

False fracture of the penis: Different pathology but similar clinical presentation and management

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Abstract

Introduction: Penile fracture is the most common presentation of acute penis. Rupture of the superficial dorsal penile vein (s) may mimic penile fractures with similar clinical presentation but with intact corporeal bodies. Our aim of the study is to highlight superficial dorsal penile vein (s) injury as true emergency with better prognosis.

Subjects and Methods: Sixty-eight patients with suspected penile fractures presented to our hospital between June 2007 and January 2013. Out of these, 11 patients showed intact tunica albuginea on exploration with injured dorsal penile vein (s) identified. Records of such 11 cases were reviewed regarding age, etiology, symptoms, physical signs, findings of surgical exploration and post-operative erectile function.

Results: All 11 patients were injured during sexual intercourse and presented with penile swelling and ecchymosis and gradual detumescence. Mild penile pain was encountered in 5 cases and the “snap” sound was noted in 2 cases. Examination revealed no localized tenderness, or tunical defect. All the patients regained penile potency without deformity after surgical ligation of the severed vessels. One patient developed penile hypoesthesia.

Conclusion: Although the classic “snap” sound and immediate detumescence are usually lacking in the symptomology of dorsal penile vein rupture, its clinical presentation can be indistinguishable from true penile fracture. Surgical exploration is still required to avoid missing tunical tear with possible future complications. The long-term outcome and prognosis are excellent.

Key Words: Dorsal penile vein, false penile fracture, penile fracture, tunica albuginea

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INTRODUCTION

Traumatic penile injuries are diverse with penile fracture being the most common one. Vascular penile injuries are another cause of penile trauma which may resemble true penile fracture but without the tunical tear. They include rupture of the penile superficial dorsal vein,^[1] deep dorsal vein,^[2] dorsal artery^[3] and non-specific dartos bleeding.^[4]

These acute penile emergencies necessitate urgent medical attention and in most cases prompt interference. Dorsal vein injury is the most frequent entity which presents with sudden onset of hematoma and swelling mimicking penile fracture. In this study, 11 patients presented with sudden swelling and hematoma of the penis and proved to have superficial dorsal penile vein injury on surgical exploration. We aimed to highlight the superficial dorsal penile vein rupture as the commonest penile vascular injury regarding the clinical presentation, value of imaging and role of surgery.

SUBJECTS AND METHODS

The study was reviewed and approved by our institutional ethical review board. The medical records of 11 patients; presented between June 2007 and January 2013 with final diagnosis of

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superficial dorsal vein rupture, were reviewed retrospectively. The collected data included age, marital status, etiology, use of PDE-5 inhibitors, clinical presentation, physical findings, results of surgical exploration and post-operative follow-up. The patients were not subjected to any imaging procedure. Surgical exploration was done for all patients under spinal anesthesia. Initially, a urethral catheter was inserted. Subcoronal incision was done to explore the penis. Penile degloving was followed by examination of corporal bodies and tunica albuginea. When the tunica was found intact, artificial erection was induced to guarantee the integrity of tunical layer. Subsequently, the hematoma was evacuated and the injured vessels were identified and ligated. Hemostasis was achieved and the incision was closed. The catheter was removed after 1 day. Patients were instructed to avoid sexual intercourse for 4 weeks post-operatively. The patients were followed at an outpatient clinic for erectile dysfunction (ED), medical treatment for ED, penile deformity, curvature, fibrotic nodules and penile sensation.

RESULTS

A total of 11 patients with aged range from 23 to 45 years (a mean of 33) presented within a median of 4 h after trauma (range 2-32). Nine patients were married and 2 were single. All the injuries were reported during erection; 9 after vaginal intercourse and 2 after masturbation. Four patients used 100 mg Sildenafil before sexual intercourse; two of them used Tramadol in addition. All the patients presented with penile swelling and bluish discoloration of skin [Figure 1]. Snapping or cracking sound was absent in all patients except two. Mild penile pain was reported in 5 patients. There was no bleeding per urethra or urinary troubles. All patients experienced gradual detumescence. Physical findings included penile shaft ecchymosis and edema in all patients. There was no penile deformity, deviation, or glans abnormality. Tunical defect could not be palpated. All the patients were managed with immediate surgical exploration. Examination of tunica albuginea did not detect any tear even after induction of artificial erection. However, the source of bleeding was found to be lacerated or avulsed superficial dorsal vein which was ligated and secured [Figure 2]. There were no urethra or suspensory ligament injuries. Closure of subcoronal incision was done at the end of the surgical exploration [Figure 3]. No intra-operative or immediate post-operative complications were noted. The mean follow-up period was 15 months (ranged from 8 to 23 months). All patients restored penile potency without any penile deformity, curvature or nodules. One patient developed penile hypoesthesia.

DISCUSSION

Penile injuries are uncommon because of the well-protected location on the body and a high degree of genital mobility.^[5] Penile fracture is the most common traumatic injury to penis.

It is defined as the disruption of the tunica albuginea with the disruption of corpus cavernosum.^[6] Penile fracture is readily diagnosed by thorough history and physical examination. A history of vigorous sexual intercourse or penile bending during masturbation together with a snapping sound, rapid detumescence and penile discoloration is characteristic in

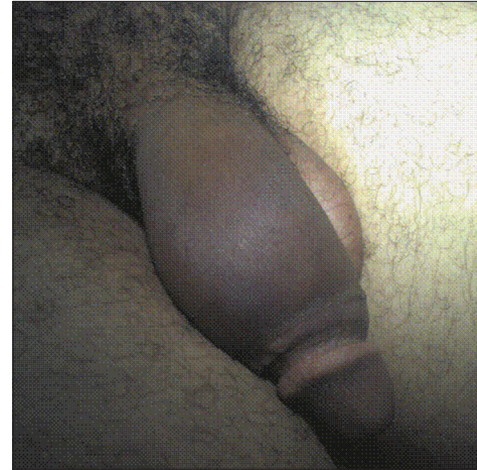


Figure 1: A case of dorsal penile vein rupture presenting with penile swelling, edema and ecchymosis

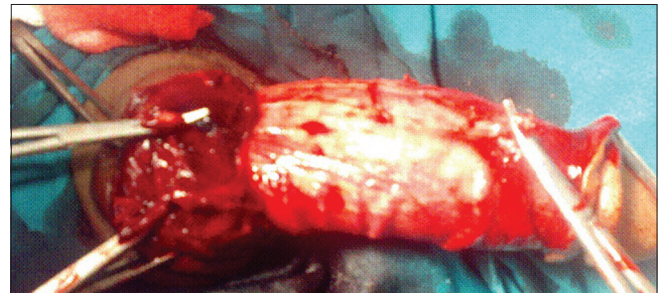


Figure 2: After the exclusion of tunica injury, the superficial dorsal penile vein was found to be injured and was ligated

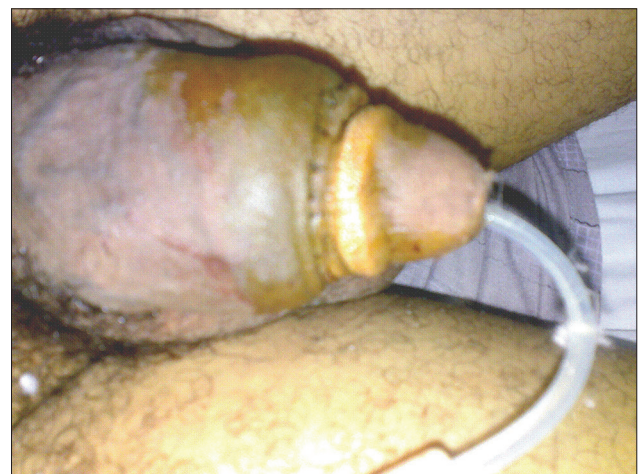


Figure 3: Closure of subcoronal incision at the end of the surgical exploration

such cases. Examination usually reveals swollen, ecchymotic, tender and deviated penis. Sometimes, the tunical defect can be palpable. Conservative treatment may result in complications in up to 29% of cases. These include ED, penile curvature, abscess or debilitating plaques and significantly longer period of hospitalization and recovery.^[6-8]

Vascular penile injuries are less common causes of acute penis which may mimic penile fracture. They occur predominantly during intercourse, less commonly when turning or falling on the bed with the penis erected, or during masturbation. The patients present with hematoma, swelling and gradual detumescence. Although false penile injuries are clinically similar to true penile fracture, they usually could be differentiated by the lack of the snap penile sound, absence of tunical defect, gradual detumescence and post-traumatic new erection.^[9,10] These false penile injuries include superficial dorsal vein, deep dorsal vein and dorsal artery injuries as well as non-specific dartos bleeding.^[1-4]

Anatomically, the major penile vasculature consists of the superficial and deep dorsal veins and the dorsal artery of the penis, lying out of the tunica albuginea. The deep artery of the penis is in the middle of the corpora cavernosa and is covered by the tunica albuginea. The deep dorsal penile vein and deep dorsal artery are present underneath the Buck's fascia while superficial dorsal vein rests outside the fascia.^[11] The ecchymosis due to superficial dorsal vein rupture can spread through the subcutaneous tissue of the scrotum and perineum. On the contrary, the hematoma due to deep dorsal vein rupture and penile fracture is confined to the space beneath Buck's fascia and thus remains within the penile shaft as long as Buck's fascia remains intact.^[12] If ecchymosis involves scrotum, perineum or pubic area, a diagnosis of either true penile fracture with tearing of Buck's fascia or of false penile fracture with superficial dorsal vein rupture can be considered.^[13] Rupture of the deep dorsal vein is almost difficult to differentiate from that of cavernous bodies, except for the absence of an initial snap and sometimes of pain.^[2]

Although sudden detumescence is an important marker of penile fracture in contrast to gradual detumescence which suggests an intact corpora cavernosa, there are a few reports of continued intercourse after fracture.^[14,15] Even though there are some clinical differences between false and true penile fracture, the two conditions may still overlap with possible long-term complications of missed tunical tears being a major concern.^[16]

Diverse radiological methods such as cavernosography,^[17,18] ultrasonography^[19,20] and magnetic resonance imaging (MRI)^[21,22] have been utilized to diagnose and assess penile fracture. However, an ideal radiographic imaging is lacking until now. The sensitivity

and specificity of these techniques are significantly different and none has proven to be the reliable diagnostic investigation and definitely differentiate false from true penile fracture. Penile ultrasound is operator dependent investigation and may give false negative results due to small albuginea disruptions or the presence of clots at the fracture' site.^[22] Caversonography carries the risk of infection, priapism and contrast hypersensitivity in addition to its false negative results.^[23] MRI has the advantages of multiplanar capacity and high soft tissue resolution, making it the most precise imaging tool in cases of penile fracture.^[24] However, MRI cannot be used as a routine diagnostic mean in cases of suspected penile fracture as it is costly, time exhausting and not always available. In our practice, even in cases when false penile fracture is suspected, we recommend to perform immediate surgical exploration to avoid an opportunity to repair a missed tunical tear that may lead to ED.

The high frequency of dorsal vein injuries noted in our patients may be attributed to childhood circumcision. Circumcision causes the penile skin to be more tightly stretched. During intercourse, elongation of the compressed taut penile skin during intercourse may result in laceration of the veins.^[25] In addition, four of our patients have received PDE-5 inhibitors which may contribute to this high rate due to vigorous intercourse.

All our patients underwent immediate surgical exploration. Surgical management aimed at evacuation of the hematoma, identification or exclusion of the tunica injury and ligation of any injured vessels. A degloving circumferential subcoronal incision was performed, which provides good cosmetic results and exploratory advantage with exposure of the entire tunica bilaterally and the urethra.^[26] The evacuation of the hematoma in false penile fractures might prevent possible future complications.^[27]

Among surgically treated patients with penile fracture, those undergoing repair within 8 h of injury had significantly better long-term results than did those having surgery delayed 36 h after the occurrence of insult.^[28] Unlike true penile fracture, time is not a prognostic factor for patients with pseudo-penile fracture.

Limitations to our study include its small sample size and retrospective nature of the study.

CONCLUSIONS

Superficial dorsal penile vein injuries are uncommon penile injuries that simulate true penile fracture. Although, few clinical differences exist between these two conditions, however, due to lack of reliable, fast and practical imaging modality, surgical exploration is advised

to avoid the long-term complications of missed tunical tears. Surgery offers additional advantages as evacuation of hematoma and repair of possible dorsal penile vessel (s) injury.

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