

Experience in Management of Penile Fracture at Al-Hilla Teaching Hospital

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Abstract

Background: Penile Fracture (PF), consider as uncommon emergency in the urological field occurring due to tear in the tunica albuginea of the corpora cavernosa of the penis. **Objective:** This retrospective study aims to analyze the main presentation, management modalities and complications that occurred for the cases of penile fractures who are admitted to Al-Hilla teaching hospital over the last 10 years. **Materials and Methods:** Fifty-four patients who presented to our hospital with PF over a 10-year period from December 2006 to December 2016 were included in this study. Hospital records and data collected from all the urologists at Hilla Teaching Hospital using a direct questionnaire were evaluated for all patients with PF. All patients treated by immediate surgical exploration, hematoma evacuation and repair of the tear or tears founded. **Results:** Out of a total of 54 patients who are include in the study, there were 44 patients (81.48%) between 21 and 40 years old. Most of the injuries were on the left proximal side of the penis. In almost all of the cases, the patients were admitted for 2–4 days. All the patients were given intravenous antibiotics at the hospital and completed an oral course of treatment at home. Forty nine patients (90.7%) report satisfactory penile erection post operatively without pain. Rough sexual activity was the primary cause of the penile fractures in our study. Most patients presented within 4–24 h of sustaining the injury, and the rest presented within 1 day to 1 week. The injury was usually repaired immediately. Most patients reported that erectile function returned 2–7 days after surgery, while sexual intercourse returned 2 weeks after the surgery. **Conclusions:** Vigorous sexual intercourse is the most common etiological factor for fracture of the penis for cases included in this study. Surgical repair is associated with a low complication rate. According to the results of our study, immediate surgical repair is strongly recommended.

Keywords: Complications, injury, outcome, penile fracture, surgery

INTRODUCTION

Fracture penis (PF) is defined as traumatic tear of the tunica albuginea that cover the corpora cavernosa which a relatively uncommon presentation in urology departments. The injury may extend to the corpus spongiosum and sometimes to the urethra.^[1] Recordation of the first case of fracture penis was in 1924.^[2] The real occurrence rate of this genito-urinary incident is unknown; it is believed to be under-reported because of the fear of social embarrassment.^[3-8]

European and Asian countries record the majority of cases worldwide.^[9-12] Researches show that There is geographical variation in the etiologic factors of penile fracture.^[4,6,13,14] As trauma during sexual intercourse is the main cause in the USA.^[13] While most recorded cases of penile fracture in Japan are due to masturbation and turning over in bed while the penis is erected.^[14] In Mediterranean countries, squeezing and

snapping of the penis during erection to achieve detumescence is the most common causative factors.^[6] Some patients have described having sexual relations on a desk and the penis may hit the edge of the desk while slipped out of the vagina.^[6,11,13-17]

A PF may occur as a result of a low impact trauma. According to some studies, the urethral injury rate is lower in PFs sustained from a low intensity impact^[18] than those from a high-energy impact.^[19,20]

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Urethral injury which occur in fracture penis is usually partial while complete urethral rupture is very rare and usually associated with bilateral corporeal tear.^[16,19] The thickness of the tunica albuginea differ on various areas of the shaft of the penis as it is thin on the ventrolateral region of penis and thick on the dorsum of the penis. Also this layer resistant to tear unless the pressure in the corpora cavernosa exceed 1500 mm Hg which mostly result from trauma to the engorged corpora and this explain why 2/3 of cases occur when the female in a dominant position.^[1]

The clinical presentation of PF is usually obvious and is often clinical. Diagnosis is made relying on history and the finding from a physical examination.^[18,20] The classical presentation of fracture penis is an abrupt onset of hearing a sound like a click associated with penile pain (minimal or a severe sharp pain, depending on the severity of the injury) and immediate loss of erection of the penis followed by local discoloration of the penile skin and a subcutaneous hematoma that leads to an eggplant-shaped deformity on examination. The corporal tear may be palpable.

Acute urine retention and or urethral bleeding may be the presenting symptom which occur in some patients secondary to urethral injury.^[9] Most studies also reveal that most patients with penile fracture present early after the injury.^[6]

Regarding the diagnosis of penile fracture, it is mostly clinical depending on the history and physical examination as this fixed by most studies.^[21] Sometimes penile ultrasonography and magnetic resonance imaging (MRI) may be useful in the diagnosis according to the European Association of Urology guidelines.^[21]

Other imaging diagnostic studies as cavernosography and retrograde urethrography are used in selected cases when there is high suspicion of urethral injury.^[21]

However, because an urethrography may need more time and an inaccurate, so intra-operative flexible cystoscopy may be did to the patient before we put catheter in suspicious patients.^[1]

However, when a patient's medical history and physical examination suggest PF, ultra-sonography can be used to confirm the diagnosis because ultrasonography is noninvasive, accurate and available make it the preferred study to confirm the diagnosis of fracture penis while MRI is another accurate diagnostic tool, but it is more expensive.^[12,19]

Conservative management of PF is favored in the early reports. This includes cold compression bandages, fibrinolytics and anti-androgens, such as (5-6) ice packs, anti-inflammatories pain relief with antibiotics and foley catheter but there is high incidence of residual penile curvature. Also, other complications as penile abscess, missed urethral injury, persistent haematoma fibrosis and angulation may occur in high percentages.^[22]

Surgical treatment by early exploration with evacuation of hematoma and repair of PF results in better outcomes and a

shorter hospital stay: 2–3 days compared to a 10–14 days for conservatively treated patients.^[23-25]

Patients treated within the first 40 h after trauma have minimal sequelae compared to those who may present later due to embarrassment or fear. Some studies report that delay of surgical treatment up to 7 days after the fracture did not lead to adverse effects on the results.^[26-28] However, early surgical repair of corpus cavernosum is the gold standard since it decreases the complication rates.^[23]

The aim of this study was to analyze the main presentation, management modalities and complications that occurred for the cases of penile fractures who are admitted to Al-Hilla teaching hospital, Babylon province, over the last 10 years.

MATERIALS AND METHODS

Study design and patients

Fifty four patients with penile fracture were involved in a retrospective cohort study, all patients were attending to Hilla Teaching Hospital during a period of the first of December 2006 to the first of December 2017.

We collected comprehensive data on our cases by recorded data in the statistical department and direct questionnaire to the doctors in the Urology department in at Hilla Teaching Hospital. The diagnosis is usually made by thorough history and physical examination. Ultrasonography used in two cases to confirm the diagnosis while urethrography never used.

All patients were underwent assessment of history of the etiological agents, time of presentation and early surgical treatment involves catheter fixation before surgery, de-gloving of the penis via a distal circumcising incision in order to view all three penile compartments, haematoma evacuation, debridement and closure of the tunical defect using 2/0 or 3/0 polyglyconate or poly-dioxanone suture in a running or interrupted method of suturing.

Most patients in our study were discharged the day after their surgery. Also during the surgery assessment made for the side of injury, duration of medical administration, duration of needing catheterization and duration of stich removal to assess the requirements and the fate of surgery for penile fracture patients.

Ethical consideration

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients verbal and analytical approval before sample was taken. The study protocol and the subject information and consent form were reviewed and approved by a local ethics committee.

RESULTS

This study revealed that there is difference in the incidence of PF between rural and urban areas as it is more common in

rural regions. This may be related to a lack of sexual education in the rural regions.

In this study the most common etiological factor in all patients (54) is intercourse in 35 patients (64.8%), in nonintercourse trauma the number of patients is 19 (35.2%) as showed in Table 1. These results are nearly similar to the results in united states researches and differ from those in Europe and Asia.

Regarding age of the patients who present with penile fracture to Al-Hilla teaching hospital, most patients are young age group as appear in [Table 2].

In this study, most cases of penile fractures are presented with in the first 24 h of occurrence of symptoms as appear in Table 3.

Also with regard to the method of diagnosis, most cases are diagnosed by clinical diagnosis as showed in Figure 1 while [Table 4] reveal the methods used for diagnosis of cases of penile fracture in this study.

While according to the side of injury, the right side more as appear in [Figure 2 and Table 5].

This study decide that immediate surgical intervention and repair of a ruptured corpus cavernosum can lead to a good functional result with a brief hospital stay, low morbidity, good recovery and satisfactory erectile function as showed in Figure 3.

Table 1: Distribution of cases according to the cause

Cause of PF	Number of cases (%)
Sexual intercourse trauma	35 (64.8)
Non intercourse trauma	19 (35.2)

PF: Penile Fracture

Table 2: Distribution of cases according to age groups

Age groups year	n (%)
10-20	3 (5.6)
21-30	21 (38.9)
31-40	23 (42.6)
41-50	5 (9.2)
51-60	2 (3.7)
Total	54 (100)

Table 3: Distribution of cases according to time of presentation to medical staff

Time of presentation groups (h)	n (%)
4-10	23 (42.6)
11-20	15 (27.8)
21-30	8 (14.8)
31-40	0
41-50	6 (11.1)
51-60	2 (3.7)
Total	54 (100)

Delayed surgical repair and conservative management may lead to more complication; the long-term results of this direction of treatment requires further study. The urethral catheter placed postoperatively for in all patients for a short period in most cases as in Table 6.

While the duration of intra hospital stay are showed in Table 7 and the time for stiches removal in Table 8.

DISCUSSION

This study reveal that most cases of penile fracture are due to trauma during sexual intercourse (64.8%) which met the results



Figure 1: The clinical presentation of penile fracture

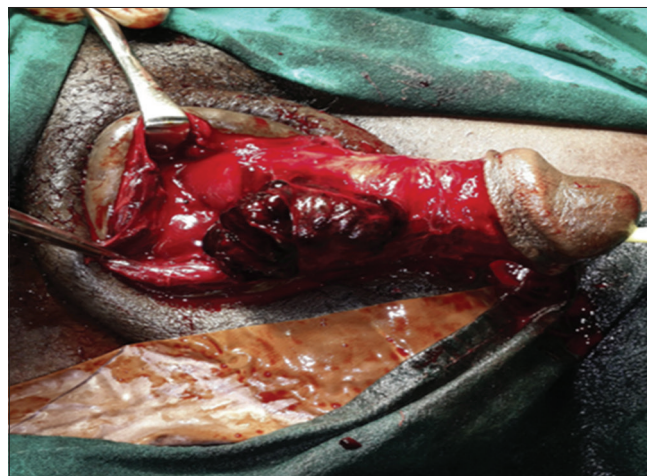


Figure 2: Common site of injury in penile fracture

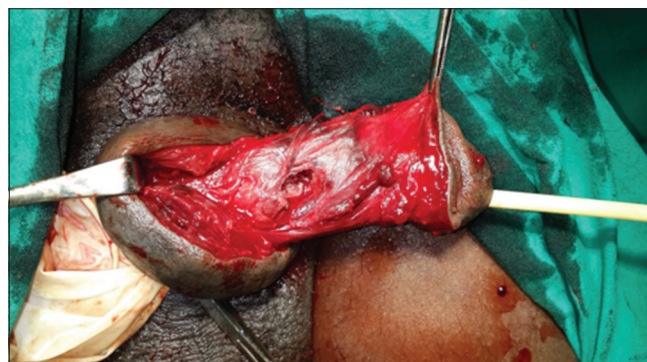


Figure 3: Surgical intervention of penile fracture

Table 4: Distribution of cases according to type of diagnosis

Type of diagnosis	n (%)
Clinical	52 (96.2)
Ultrasound	1 (1.9)
Both	1 (1.9)
Total	54 (100)

Table 5: Distribution of cases according to side of injury

Side of injury	n (%)
Right distal	2 (3.7)
Right proximal	20 (37)
Left proximal	26 (48.1)
Left distal	4 (7.4)
Bilateral	1 (1.9)
Mid	1 (1.9)
Total	54 (100)

Table 6: Distribution of cases according to Time of catheterization after management

Time of catheterization (days)	n (%)
2	21 (38.9)
4	24 (44.4)
6	0
8	2 (3.7)
10	7 (13)
Total	54 (100)

Table 7: Distribution of cases according to duration of admission

Duration of admission (days)	n (%)
1	0
2	20 (37)
3	34 (63)
4	0
Total	54 (100)

Table 8: Distribution of cases according to time of stitch removal

Time of stitch removal (days)	n (%)
5-7	0
7-9	25 (46.2)
9-11	28 (51.9)
11-13	1 (1.9)
Total	54 (100)

of united state study^[13] and differ from the Asian study^[14] which decide that non sexual intercourse trauma is the major cause for penile fracture this geographical variation in the etiology of penile fracture mostly due to ethical and religious consideration

led to denies the masturbation and other nonsexual intercourse trauma as a cause for penile fracture.

The clinical presentation of penile fracture also differ with various studies as the percentage of each presentation according to Shafi study were as fallow: penile pain (35.7%), hematoma (29.8%) and edema (11.9%) also in this study, penile pain and swelling is the main clinical presentation in all cases.

Because trauma during sexual intercourse is the major cause for fracture penis in this study, so the young age group between 21 and 40 years (which is the sexual activity period) is the major constituent of the patients included in this study and account about (81.5%) and these results are similar to other studies.^[13]

Regarding the time of presentation, this study reveal that most cases included in the study present early and within the first 24 h of the injury (70.4%) and this is mostly due to the sever pain that accompanied the condition and because of fear of squally of the condition as most males afraid from erectile dysfunction that they thought to occur after penile fracture these factors make the patients seek medical advice early and these results are identical to most other studies.^[6]

About 96.2% of cases included in this study diagnosed clinically by history and physical examination alone while farther investigations not routinely needed because the identical history given by most patients with fracture penis which include click sound fallowed by pain and swelling in the penis and the pathognomonic appearance of the penis during physical examination like eggplant-shaped and this similar to most other studies.^[15,19,21]

Regarding the site and lateralization of the tear in patients with fracture penis, the results differ with various studies as Asian study^[19] decide right site of the penis is the common side of injury while this study reveal the left side is commoner than the left side and this may be explain by the different position of sexual intercourse in different communities although all the studies decide that the proximal portion of the penis is the most commonest site of injury in fracture penis patients because the tunica albugina is thin in this portion compared with the midshaft and distal portion of the penis and also because most cases of FP occur during sexual intercourse in which the female in the dominant position (female up) which make the proximal portion of the penis is the site of weight bearing and higher pressure on it led to tear in the proximal portion.

As appear in this study, catheterization needed in all cases to prevent postoperative retention of urine because of pain and most cases catheter removed within 4 days postoperatively as urethral injury who require longer duration of catheterization is rare, while the duration of hospital stay and stitches removal differ according to the severity of injury and materials of the stitches used.

So by reviewing all the cases of PF at Hilla Teaching Hospital, accurate data was collected regarding the, etiology, epidemiology, diagnosis, complications and management of

cases of fracture penis in Al-Hilla city. It was revealed that there is difference in the incidence of PF between rural and urban areas as it is more common in rural regions. This may be related to a lack of sexual education in the rural regions.

Also the most common etiological factor was trauma during intercourse, accounting for 35 of the patients (64.8%), while 19 patients (35.2%) had PF caused by nonintercourse-related trauma. A PF may occur as a result of a low impact trauma. According to some studies, the urethral injury rate is lower in PFs sustained from a low intensity impact^[13] than those from a high-energy impact.^[19]

Of total 54 patients in this study, the mean age was 32.4 and ranged from 17 to 60; 40 patients (74%) were married and 14 patients (26%) were single. We also found there is a seasonal variation in this disorder: more cases occur in the spring and the least occur in the summer. The diagnoses of the majority of PF cases reviewed in the literature and in our study relied on the patient's medical history and a physical examination without using of extra investigations or imaging studies, except for patients suspected of possible urethral injuries.

CONCLUSIONS

This study decide that immediate surgical intervention and repair of a ruptured corpus cavernosum can lead to a good functional result with a brief hospital stay, low morbidity, good recovery and satisfactory erectile function. Delayed surgical repair and conservative management may lead to more complication; the long-term results of this direction of treatment requires further study.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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