Original Article

Fracture of the penis at El Obeid Hospital, Western Sudan; review of seven consecutive cases

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Abstract

Background
Penile fracture is a rare surgical emergency. The objective of this study is to highlight the causes, clinical presentations and outcomes of penile fractures seen in a general surgical unit, in-order to raise the awareness and exchange experiences.

Patients and Methods
The clinical presentations, management and outcomes of seven consecutive cases of penile fractures seen in a district general surgical unit in two years were studied, analyzed and discussed in brief with literature review.

Results
There were seven patients. The ages ranged from 20 to 45 years (average 30.01 years ± SD=7.14). The time delay in presentation was from five to 24 hours (average 17). Sexual trauma was denied except in one patient. The injury was on the right side in 5 patients (>70%). There was no accompanying urethral damage among these cases. All patients were offered prompt surgery with excellent results.

Conclusions
Penile fracture is an under reported condition. Immediate surgical repair was associated with short hospital stay, speedy functional recovery and good outcomes.

Keywords: Fracture penis, trauma, and surgical repair.

Introduction
The first documented report of this condition was credited to Albulkasem, the Arab physician, in Cordoba more than 1000 years ago(1). In the modern medical literature the first case of penile fracture was described in 1924(2). Since then more than 1600 cases were reported worldwide, the majority were from the United States and the Middle East(3).
Normally the penis has 3 cylindrical bodies; two dorsal cylinders form the corpus cavernosa on the sides and one ventral cylinder is the corpus spongiosum which carries the penile urethra from below. The three cylinders are surrounded by fascia and contained within the stiff tunica albuginea which is a tough fibrous envelope 2 mm thick in the flaccid penis, but decreases to 0.25 mm during an erection\(^4\). Engorgement of the corpus cavernosa with blood results in penile erection. Normal pressure inside the erect penis is the mean arterial pressure at approximately 100 mmHg. Intra corporeal pressure needed to rupture the tunica is about 1500 mm Hg\(^5\).

When a penis fractures, there is a traumatic tear of one or both of the corpus cavernosa which hold most of the blood during an erection. Bleeding from a leaking corpus cavernosa into the surrounding tissues produces haematoma deep to Buck’s fascia. Fracture of the penis usually results from direct trauma during sexual intercourse, masturbation, bending of the erect penis to achieve detumescence or accidental rolling over in bed. The leak is typically unilateral\(^5\).

The patient complains of an audible cracking sound (snap or pop), an intense pain, immediate swelling (penile deformity), and penile bruising (ecchymosis) with deviation to the side opposite the tear\(^4,5\) (Fig 1).

Although the penis has no bones, but the situation occurring in an erect penis mimics fracture sequences that occur in bones. Blood appearing in the external urinary meatus, haematuria, voiding difficulties or urine extravasations may indicate a urethral injury\(^6\).

On physical examination the patient appears apprehensive, anxious and usually points to the site of the injury. Locally the penis is flaccid, swollen with ecchymosis and deviated to one side (eggplant deformity)\(^7\) (Fig 2).

There is severe tenderness at the injured point in the shaft shown as a gap or depression underneath the clot, over which the penile skin can be gently rolled. However, the scrotum is normal\(^7\).

**Patients and Methods**

This is a retrospective descriptive study. The medical records of patients who presented with fracture of the penis to the University General Surgical Unit, in or at El Obeid Teaching Hospital, Western Sudan during or over two years were reviewed. The data were analyzed for causes; time elapsed since the incident, age, clinical presentations, diagnostic approach, treatment offered and outcomes. All patients had immediate surgical repair, after detailed informed consents were obtained and documented. The procedure was performed under spinal anaesthesia; via a subcoronal semi-circumferential incision (Fig 3).
Buck’s fascia was exposed over the area of maximal haematoma to reveal the tear in the corpus cavernosum. The haematoma was evacuated and thoroughly washed out. Ligation of any identified bleeding vessels was done. Intra-corporeal injection of normal saline through the tunica from within the glans penis to simulate erection (Fig 4) was found to be helpful in locating the injury site. It was a transverse tear in all cases, which was repaired with inverted vicryl sutures (Fig. 5). The fascia and skin edges were re-opposed using 3/0 interrupted vicryl sutures. In all these patients there was no urethral injury, but an indwelling Foley’s catheter was used as a one-day-splint in two patients with tears more than five millimeters.

Post-operative compression bandages, antibiotics and anti-inflammatory drugs were used in all patients, and all patients were discharged in one to three days’ time. Patients were advised to abstain from coitus for six weeks.

Six patients were followed-up for a period ranged between six months and one year. The seventh patient, who is still on follow-up, was seen after six weeks and three months.

**Results**

There were seven patients among the study group. The age distribution was between 20 and 45 years, mean 30.01 years with standard deviation 7.14. The main complaint was sudden penile pain and increasing penile swelling with apparent deformity. The condition was due to trauma of the erect penis due to falling down in three cases, casual impacted erect penis during rolled over in bed in two patients, road traffic accident in one case while one patient confessed sexual trauma.

Right sided injury was found in five cases (71.4%). There were no bilateral injuries and no urethral injury among the study group. The mean hospital stay was 1.2 days (range 1-3 days). No early postoperative complications were seen in any of the patients.

On follow-up, specific questioning about late sequelae regarding pain, loss of sensation in the penile shaft, penile curvature and sexual dysfunction revealed no abnormality.

**Discussion**

Penile fracture is a rare surgical emergency, generally occurs after blunt trauma to the erect penis. Incidences are difficult to calculate as the condition is always under reported.
However, seven cases seen in our unit in two years is rather an unusual event. The aetiological factors found in our patients were different from other reported case series, probably due to the different cultural beliefs in different communities. Our patients seemed not accurately reporting the exact cause, due to what they consider as embarrassment. In 1,331 penile fracture cases reported in 183 papers between 1935 and 2001, coitus was the main aetiological factor ranging between 33% and 60% of cases\(^{(4)}\). Gedik et al found coitus as the cause in 43% of their own series (107 patients)\(^{(4)}\), Ibrahiem et al in 51% (155 patients)\(^{(6)}\) and Agarwal et al in 88% (17 patients)\(^{(8)}\). However, Zargooshi et al found coitus as the cause only in 8.1% (out of 172 patients), in which manually bending an erected penis for detumescence was incriminated in 69% of the cases\(^{(9)}\). Other authors reported manual bending accounting for 61.9% (13 out of 21 patients)\(^{(10)}\), 64% (16 out of 25 patients)\(^{(11)}\) and 78% (25 out of 32 patients)\(^{(12)}\) of their series. The diagnosis in our cases was established on clinical findings. All patients admitted the history of trauma, although only one patient attributed that to sexual act. The main presenting features were pain, penile swelling and deviation. All of them admitted an audible cracking sound or snap. The patient usually points to the side and site of the tear. When examined they were anxious. Locally, the penis was flaccid with the classic eggplant deformity\(^{(7,13)}\) and local tenderness. The point of maximum tenderness in the shaft appeared as a gap or depression underneath the clot, over which the penile skin can be gently rolled (the rolling sign)\(^{(14)}\). The scrotum was normal. We found ultrasound scan very useful in confirming the diagnosis and localizing the defect. Similar experiences were reported from elsewhere\(^{(15,16)}\). Some authors recommended cavernography, urethrography (to exclude urethral injury) and magnetic resonance imaging\(^{(7,13,14)}\). Such techniques were not available in our setting and we do not have any experience regarding their usefulness and cost effectiveness.

The surgical repair of penile fracture was first described by Fetter and Gartmen in 1936\(^{(17)}\) and had further become popular in the 1980s\(^{(14)}\). So, all our patients were offered immediate repair. We found that injection of intra-corporeal saline to simulate erection (Gittes test)\(^{(14)}\) was useful in locating the tear. Right side injuries (71.4%) were more common than left side, similar to the reports of other authors\(^{(1,6,14)}\), with no clear explanation. Although, it was reported that usage of post-operative diazepam was found to be helpful to prevent erections during the healing time\(^{(18)}\), but no clear evidence was given and such medications were not used in our patients.

The time delay in presentation was from five to 24 hours (average 17), because the patients expected that their symptoms may subside spontaneously or on over counter antibiotics. We did not notice any difference in the surgical outcomes, between those who reported immediately or after 24 hours, probably because the delay time was short and the number of patients was small. However, it was well documented that even late intervention, due to late presentation, is still advocated\(^{(14)}\). Since then, the old conservative treatment is no longer practiced, as many other authors found shorter hospital stay, fewer complications and increased patient satisfaction on immediate surgical management\(^{(19-24)}\). Muentener M et al compared surgical and conservative treatments and reported success rates of 92% and 59% respectively\(^{(25)}\). Recently, Yapanoglu T et al\(^{(26)}\) and Gamal WM\(^{(27)}\) et al in two different similar studies found that immediate surgical repair gave good results and was also superior to conservative treatment.
In conclusion, penile fracture is a rare surgical emergency which is mainly diagnosed clinically. Immediate surgical exploration and repair was associated with short hospital stay, rapid functional recovery and no substantial long term sequelae. We call the medical providers at the primary health care settings to be aware of the condition and that prompt surgical intervention is a useful, rational and justifiable practice.

References