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Penile fracture: Our experience in a tertiary care hospital in northern India: A prospective study

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Abstract

Objective: Penile fracture is a urological emergency. We conducted this study to analyze the clinicoetiological profile and management aspects of penile fracture at our tertiary hospital.

Materials and methods: This prospective study was conducted over a period of 3 years in the unit two of department of surgery in SMHS (Shri Maharaja Hari Singh) hospital at Government Medical College, Srinagar, Jammu & Kashmir, India from September 2014 to August 2017.

Results: In this study, conducted over a period of 3 years, 36 patients were included with a diagnosis of penile fracture. One patient had recurrent penile fracture. All of the patients were diagnosed with clinical evaluation and were subjected to ultrasonography for further supporting the diagnosis and locating the site of rent. The age varied from 24 to 59 years with mean age of 42.1 years. Being a Muslim dominated region, all patients were Muslims and 20 patients were properly practicing Muslims. Investigation of the injury mechanism identified sexual trauma as the main etiological factor. Surgical management was done in 34 patients and two were managed conservatively.

Conclusion: Penile fracture diagnosis and mode of trauma can be easily reached by proper history and clinical examination, after taking the patient into confidence. Surgical treatment seems to be the best approach of management. Proper advice should be given to the patients to discourage the practices notorious for recurrent penile fractures.

Keywords: Penile fracture, swelling, Egg-plant deformity, urologic emergency

Introduction

Fracture of penis is a urological emergency resulting from a tear in the tunica albuginea of the penis often due to forceful manipulation, vigorous vaginal or anal intercourse or masturbation, gunshot wounds, or any other mechanical trauma that causes forcible bending of an erect penis. Less common etiologies include turning over in bed, a direct blow, forced bending, or hastily removing or applying clothing when the penis is erect ^[1]. In an erect penis the tunica albuginea becomes very thin (up to 0.25 mm), moreover the strain of sudden undue flexion of underlying engorged corpora can create pressures as high as 1,500 mmHg thus testing the limits of thinned out tunica which can then rupture causing loss of blood in subcutaneous tissue with resultant swelling, pain, hematoma and rapid detumescence ^[2, 3]. The presentation can be early or delayed and may depend on the severity and associated injuries. Delayed presentation is usually because of embarrassment. The diagnosis can be made with proper history and examination but some cases may require further investigation when history is inconsistent or associated with urethral injury. Early evacuation of hematoma and repair of tunica defect give better functional results and reduce the incidence of penile deformity and erectile dysfunction ^[3].

In this study we analyzed the clinical presentation, management, and complications of penile fracture.

Material and Methods

This prospective observational study was done in the unit 2nd of department of surgery SMHS hospital at GMC Srinagar over a period of 3 years from September 2014 to August 2017. During this period, 36 patients presented to the emergency room with penile fracture and were included in this study. The patients were admitted in the emergency department and thorough clinical assessment of the patients was done. History was sought from the patient about the event leading to the symptoms, the presentation and examination was done to confirm the diagnosis. Ultrasonography was done in most of the patients.

Surgical treatment was employed in the management of almost all the patients. Distal degloving was performed in all operated patients and evacuation of the hematoma and repair of the tunical tear with absorbable sutures was carried out. Preoperative catheterization was done in all cases except the one patient with urethral injury (intraoperative catheterization) and was kept for only 24-72 hours postoperatively in majority of patients. Patients were discharged after 2-3 days when they were pain free and able to pass urine without difficulty. Patients were followed up and were asked to refrain from sexual activity for a minimum of 6 weeks. Postoperative complication developed in two patients with one developing a suture line infection and another had a small patch of penile skin gangrene.

Results

In this study, conducted over a period of 3 years, 36 patients were included with a diagnosis of penile fracture. One patient had a recurrent penile fracture. All of the patients were diagnosed with clinical evaluation and supported by ultrasonography (USG). The age varied from 24 to 59 years with a mean age of 42.1 years. Eleven patients (30.55%) presented in

the age group of 20 to 40 years with mean age of 30.4 years. Twenty-five patients (69.44%) belonged to age group of 40-60 years with mean age of 47.3 years. Six patients in the age group of 20-40 years were unmarried and 5 were married. All the patients (25) in the age group of 40-60 years were married (Table 1). Being a muslim dominated region, all patients were muslims and 20 patients were properly practicing muslims. The time interval between the injury and presentation in hospital was upto 5 hours in 6 patients (16.66%), 5-10 hours in 20 patients (55.55%) and more than 10 hours in 10 patients (27.77%). Investigation of the injury mechanism identified sexual trauma as the main etiological factor. The unmarried patients gave a vague history of masturbation and trauma and diagnosis was made on basis of examination and USG findings. Among the married group, 26 patients gave history of trauma during intercourse and 4 gave vague history including masturbation and trauma. Regarding the sexual position reported by the patients, 'doggy style' was present in 6 patients and, men on top position was reported in 20 patients. The injury occurred between 11 PM and 1 AM in majority (30) of patients.

Table 1: Patient Demographics

Age	Total Number of Patients	Marital Status		Mean Age
		Married	Unmarried	
20-40	11	5	6	30.4 years
40-60	25	25	0	47.3 years

The clinical presentation included audible popping sound in 91% (33) patients, development of swelling and discoloration in 88.88% (32) patients, pain in 69.44% (25) patients. One patient complained of bleeding per urethra with suprapubic swelling and ecchymosis. Egg-plant deformity was seen in 61.11% (22) patients. Diagnosis was made by clinical evaluation in all patients and was supported by USG in all patients.

Surgical management was done in 34 patients and two were managed conservatively. A sub coronal degloving incision was made in all cases. The tear was on the right side in 24 (66.66%) patients and on the left side in 10 (27.77%) patients. The rent (fracture site) could be located in only 33 patients on exploration out of 34 patients. Urethral injury (figure 1) was observed in one case and was detected during exploration. Two patients developed complications with one developing a suture line infection and another had a small patch of gangrene over the skin of penis. The first one was managed conservatively and the second one by split skin graft.

The mean stay in hospital was 3-4 days. All patients were followed up and no residual deformity was noted in any patient. All patients were advised to refrain from sexual activity for 6 weeks and were advised to take oral erection suppressant medication (Estrogen and diazepam) for some time.

Discussion

Fracture of penis is a urological emergency resulting from a tear in the tunica albuginea of the penis often due to activities that cause forcible bending of an erect penis. The first documented report of penile fracture is credited to the Arab physician Abu al-Qasim al-Zahrawi in Cordoba, more than 1,000 years ago [4].

In our study sexual intercourse was the most common cause as reported in most other published series. Regarding the sexual position reported by the patients, men on top, was the most common followed by 'doggy style'. Most of the patients gave history which suggested that the fracture resulted due to striking of the erect penis with pubis or perineum. The time of injury was

11 PM to 1 AM in majority of the patients. The time interval between the injury and presentation in hospital was upto 5 hours in 6 patients (16.66%), 5-10 hours in 20 patients (55.55%) and more than 10 hours in 10 patients (27.77%). All the patients included in the study were muslims. Being a muslim dominated region, this was expected. However, properly practicing muslims comprised the majority of the patients (55.55%).

The usual causes of penile fracture include forceful manipulation, vigorous vaginal or anal intercourse or masturbation, gunshot wounds, or any other mechanical trauma that causes forcible bending of an erect penis. The etiology of penile fracture varies with the geographical area. Vigorous sexual intercourse was reported to be more common cause in western countries and masturbation was more common causes in Eastern countries [3].

Audible popping sound, swelling and discoloration, pain and egg-plant deformity were the most common clinical features in our study. The clinical features include audible clicking or popping sound, pain, swelling, hematoma, discoloration. In a typical PF, the normal external penile appearance is completely obliterated because of significant penile deformity, swelling, and ecchymosis (the so-called "eggplant" deformity,) [5]. One patient in our study, presented with urinary retention, suprapubic swelling and ecchymosis, and blood at meatus and was found to have urethral injury perioperatively. Urethral bleeding and a difficulty to pass urine indicate urethral involvement [6].

The diagnosis of penile fracture was made easily in our study with help of proper history and examination in majority of the patients, as was reported in a meta-analysis study by Amer *et al.* [3]. USG was done in every patient to support the diagnosis and was found to be very helpful in our study. USG was able to show a tear in tunica in 30 patients.

In our study, 34 (94.44%) patients were managed by surgical repair and only 2 (5.55%) were managed by conservative treatment. All patients were catheterized pre operatively. The use of catheter can reduce injury to urethra and can prevent post-

operative wound contamination. Conservative treatment was used earlier but resulted in severe immediate and late complications, in addition to prolonged hospitalization of the patient. Urethral catheterization, compression bandages and consistent cooling, combined with anti-inflammatory, anti-erectile, antibiotic and analgesic therapy were reported by Thompson *et al.* [7]. Surgical treatment of penile fracture is now the recommended mode of management. Muentener *et al.* [8] compared surgical and conservative treatment strategies and reported success rates of 92% and 59%, respectively. Yapanoglu *et al.* [9] and Gamal *et al.* [10], in two similar studies, found that immediate surgical repair resulted in good outcomes and was superior to conservative treatment.

A sub coronal de-gloving incision was used in all the cases in our study and has been considered appropriate as advocated by Zargooshi [11] and Mydlo [12]. Small lateral incisions can be used in some cases; however this approach was not used in this study. Tear was found more commonly on the right side and near the proximal part of the shaft as reported by many studies. Hematoma guided the localization of tear in all except one (rent could not be located). In all cases, hematoma was drained, hemostasis achieved and the tear was sutured with absorbable sutures. The World Health Organization also recommends that all acute injuries to the tunica albuginea be repaired immediately by surgical intervention with synthetic, absorbable, inverted knot sutures as non-absorbable sutures may cause painful, palpable suture knots [13].

Urethral rupture was noted in one patient intra operatively (as was suspected preoperatively) and urethral repair was done along with the repair of rent and drainage of hematoma (urethral catheter was placed). All patients were put on oral erection suppressants and advised to refrain from sexual activity for 6 weeks. All patients were discharged on 3rd or 4th post-operative day.



Fig 1: Penile fracture with urethral rupture

Post-operative complications can include complaints of palpable nodule at injury site, erectile dysfunction, urethrocuteaneous fistula [14]. None of these complications were reported in our during the immediate follow-up. Two patients developed post-operative complications, with one developing a suture line

infection and another developing a small patch of gangrene on skin of penis. The first one was managed conservatively and the second one by split skin graft.

Conclusion

Penile fracture diagnosis and mode of trauma can be easily reached by proper history and clinical examination, after taking the patient into confidence. Ultrasonography helps us to support our diagnosis. Surgical treatment seems to be the best approach of management. All associated complications should be appropriately dealt with. Penile fracture is a urological emergency and if managed appropriately (surgical repair preferably), can relieve the patient of anxiety in future. Proper advice should be given to the patients to discourage the practices notorious for recurrent penile fractures.

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