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PENILE FRACTURE PRESENTATION AND MANAGEMENT: OUR EXPERIENCE

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ABSTRACT

Background: Penile fracture is the traumatic rupture of tunica albuginea. It is a urological emergency that occurs almost exclusively due to blunt trauma of erect penis. Diagnosis is mostly based on clinical history and physical examination. **Aim:** To study the presentation and management of patients with penile fracture.

Materials and Methods: This retrospective study was conducted in Government Medical College Srinagar in the department of surgery over a period of 3 years. Total of 65 patients with fracture penis were included in the study. Clinico-etiological profile, management and outcome were recorded on a preformed proforma designed for the purpose.

Results: The age group involved was 17-55 years with mean age of 36 yrs. 37 (56.9%) were married and 28 (43.1%) were unmarried. The most frequent mechanisms of injury was sexual intercourse observed in 40 patient, masturbation in 17 patients and in 7 patients fracture occurred because of trauma to erect penis (rolling over erect penis). In one patient the exact cause could not be elucidated. 17 patients recalled a popping sound. Penile swelling was seen in 56 patients with pain in 53, deformity in 55 and ecchymosis in 50 patients. Diagnosis was made clinically and was confirmed on surgical exploration. Repair of tunica defect was done. One urethral injury was encountered which was primarily repaired. Outcome was excellent and all patients regained complete penile function except 6 patients, at 2 months follow up. Out of 65 cases treated surgically, 4 patients had wound infection, and 12 had palpable nodule at the site of fracture and 1 patient had depression.

Conclusion: Penile fracture is a clinical diagnosis requiring early exploration and surgical repair to ensure better functional and morphological outcomes.

Keywords: Penile fracture, Management, Outcomes, Erectile dysfunction, rupture of corpora cavernosa.

INTRODUCTION

Penile fracture is a rare urological condition that occurs in 1 in 175,000.[1] It is defined as the traumatic rupture of the tunica albuginea of the corpora cavernosum. Most often, it affects one of the corpus cavernosum. It may extend to both corpora cavernosa, the corpus spongiosum, and/or to the urethra.[2] Injuries to a flaccid penis or in the suspensor ligament of the penis are not included in this definition.[3,4] The aetiology is usually the direct trauma to the erect penis by manipulations during coitus or masturbation.[5] Rupture occurs during sexual intercourse in more than half of the patients and in the remaining it's secondary to rolling over in bed or kneading the penis to achieve detumescence.[6] Usually, penis slips out of the vagina and then is thrust against the perineum or symphysis pubis, which results in the tear of tunica albuginea.[6] Erection converts the flaccid penis into vulnerable organ in which the tunica albuginea becomes thin and prone to fracture. Normal pressure in the erect penis is 100 mmHg which is the mean arterial pressure. The intracorporeal pressure that is

needed to rupture the tunica or overcome its tensile strength is 1500 mmHg.

Most patients will seek medical treatment immediately after the injury, but in some cases, treatment will be delayed. The patient classically gives a history of hearing a cracking noise during sexual activity when the tunica ruptures rapidly followed by pain, detumescence and a substantial subcutaneous haematoma leading to an 'eggplant deformity' of the penis.[7] [Fig.1]. In the presence of associated urethral injury, which is seen in 10% to 20% of the cases, findings like urethral bleeding, haematuria and difficulty voiding may also be present[8-10]. Diagnosis of penile fracture is not difficult, history with physical examination not only settles the diagnosis but often give a clue to the extent of injury. Although rarely, when there is a diagnostic uncertainty, imaging techniques like ultrasonography, corpus cavernography and MRI may be of great use. Retrograde urethrography is indicated in suspected urethral injury. Historically, penile fracture was being managed conservatively, but owing to a relatively high morbidity of infected haematomas, erectile dysfunction (ED; up to 30%), plaques, painful erections & bend in erect penis contemporary management has shown a trend towards urgent surgical exploration and repair of the tunical defect. [11]

This study reports the presentation and management options of 65 patients admitted in our unit with clinical suspicion of penile fracture, based on history, physical examination and complementary by imaging studies. We evaluate the clinical outcomes based on the treatment option.

Figure 1: Eggplant Deformity' of penis

MATERIALS AND METHODS

We inserted a Foleys urethral catheter preoperatively in all patients without urethral injury and intraoperatively in the patients with urethral injury. After induction of spinal anaesthesia, circumferential sub coronal incision was made followed by degloving of penile shaft thus exposing the corpora cavernosum [Figure 2] and the urethra. All corpora cavernosa defects identified during surgical exploration were repaired by interrupted sutures using polyglactin 3-0 sutures [Figure 3]. Urethral injuries were primarily closed in interrupted fashion using absorbable polyglactin 5-0 sutures. Bladder catheter was maintained during 12 hours in post-operative period for patients without urethral injury; for 7-10 days in patients with partial urethral injury. Suppressive therapy in the form of oestrogen and chlordiazepoxide was given for first 1 week. Patients were advised to avoid sexual activity for 6 weeks.

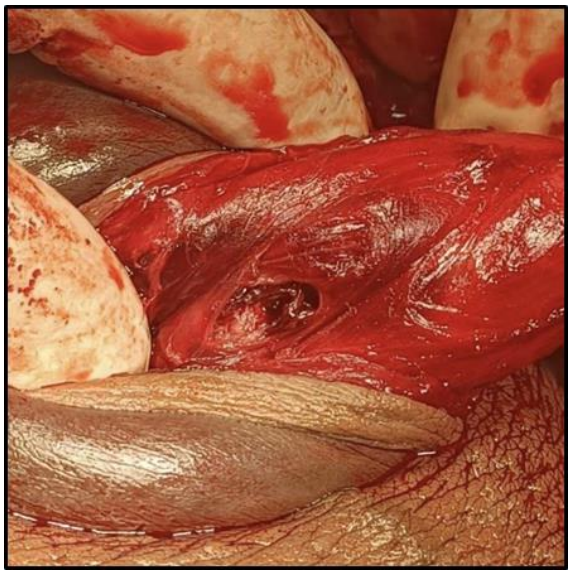

Figure 2: Rent in Corpora Cavernosa

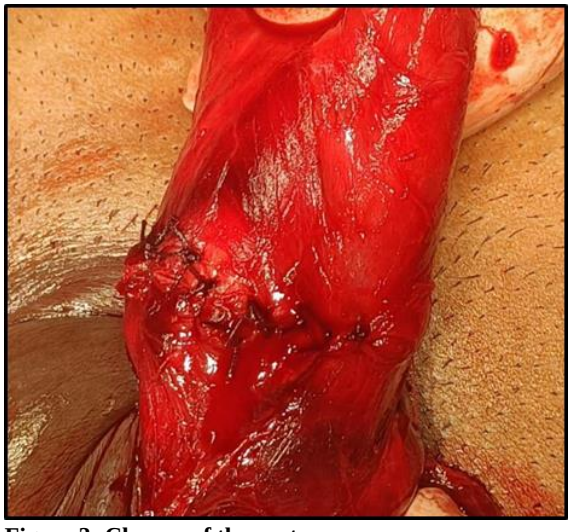

Figure 3: Closure of the rent

RESULTS

There was total 65 patients in our study. The age of the patients in our study was in the range of 17 to 55 years with the mean age of 36 years. Majority of the patients were in the age group of 21 - 40 year. All

patients reported normal erections before the occurrence of the fracture. [Table 1]

37 patients (56.9%) in our study were married and 28 (43.1%) were unmarried. 39 patients were from rural areas and 26 patients from urban areas. The most frequent mechanisms of injury was sexual intercourse observed in 40 patients. History of masturbation was noted in 17 patients and in 7 patients fracture occurred because of trauma to erect penis(rolling over erect penis). In one patient the exact cause could not be elucidated. [Table 2]

Most of our patients reported with severe pain followed by immediate detumescence of the erect penis. These signs were preceded by a cracking sound heard during the penile fracture in 17 patients. Urethrorrhagia was reported by 3 patients.

The patients presented with the history of swelling in penis in 56 (86.1%), deformity in 55 (84.6%), pain in 53 (81.5%), ecchymosis in 50 (76.9%) and cracking sound in 17 (26.15%) patients. [Table 3]

Surgical exploration of the fracture revealed an average fracture length of 15 mm [5–25 mm]. The fracture site was in the proximal third of the penis in 39 patients, in the middle third in 15 patients, and in the distal third in rest of the patients. The right corpus cavernosum was affected in most of the patients (37 patient). The cavernous bodies were intact in 2 patients.

Significant urethral injury was seen in one patient which was repaired primarily by polyglactin 5-0 interrupted sutures. The surgical technique performed was complete denudation of the penile shaft with access to the cavernous bodies, debridement of tissues, evacuation of the hematoma followed by suture of the tunica albuginea tear in 63 patients. Post-operative medication was prescribed to all patients.

The average length of hospital stay was 3 days. Four patients presented with wound suppuration in post-operative period after getting discharged from hospital which were managed conservatively by local wound care.

Our patients resumed sexual activity after 9 weeks (6-12 weeks). Erectile dysfunction was noted in 6 patients, with 4 mild and 2 moderate cases. No patient reported painful erections or pain during intercourse. A nodule in the penis at the site of the penile fracture was palpable in 12 patients. No patient reported penile curvature in the postoperative period.

Table 1: Demographic Profile of the penile fracture patients

Age in years	Number of patients (%)
<20	8 (12.3)
21-30	29 (44.6)
31-40	18 (27.7)
41-50	9 (13.8)
>50	1 (1.6)

Table 2: Predisposing factors for penile fracture

Predisposing factors	Number of patients (%)
Intercourse	40 (61.5)
Masturbation	17 (26.15)
Rolling over erect penis	7 (10.76)
Others	1 (1.53)

Table 3: Clinical presentation of patients with penile fracture

Clinical presentation	Number of patients (%)
Swelling	56 (86.1)
Deformity	55 (84.6)
Pain	53 (81.5)
Ecchymosis	50 (76.9)
Cracking sound	17 (26.15)
Blood at meatus	03 (4.6)

DISCUSSION

This systematic review aims to provide an in-depth review of the causes, presentation and treatment of this rare urological emergency. Although surgeons have historically preferred conservative management but the evidence from international practice has emerged that early surgical management is more effective than conservative management or delayed surgery.

Penile fracture was first described by Malis in 1925. Penile fracture is easily recognized and therefore classified as a “first look diagnosis”. This clinical entity is always embarrassing for patient as well as for their partner and goes unreported many times. Penile fracture has typical clinical signs reported as trauma to the penis, audible clicking sound followed by detumescence with hematoma and swelling. Penile fracture is an entity of eminently clinical diagnosis; therefore, the management of a penile fracture should not include any further investigation other than surgical exploration.

There are few studies regarding the appropriate approach for patients with suspected Penile fracture. Zargooshi,[12] reports a study of 172 cases of Penile fracture and recommends only clinical diagnosis, suggesting that additional tests not be performed routinely.

The age of the patients in our study was in the range of 17 - 55 years. The mean age of the patients in our study was 36 years. Majority of the patients (72.3%) were in the range of 21-40 years. This is comparable to the studies by Rooh-ul-Muquim et al,[13] in which age range was 18-65 years, majority (76.47%) patients were in 4th decade of their life. In another study by Paul D Ekwereetal,[14] age of the patients in their study ranged between 20–56 years with mean age of 35.6 ± 12.6 years and more than 63% of the patients were under 40 years of age. In another study by Z Athar et al [15] mean age of the patients included was 36 years and 66.6% were in age group of 20-40 years.

In our study there were only 8 patients below 20 years of age.

In our study 37 (56.9%) patients were married. This is comparable to studies by Paul Ekwere,[14] in Feb 2004, where 57.9% patients were married and in study by Z-Athar et al 2010; 58.33% patients were married. Our results were comparable with the study done by Mamdouh M Abolet al,[16] in which 57% of patients were married. In these patients the main cause of the fracture was vaginal intercourse.

In our study 39 patients (60%) were from rural areas and 26 patients from urban areas. This is comparable with the study done by Rooh-ul-Muquimet al [13] in 2006 where 58.83% of patients were from rural area whereas only 17% of patients were exclusively from Urban locality and 23.52% were scattered. Most of the patients belonging to the rural areas were poorly educated and unemployed.

The most common aetiology was vaginal intercourse in 40 (61.5%) patients followed by masturbation in 17 patients (26.15%), rolling over or fall on erect penis in 7 patients (10.76%). This is comparable to a study by Taha Ab. Abdel Nasser et al [17] in 2008 where aetiology of penile fracture was attributed to intercourse in 50%, masturbation in 25% and rough manipulation and acute bending of erect penis in 16.6% of patients. In a study carried by Hung Jen Shih et al,[18] in 2007, intercourse in 53.8%, masturbation in 23.07%, manipulation and bending of penis in 23.07% were the etiological factors responsible for the fracture. During intercourse the fracture of the penis would occur as penis slips out of the vagina and is thrust against the perineum or symphysis pubis vigorously. The reported incidence of the various etiological factors for penile fracture varies because patients do not always accurately report the cause, probably due to embracement.

Patients presenting to emergency departmental in our study were having the clinical features of swelling in 56 (86.1%) patients, pain in 53 (81.5%) patients, deformity in 55 (84.6%) patients, ecchymosis of penis in 50 (76.9%). These results are similar to the study conducted by Imtiyaz Wani,[19] in 2008 who reported ecchymosis in 85.96% patients, swelling in 78.94% patients, pain in 75.43% patients and detumescence in 89.9% patients, who were diagnosed with penile fracture. Similar results were found in the study conducted by Rooh-ul-Muquim et al,[13] and Paul D Ekwere.[14]

CONCLUSION

Penile fracture, though considered rare, is more common than typically reported. It is a urological emergency, with management options including surgical exploration and repair of the tunica albuginea tear or conservative treatment. However, conservative management carries a high risk of complications. Most experts recommend immediate surgical repair as the standard approach. We support prompt exploration, haematoma evacuation, and tunica albuginea repair as the gold standard treatment for this injury.

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