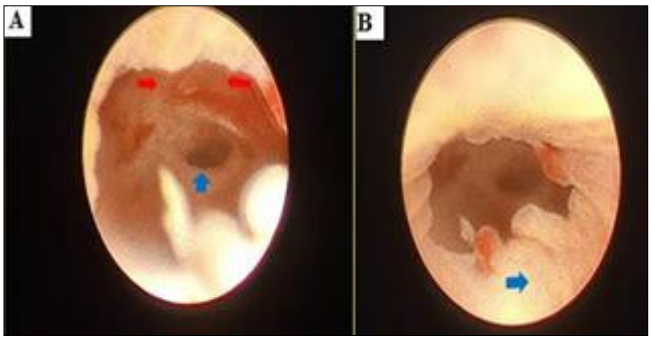

Fig 2: Tricorporal penile fracture urethroscopic findings. A) Right and left transected proximal corporal stumps obliterated by fibrinoid adhesions dorsally (red arrows) and transected proximal urethral stump ventrally (blue arrow), B) The transected distal urethral stump mucosa (blue arrow)

Given the clinical and endoscopic findings, he subsequently had penile exploration with a diverticular sac excision, and corporal cavernosa stumps debridement and repair of the lacerated or ruptured tunica albuginea, urethral anastomosis or restoration of urethral continuity, and dartos fascia reinforcement of the repair (Figure 3). The intraoperative findings were diverticular sac adjoining the proximal and distal transected urethral stumps, partial bicorporal transection ventrally with the proximal and distal stumps obliteration.

He was discharged 4 weeks postoperative with the return of erection to the whole penis and follow-up at the clinic. During follow-up, he complained of erectile dysfunction during the first 3 months of visits. Hence, he was given a short course of phosphodiesterase-5 inhibitor (Tadalafil) with improvement of symptoms. He was weaned off the medication by the 6-month postoperative when he admitted satisfactory erectile function without medication.

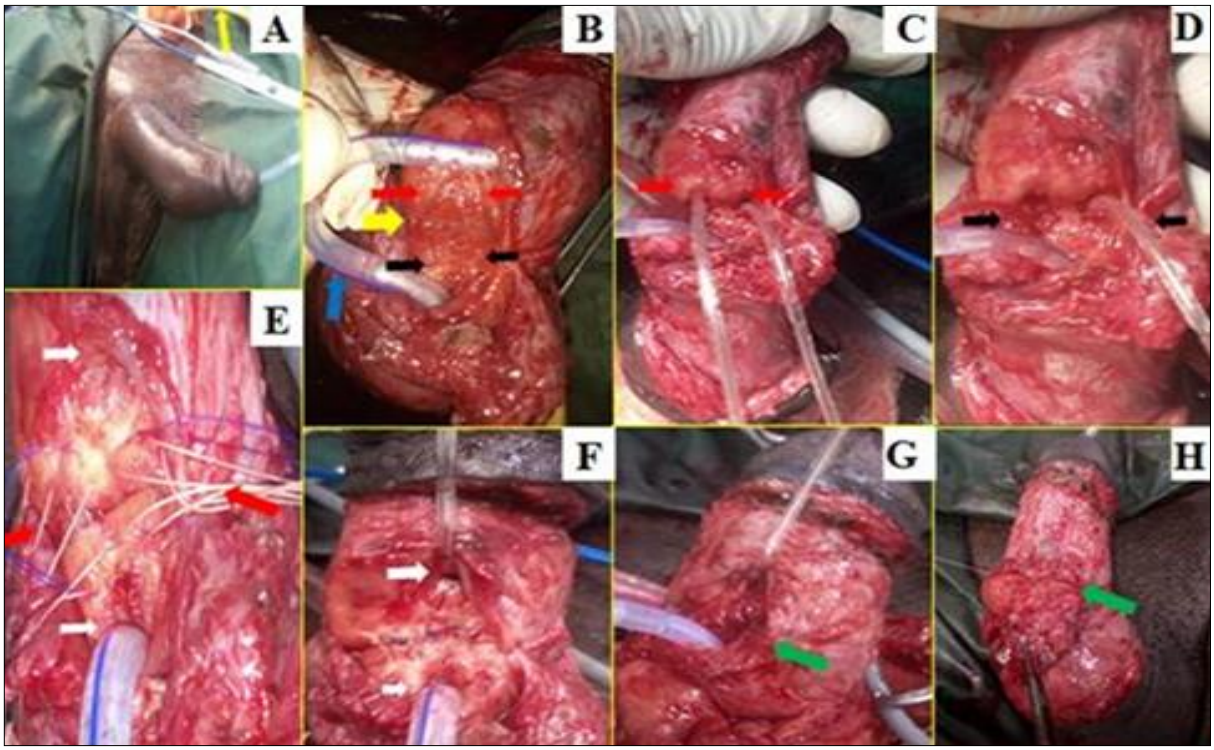

Fig 3: Intraoperative findings. A) Percutaneous SPC done, B) Transected corpora cavernosa (yellow arrow) with proximal and distal obliterated stumps (black & red arrows), C) Debrided distal corpora stumps (red arrows), D) Debrided proximal corpora stumps (black arrows), E) Interrupted sutures inserted into right and left corpora stumps (red arrows) a urethral stumps (white arrows), F) Corporal repair completed, G) Urethroplasty, H) Urethroplasty completed

Discussion

Penile fracture is a relatively uncommon urologic trauma characterized by the disruption of the tunica albuginea on one or both corpora cavernosa due to blunt trauma to an erect phallus [5]. The involvement of the corpus cavernosa and the spongiosum is termed tricorporal penile fracture. Despite being one of the strongest fasciae in the human body, the tunica albuginea can rupture during sexual intercourse because it stretches and thins out significantly with penile erection [5]. Because the tunica albuginea is thicker dorsally, penile fracture frequently occurs at the ventral tunica albuginea [6]. This observation was noted in the index case who was found to have bicorporal laceration ventrally during urethroscopy with obliterated stumps as indicated by the red arrows in figure 2. Penile fracture is mostly caused by vigorous sexual intercourse as was the case here. However, other causes include masturbation, direct trauma, and rolling over an erect phallus [7]. The true incidence of penile fracture might be underestimated since patients might not seek emergency treatment due to embarrassment [7]. Apart from fibrotic nodules and chordee, penile fracture may cause erectile dysfunction [7]. The incidence of erectile dysfunction following penile fracture has been reported to range between 0 and 34.6 % [8]. It can also occur despite surgical repair of the penile fracture [8]. The classic clinical description of penile fracture is that of a sudden cracking sound resulting from the tear of the tunica. This is followed by pain, rapid detumescence, swelling, and discolouration of the penis [6,8]. On inspection, there is usually a localized hematoma associated with penile deviation towards the opposite side of the fracture giving the classical eggplant deformity [9]. Sometimes, the hematoma can extend to the perineo-scrotal region or even involve the anterior abdominal wall when Buck's fascia is torn [9]. The classic clinical description of penile fracture comprising of a sudden cracking sound, phallic pain, rapid detumescence, and phallic swelling were historically present in the index patient. Unfortunately, these were missed by the attending physician at the secondary health facility leading to delayed diagnosis and erectile dysfunction diagnosed later at our facility. This underscores the need for further training of our colleagues manning these facilities or provision of a visiting specialist urologist at certain intervals to support the services at these facilities.

In most instances, the diagnosis can be established clinically. Therefore, radiological studies should not be an alternative to clinical diagnosis as they may be time-consuming and delay surgical intervention [10]. An important mimicker of penile fracture is disruption of the dorsal penile artery or vein or non-specific dartos bleeding which may similarly occur during sexual intercourse [11]. Conservative treatment used to be the standard of care [12]. However, due to the associated high incidence of complications such as erectile dysfunction, palpable nodule, and penile curvature using this approach, immediate surgical repair is now considered the standard of care and it has a superior outcome over the conservative approach. (12) The circumferential or Subcoronal incision is favored because it provides excellent visualization of all the corporal compartments, therefore, facilitating repair of any associated urethral injury [11]. This was similarly employed in our index patient. Multiple factors can lead to erectile dysfunction following penile fracture such as cavernoso-spongiosal fistula, corporo-urethral fistula, abnormal penile curvature, fibrotic plaques, painful erections, and painful nodules at the site of the injury among others. These complications are more likely to occur with delayed presentation or misdiagnosis of penile fracture. Furthermore, factors such as age above 50 years and bilateral corporal involvement may increase the likelihood of developing erectile dysfunction [10]. Similarly, pre-fracture erectile function is an important determinant of erectile dysfunction following penile fracture [6]. Therefore, it is important to inquire about the patient's pre-fracture erectile function during evaluation. Apart from the surgical repair of the torn tunica albuginea, patients who developed erectile dysfunction following penile fracture may require penile rehabilitation using phosphodiesterase type-5 inhibitors to improve sexual performance [7]. One to two months of penile rehabilitation may be satisfactory for improved erectile function [7]. However, some patients may require a longer duration of penile rehabilitation such as our index patient possibly due to late presentation.

Conclusion

Penile fracture is a urological emergency warranting emergency surgical intervention. Early recognition is important. The non-operative management has no role in its treatment due to the high risk of complications such as erectile and urinary dysfunction. Therefore all hands must be on deck to ensure the creation of awareness on penile fracture through health education of the populace at important public gatherings and most importantly at schools both secondary and tertiary centres.

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