SCIENTIFIC ARTICLE

Penile fracture : Our experience

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Keywords: penile fracture, high index of suspicion, mode of injury, surgical repair

Abstract

Background

Penile fracture, though rare are more commonly seen in modern-day urological practice. It necessitates urgent and immediate surgical care. It can lead to severe mental and physical agony with functional limitations which could be either sexual or urinary or both. Precise and timely management combined with proper follow–up is mandatory. The emergency care surgeon/ Urologist should be abreast with the evaluation and prompt intervention can result in favourable outcomes.

Materials and Methods

We performed a retrospective observational study at a tertiary care referral centre. The objective was to evaluate the causes, clinical presentation and outcome.

Results

Nine (09) patients who reported at our centre were treated successfully and were later followed up for two years. The mean reporting time to the hospital was 40.8 hours (35 min-7 days) and all patients received prompt surgical management with 3 patients suffering minor complications at short-term follow-up. Vaginal intercourse was found to be the most common etiological cause for injury. Clinical evaluation and relevant history were sufficient to elucidate the diagnosis. No associated urethral injuries were present

Conclusion

If typical symptoms are present (irrespective of signs) a diagnosis of penile fracture can be ascertained. Early exploration is preferable.

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Received: 11-01-2024 Accepted: 26-03-2024
DOI: http://doi.org/10.4038/sljs.v42i01.9109

Introduction

Penile fracture has traditionally been considered rare. However its incidence has been increasing over the years. It is defined as a tear in the tunical surface overlying the corporal bodies due to trauma on an erect penis. The fracture happens in an erect phallus as the tunica is thinned out and has limited flexibility. The mechanism of injury, associated stigma and the embarrassing sequence of events probably lead to underreporting and delay in initiation of management often causing suboptimal recovery [1]

It occurs usually after a coital trauma when the erect penis forcefully hits the perineum and the thinned-out tunica buckles and tears leading to sudden detumescence, pain and a snapping sound is sometimes heard by the patient. It is generally followed by local hematoma with associated characteristic penile appearance classically referred to as eggplant deformity (fig 1)

Perhaps one of the most dreaded associated injuries remains urethral rupture which could lead to urethral stricture as a long-term complication. On examination, the appearance and palpable defect in the tunica over the hematoma clinches the diagnosis. The Presence of hematuria or urinary retention should raise the suspicion of associated urethral injury. The Western literature depicts higher incidence when compared to Eastern or Middle Eastern data.[2]

Data over the years have supported prompt surgical

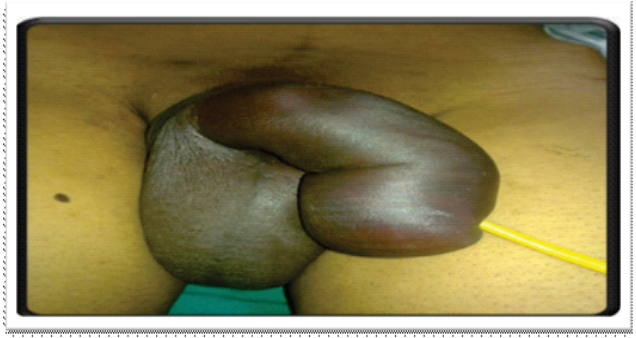

Figure 1. Egg Plant Deformity

management as delay in diagnosis or repair may lead to severe mental, physical and psychological agony. Surgical repair is the standard of care as it has shown to result in fewer long-term complications compared to conservative management.[3] The surgical approach includes circumcoronal incision and degloving of the penile shaft followed by a clot and hematoma evacuation, delineation of defect and repair by preferably absorbable sutures.

Material and Method

We conducted a retrospective study in a tertiary care hospital on patients diagnosed and discharged with a penile fracture from Jan 2019 to Nov 2022 and data on age, time of presentation, surgical procedure, post-op complications and results after 8 weeks were descriptively analyzed.

Results

A total of 9 patients' records were found in the said period 6 (67%) of them were referred from peripheral hospitals and 3 (33%) had reported directly to our centre. The mean age ± SD of the patients was 30.4 ± 4.1 years (25-37), the mechanism of injury, repair and complications are illustrated in Table 1. The commonest mechanism (67%) as expected was trauma during sexual intercourse and 03 patients (33%) reported injury during manipulation and falling over on an erect penis. The commonest presentation was pain and swelling associated with the sudden loss of erection following the trauma. None of the patients had hematuria at presentation prompting further evaluation for urethral injury. The clinical presentation is summarized in Table 2 . The time between the trauma and presentation to the hospital varied from 35 minutes to 7 days (mean ± SD = 40.8 ± 48.48 hours). All patients underwent surgical repair by the standard degloving circumcoronal incision except two patients, who were given vertical ventral incision as the defect was palpable and there was no swelling or deformity. The repair of the torn tunica was done using polyglactin 2-0 suture material after evacuating the hematoma and freshening the margins of the tunica if needed (fig 2). All patients had a Foleys catheter inserted which was removed on the first postoperative day and discharged on POD 3 after inspecting the wound. They were prescribed erection-suppressing medication and advised to avoid intercourse for 4 weeks and followed up after 2 months. 06(Six) (67%) patients had complete healing of the wound with no scarring at the repair site and had normal painless erections with no deviation. One patient had scarring at the operated site but had no pain during erections and 2 patients had slight curvature, which did not hamper sexual activity. None of them had erectile dysfunction at the time of follow-up.

Discussion

The fracture of the penis is an urological emergency. It was first reported and documented by Abu Al Qasim al–Zahrawi in the Arab region close to a thousand years back.[4] It was lost in oblivion and then reported in the modern literature by Malis and Zur just after the First World War[5]

The aetiology of this disease varies according to the geographical area, with sexual trauma being the predominant cause in the Western literature and causes like masturbation and rolling over on the bed onto an erect penis reported in

Table 1. Demographic Pattern

Case	age	Aetiology	Surgery	Incision	Day of Presentation	Follow-up (weeks)	Complications
1	26	Coital trauma	Suture repair	Ventral vertical	7 days	8	Scarring
2	25	Coital trauma	Suture repair	Circumcoronal	3 days	8	Penile curvature
3	30	Manipulation	Suture repair	Circumcoronal	35 min (<01 D)	8	Nil
4	32	Coital trauma	Suture repair	Circumcoronal	12 hours (<01D)	8	Nil
5	36	Fall on erect penis	Suture repair	Circumcoronal	1 Day	8	Nil
6	37	Coital trauma	Suture repair	Ventral vertical	16 hours (<01 D)	8	Nil
7	33	Coital trauma	Suture repair	Circumcoronal	3 hours (<01D)	8	Nil
8	28	Fall on erect penis	Suture repair	Circumcoronal	2 days	8	Penile curvature
9	27	Coital trauma	Suture repair	Circumcoronal	1 day	8	Nil

Table 2. Clinical Feature

Symptom	No (%)
Pain	7 (78)
Swelling	5(56)
Penile curvature	2(22)
Sudden detumescence	5 (56)
Penile discolouration	4(44)

Japan.[06] In the middle east, it was reported by Zargooshi et al in a series that penile fracture can occur due to forceful self-bending of an erect penis in an attempt to achieve rapid detumescence, a practice referred to as Taqaandan. The mechanism of injury is related to sexual practices, socio-cultural practices and techniques of masturbation [07]. Our data support other published literature as vaginal intercourse being the most common cause leading to penile fracture.

The tunica albuginea which is normally about 2 mm thick (in a flaccid penis) thins out to 0.2 to 0.25mm in a tumescent condition thereby losing its elasticity and hence becoming susceptible to rupture during blunt sexual trauma.[08] In a study by Fergany AF et al it was shown that there is a 1 to 38 % probability of associated urethral injury and a strong clinical suspicion should arise if the patient has blood at meatus or any history of hematuria or difficulty in voiding following the injury.[09]

If required dynamic retrograde urethrography (RGU) may be performed. None of the patients in this study had a urethral injury

In a patient with a typical history and telltale clinical signs of palpable defect, penile curvature, discolouration or the "eggplant" deformity, no time should be wasted in investigations. However, in patients presenting late with a normal-looking penis, imaging in the form of ultrasonography or MRI may be prudent. Ultrasonography is a user-dependent investigation but has a high sensitivity in picking up small tunical tears and an USG-based grading system of the severity of the tear has been proposed by Shukla et al. [10]MRI provides excellent tissue delineation and is a useful modality for diagnosing small tears in equivocal cases and is worth its cost to avoid unnecessary exploration.[11] We advocate USG as an important adjunct in evaluation, for it can delineate tunica rupture in almost all patients (fig 3). However, in one of the studies published by Agarwal et al they reported a limited role of USG. This could be attributed to being an operator and skill-based modality. MRI is a sensitive modality and is mostly used as a problem-solving tool.

Conservative management with analgesics, ice packs, catheterization, and erection-inhibiting estrogens has been tried but is only to be condemned as the morbidity and long-term complications are unacceptably high despite the above manoeuvres[12] Conservative management has been successful with minimal tunical tear, and limited hematoma without urethral injuries. However conservative management has been found to have a higher risk of chordee, abscesses or agonizing plaques notwithstanding prolonged hospitalization and loss of man-hour days.

Prompt surgical exploration with the repair of the tunical tear with an absorbable or inverting non-absorbable suture is the standard of Care [13] The first surgical repair was published by Fetter and Gartmen in 1936 [14] Multiple published literature over the years has reiterated the fact that surgical management leads to near-total and prompt functional recovery. Similarly, there have been publications comparing non-conservative to conservative management. The success rates with immediate operative techniques were nearly twice

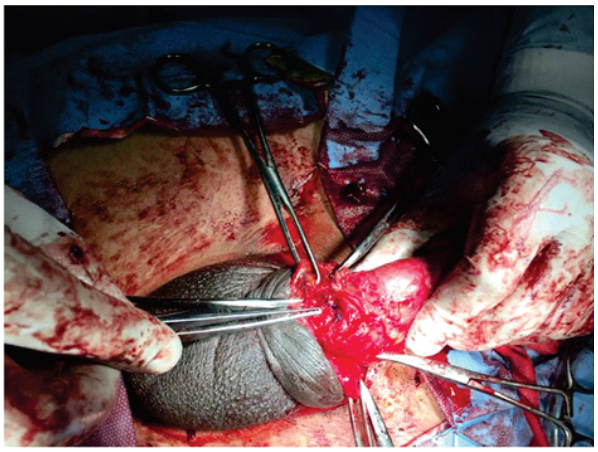

Figure 2. per operative picture displaying the defect(site of fracture)

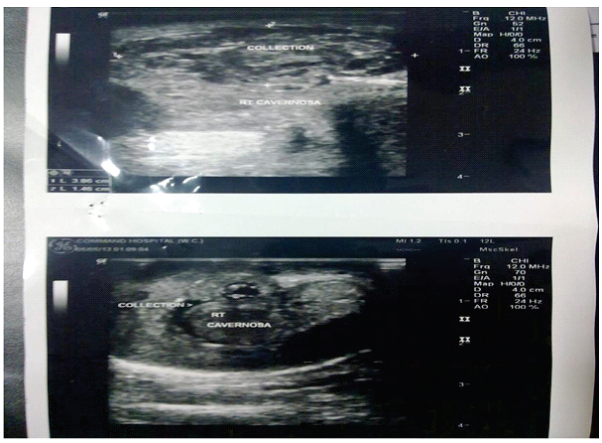

Figure 3. Preoperative doppler displaying hematoma and defect in corpus cavernosa

the observation.

There has been debate as to the timing of the procedure. Though early repair yields the best possible results, a systematic review of early versus delayed repair (<24 hours or >24 hours) revealed that the incidence of penile scarring and erectile dysfunction between the 2 groups was statistically insignificant. [15] . One (01) patient at our centre who presented after 7 days of injury had penile scarring at 2 months follow-up.

The opinion on the routine use of anti-erection medications (anti-androgens/sedatives) and/or abstinence following surgery is divided among surgeons, with some authors advocating prolonged abstinence and medication [16] while others reporting no adverse effects on early resumption of sexual activity[17]. We advocate a brief period (4 weeks) of abstinence and anti-erection medication (2 weeks).

The long-term complications following the repair are penile scaring, painful erections and erectile dysfunction (ED). Erectile dysfunction (ED) is the most common complication. The most common causes of ED were found to be corporeal veno occlusion and cavernous artery compromise. It can also be due to site-specific leaks. Nane et al showed that 22% of patients had ED following immediate surgical repair at a mean follow-up of 3.6±1.9 years [18]. Two of our patients had penile curvature issues while one had scarring over the foreskin. None of our patients had ED, however, we had a short follow-up period of 8 weeks only. Rare complications include urethrocutaneous and urethrocavernous fistula [19]

Penile fracture commonly happens on the right side and the ventrolateral aspect of the proximal third of the penis. The technique of the degloving approach predominantly is choice specific with distal-based circumcising incision adequate for most of the cases. However, very small tears can be managed successfully with a lateral approach. The degloving incision has been a favourite amongst surgeons as besides exposure it can aid in urethral repair.

Most surgeons prefer placing an indwelling catheter especially if associated with urethral injury as it is immensely useful in dissection and helps in placing post-op pressure dressing besides decreasing chances of wound infection.

Uncircumcised patients should be counselled for circumcision as extensive skin mobilization could lead to foreskin necrosis. Follow-up protocol varies in various studies. [20] We have followed our patients after 08 weeks and later at three months.

This study has a limitation as to being a small study with a relatively short follow-up. Improvement requires a larger study cohort over a prolonged period as many patients are lost to follow-up and don't seek medical care due to embarrassment or fear.

Conclusion

Penile fracture is a urological emergency which should be diagnosed clinically most of the time with the aid of imaging in equivocal cases and repaired promptly to ensure a good cosmetic and functional outcome. Though the gold standard remains operative approach few selected cases may be offered conservative measures.

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