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EVALUATION OF PENILE FRACTURE AFTER SURGICAL CORRECTION

General Surgery

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ABSTRACT

Purpose: Penile fracture is a rare urological emergency. An early diagnosis and surgical treatment should be done. If not repaired timely have devastating physical, psychological and functional consequences.

Materials And Methods: The objective of this study was to highlight penile fracture in terms of clinical presentation, management and outcomes of treatment. This was a prospective observational study including 20 patients of penile fracture treated at our institute. Time period of this study was September 2016 to July 2018.

Results: Age group 20 to 50 years. Commonest presentation was after a vigorous sexual intercourse. All were repaired surgically. Patients were followed up for six months with clinical examination, IIEF scores Ultrasonography with colour Doppler as necessary

Conclusion: Incidence is increasing in recent years. Diagnosis is mostly clinical, may be confirmed by ultrasonography.Early surgical repair should be done.

KEYWORDS

penile injury, sexual intercourse, urogenital system, urological emergency

INTRODUCTION

Penile fracture is disruption of tunica albuginea with rupture of corpus cavernosum.Commonly reported after sexual intercourse, but can also occur after masturbation, rollingover or falling over erect penis [1]. Injuries are most of the time unilateral but in 10% of bilateral tunical tears can occur [2] [3].

Bilateral tears are often associated with urethral injuries [4]. Most common site is distal to suspensory ligament. Injuries associated with coitus are usually ventrolateral where tunica is thinnest [2] [5] [6].

Diagnosis of penile fracture is often straightforward. Often the patient gives typical history of 'popping sound' which is followed by rapid detumisence and intense pain over penile shaft. If resulting haematoma is contained within Buck's fascia typical 'eggplant' deformity results [7] [8]. If there is a breach in Buck's fascia haematoma can extend to scrotum, suprapubic region and perineum.

Fracture line is palpable in the tunica albuginea.Fear and embarrass ment often results in delayed presentation. Incidence is higher in USA and Europe (20%) than in Middle East and Asia (3%) probably due to different aetiology: intercourse vs. self inflicted trauma [9] [10].

Diagnosis of penile fracture is mostly clinical; investigations are time consuming and delay treatment. An Ultrasonography may be performed, which can give idea about length of tunical defect[4]. MRI is rarely done today [11] [12].

Now a days conservative management is discouraged. Early surgical repair is the treatment of choice[7] [9]. The surgical procedure involves penile degloving, evacuation of haematoma, and repair of defect in tunica albuginea with absorbable or non absorbable sutures [13].

Delay in treatment results in complications like painful erection, penile curvature, urethral stricture, rarely urethrocutaneous fistula[9] [14]

In our study we have analysed penile fracture in terms of mode of presentation, surgical treatment done, complications: early postoperative and delayed with special reference to erectile functions

Fig 1. Showing The Typical 'eggplant Deformity' Of Penis

Fig 2. Shows Tear In Tunica Albugenea With Rupture Of Corpus Cavernosum

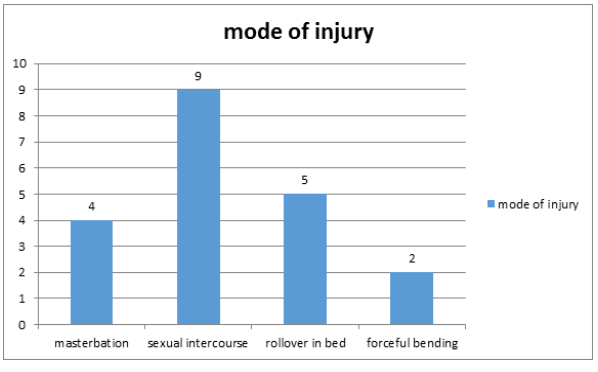
MATERIALS AND METHODS

This was a prospective observational study extending from September 2016 to June 2018.The study included all patients presenting with blunt trauma to erect penis.there were total 20 patients. All of these patients underwent penile exploration by degloving. Diagnosis was mainly clinical. In seven patients Ultrasonography was done, where diagnosis was in doubt. Repair was done with nonabsorbable inverting sutures. Patients were discharged on an average six days after surgery. Those with urethral injuries catheter was left for two weeks. Patients were followed up at 3 and 6 month interval. During follow up visit proper history with reference to sexual activity and erection was taken. A thorough clinical examination was done to assess penile curvature, bending during erection; presence of nodules.IIEF scoring was done to assess erectile dysfunction. In those patients with persistent erectile dysfunction after six month penile Doppler study was done to document PSV and RI

Fig 3. Defect In Tunica Repaired With Nonabsorbable Sutures After Circumcoronal Penile Degloving Incision

RESULTS

Patients were between age group of 19- 56 years (mean 37.3 years, SD 10.6).Time interval between injury to beginning of treatment was 6-168 hours (mean = 40 hours, SD= 46.20).The most common mode of injury was sexual intercourse (45%), followed by rollover in bed with erect penis (25%) ,masturbation (20%) and forceful bending 22.5%.In our study most of our patients were married (15 were married and 5 were unmarried).



In majority of cases clinical presentation involved classical 'popping sound' (80%) cases, followed by rapid detumisence in 65% cases. Classical 'eggplant deformity was seen in 65% cases. Two patients complained of bleeding per urethra. Gap in the penile shaft 'rolling sign' was seen in 50% cases. All cases were diagnosed clinically.

All 20 patients were surgically explored.Avarage length of tunical tear was 1.5 cm (1 -3 cm).Urethral injury was seen in one case which was repaired over a 14 Fr catheter. Two patients had bilateral corporal tear. All the repairs were done with non absorbable sutures (inverting knots) after penile degloving.

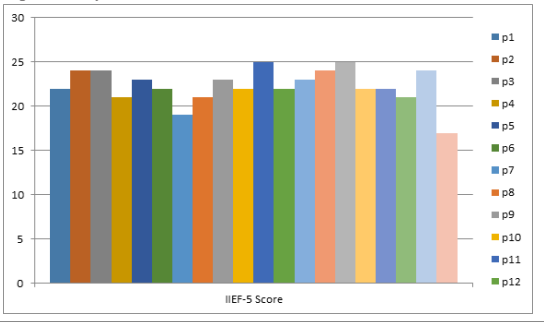
In the postoperative period penile oedema persisted for 3 to 4 days in almost all patients. Wound infection was seen in 4 patients treated with antibiotics. Distal penile skin necrosis occurred in four patients. All patients were given erection suppressants in the form of oral diazepam in the postoperative period. Patients were advised for sexual abstinence for one month.

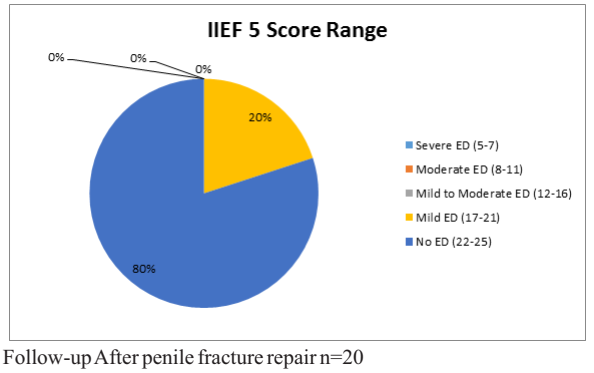
Postoperative outcome
(n=20)

Postoperative events	Value
Antibiotics,analgesics,compressive dressings	20 (100%)
Erection suppressant – diazepam	15 (75%)
Wound infection	4 (20%)
Distal penile skin necrosis	4 (20%)
Catheter removal	
After 48 hrs	12 (60%)
After 7 days	2 (10%)
Discharge	
Third postoperative day	2 (10%)
Discharge after third postoperative day	18 (90%)

In the first follow-up after three weeks patients were clinically examined for scar, nodules, penile deviation, and cordee. 20% patients had palpable nodule, penile deviation in two patients and cordee in two patients. At three months follow-up patients were assessed for erectile dysfunction using IIEF 5 score. Mild Erectile Dysfunction was seen in two patients. In these two patients pharmacological Doppler study was done which showed no vascular abnormality.

International index of erectile function- 5 score three months postoperatively





Follow-up After penile fracture repair n=20

Follow-up	No of cases
Clinical examination at third week	20
Small non tender nodule	4
Visible scar	11
Penile deviation and cordee	4
Evaluation of erectile function at three month	20
IIEF 5 Score	
No ED	16
Mild ED	4
Pharmacological Doppler study	2
Vascular abnormality	0

DISCUSSION

The first documented report of penile fracture is credited to the Arab physician Abu Al Qasim al- Zahrawi in Cordoba more than 1000 years ago[15]. In modern literature first penile fracture was described by Malis and Zur in 1924[16].

The surgical management of penile fracture was first described by Fetter and Gartmen in 1936[17]. Multiple studies have shown that prompt surgical repair of penile fracture gives good results.Muentener et al compared surgical and conservative treatment strategies and found success rate of 92% and 59% respectively[18].

Fracture penis is disruption of tunica albuginea with rupture of corpus cavernosum[10]. Most commonly occurs after a sexual intercourse followed by other causes like masturbation, rolling over in bed[19]. In our study we found similar results sexual intercourse being the most common cause of penile fracture followed by rolling over in bed and masturbation. Ahmad A Mazuob et al 2015 found in their study vigorous sexual intercourse being most common cause of penile fracture (41%) followed by manual bending of penis , vigorous masturbation , rolling over in bed and blunt trauma (29%,10%,14%, 6%).Among 15 married patients four (26%) were having extra marital sex.Kramer et al 2011 found in their study that penile fracture occurs more frequently in stressful situations like extramarital sex[20].Bilateral tunical tear was seen in two patients (10%) with urethral injury seen in one among the two.El Taher et al 2004- in penile fracture injury is unilateral in most cases with bilateral injury seen in 10% cases[3].Koeifman et al 2010- bilateral corporal injuries are more commonly associated with urethral injury[4]. The average tear length of tunica was 1.5 cm in our study.Asgari et al 1996 found in their study tunical tear in usually transverse and 1 to 2 cm in length[21]. Although small lateral incision may be given, in our patients we performed distal circumcising degloving incision as in most of our cases haematoma was larger. Various studies indicate that small lateral incision may be given in small haematomas but usually in most of the cases distal circumcising penile degloving incision is given – Zargooshi et al 2009, Mydlo et al 2001[2] [7].Although cosmetically less favourable distal degloving incision gives more exposure and facilitates diagnosis and repair of associated urethral injuries[22]. Another disadvantage of distal degloving incision is penile skin necrosis which occurred in four of our patients. Differential diagnosis of penile fracture includes false rupture i.e. rupture of dorsal penile artery and vein which occurs in 4 – 10% cases. In our study we did not found any such case (Feki et al 2007)[23].In all of our patients diagnosis was clinical based on history and physical examination. We did not get any negative exploration. Koifman et al 2010 – diagnosis of penile fracture is mainly clinical[4] .An Ultrasonography may be done when history and physical examination are equivocal.El-Assmy et al 2011- penile Ultrasonography has become the preferred investigation of choice for diagnosis of penile fracture when in doubt, it also helps in localising fracture site based on which localised incision may be given[24]. Time interval after which surgery was done does not influence outcomes of repair (El-Assmy et al, 2011; Kozacioglu et al, 2011)[24] [25]. In our study time interval from injury to surgical repair ranged from 6 – 168 hours (mean 40 hours).Two patients presented almost after 7 days both were repaired successfully without significant erectile dysfunction in follow-up period. Thus in our study time interval of surgery did not significantly affect outcomes.

In our study standard protocol for post operative care was followed. Two days of intravenous antibiotics were given, then after oral antibiotics for five days. Analgesics were given for two days then on patient's demand. Wound dressing was changed after 48 hours. Wound infection and distal penile skin necrosis occurred in 4 patients all were managed conservatively.Perurethral catheter insertion was done depending on surgeon's choice. Postoperatively catheter was removed after 48 hours in most of the patients .In two patients catheter was removed after seven days –one who had urethral injury which was repaired and another who gave a history of mild haematuria but intraoperatively did not have a urethral injury. In the post operative period diazepam oral tablets were given as erection suppressants[26]. All patients were advised to avoid sexual intercourse up to one month.Avarage period of hospital stay was 5 days.

Follow-up was done after three weeks and thereafter three months. In the follow-up a short history was taken and physical examination done. In third week follow-up palpable nodules were felt in four patients, visible scars in eleven patients, penile deviation in 2 patients and cordee in 2 patients. All patients were managed conservatively for these complications. In the second follow-up after three month patients were mainly assessed for erectile dysfunction using IIEF-5 Score.16 (80%) patients had no erectile dysfunction. Two patients had mild erectile dysfunction. A Doppler ultrasound was done in these two patients who did not show any abnormality.

CONCLUSION

Penile fracture is a urological emergency.Vigerous sexual intercourse is the commonest cause. Diagnosis is mainly on basis of history and clinical examination. Imaging like Ultrasonography with Doppler may be useful if in doubt. Surgical treatment at the earliest is the best treatment approach. Complications like penile deviation, cordee, palpable nodules can occur after surgery .erectile dysfunction can occur but in our study mild ED occurs in only two patients.

Our study had few drawbacks like numbers of patients included were small, followup period was also short.

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