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ORIGINAL ARTICLE

Penile Fractures: the Successful Outcome of Immediate Surgical Intervention

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ABSTRACT

Aim: To determine the results of early surgical repair in patients who initially report with a penis fracture.
Study design: Retrospective Study
Place of study & duration: General Surgery Department Hayatabad Medical Complex Peshawar from January 2020 to December 2021.
Methodology: 42 patients with penile fractures who presented to the emergency room of the Hayatabad Medical Complex in Peshawar were included in this retrospective analysis. A clinical diagnosis was made. There was no radiological analysis done. All patients had primary suturing for the tunica tear and underwent postoperative monitoring for 4 months.
Results: All patients underwent surgery within 24 hours of the injury. The most common cause of injury was sexual intercourse 35(83.3%) followed by 3(7.1%) masturbation, 2(4.8%) rolling over in bed and 2(4.8%) during "routine stretching." Every patient consistently reported hearing a cracking sound along with a severe pain, erection loss, deformity, discolouration, and edoema. Only 3 patients had blood at the external meatus. No extravasation was detected by ascending urethrography. There were 20(47.6%) proximal injuries, 16(38%) midshaft injuries and 6(14.3%) distal injuries.
Conclusion: An acceptable complication rate and satisfactory postoperative results are associated with early surgical intervention for penile fracture. Early diagnosis and surgical intervention are essential for a positive result and minimal complications.
Keywords: Penile fracture, Tunica albugenia, corpus cavernosum

INTRODUCTION

A penile fracture emergency is uncommon yet dangerous. Improper treatment may be the root cause of erectile dysfunction and penis deviation[1]. The first occurrence of traumatic corpus cavernosum rupture was documented in Mali in 1925[2]. When the long axis of the penis is severely stressed while it is in the erect position, the tunica albuginea of the corpus cavernosum ruptures, resulting in a penile fracture. A rapid increase in intracorporeal pressure causes the tunica albuginea, which is 2mm thick when it is flaccid, to become 0.25 to 0.5mm thin and stretch during an erection[3].

Masturbation, manipulation, turning over on an erect penis, and sexual activity are frequent causes of penile fracture[4]. Caudal deflection may result in penile fracture when used to prevent or hide an unintended erection. Giving out methylene blue if there are several or small rips, peroperatively may be used to identify the fracture location[5]. Urethrography may be carried out if urethral injury (Hematuria or voiding difficulty) is suspected. An urgent emergency shouldn't have to wait while a shattered penis is being investigated[6]. In order to make a diagnosis and identify the location of the tear, it has been noticed that penile ultrasonography, cavernosography, and more recently (MRI) are helpful, especially in situations where there is some uncertainty.[7]If urethral injury is suspected, an ascending urethrogram is required. Various surgical methods have been described, these included an inguinoscrotal incision, which was more recently used, as well as circumferential subcoronal and longitudinal incisions over the hematoma location[8].

Early surgical repair is the only effective treatment for penile fracture. Extensive edoema and fibrosis are linked to delayed repair. Only when a patient is unfit, unwilling or in the absence of a surgical setup is a non-surgical treatment is advised with a cold compression, pressure dressing, anti-inflammatory medications and urethral catheterization[9]. Complication rates are significant in non-surgical management (30–35%) which include penile curvature, erectile dysfunction, penile aneurism, fibrotic nodule, corpo-urethral fistula and urethro cutaneous fistula[10].

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The objective of the study was to assess our personal experience with 42 patients who underwent early surgical intervention for penile fractures.

PATIENTS AND METHODS

This retrospective study was conducted in the Department of General Surgery, Hayatabad Medical Complex Peshawar from January 2020 to December 2021. Sample size was 42 patients.
Inclusion criteria:
1. All male patients with the diagnosis of penile fracture
2. Age ranged between 15-60 years,
3. Average interval to presentation <24 hours.

Exclusion criteria:
1. < 15 years &> 60 years
2. Average interval to presentation >24 hours

Data collection Procedure: All patient were evaluated for clinical presentation, investigations, surgical and post-operative information. 36 patients were followed overall. The follow-up lasted for 4 months. They were monitored for their erectile function, penile curvatures during erection, and the appearance of any palpable plaques.Each patient had their penis carefully examined for palpable plaques. Color duplex Doppler ultrasonography of the penile vascularity and an evaluation of erectile response to intra cavernous injection of prostaglandin E1 (PGE1)were used to examine patients with erectile dysfunction. All patients had the same type of surgical care. To avoid unintentional urethral injury during exploration, a 16F uretheral Folys catheter was inserted. The base of the penis was degloved after a circular subcoronal incision. The tunical rupture was repaired with 3/0 vicryl interrupted sutures, the hematoma was removed and the skin was stitched closed with 3/0 catgut. No drains were used but a pressure dressing was placed.All patients received prophylactic antibiotics starting before surgery, and postoperative anti-inflammatory medications. Following 24 hours, the uretheral catheter was withdrawn, and 2-3 days after surgery, the patient was discharged.
Statistical analysis: For statistical analysis, SPSS 23.0 for Windows was used. All the data were presented in form of tables

and figure using Microsoft Excel 2013. P value <0.05 were deemed significant.

RESULTS

Total 42 patients were included in the study. Age ranged between 18-60 years with a mean age of 36.5 years. Age distribution was analyzed as 19(45.2%) belongs to age group 18-30 years, 15(35.7%) belongs to 31-45 years & 8(19%) belongs to 46-60 years of age group respectively.

All patients underwent surgery within 24 hours of the injury. The most common cause of injury was sexual intercourse 35(83.3%) followed by 3(7.1%) masturbation, 2(4.8%) rolling over in bed and 2(4.8%) during "routine stretching" (Table 1). Every patient consistently reported hearing a cracking sound along with a severe pain, erection loss, deformity, discolouration, and edoema. Blood was present at the external meatus only in 3 patients. Ascending urethrography revealed no extravasation. There were 20(47.6%) proximal injuries, 16(38%) midshaft injuries and 6(14.3%) distal injuries(Figure 1). Degloving incision was used for 37(88%) patients and direct longitudinal incision used for 5(12%) patients (Figure 2).

Out of 42 patients 36(85.7%) turned up for follow up, while 6(14.3%) were lost to follow up. During the follow-up period, there is no postoperative need for re-admission or corrective surgery. Postoperatively, all patients experienced painful erections as would be expected. With regard to the 36 patients, 33(91.7%) had a normal penis during an erection with great functional outcomes, whereas the remaining 2(5.6%) had a moderate penile curvature and the last one (2.7%) had discomfort at the repair site (Table 2). Penile curvature patients did not have any difficulties during coitus and did not seek medical attention. The patient with the painful repair site experienced bearable pain that solely affected the erect penis, had no issues during coitus, and didn't need any therapy.

Figure 1: Type of Injury

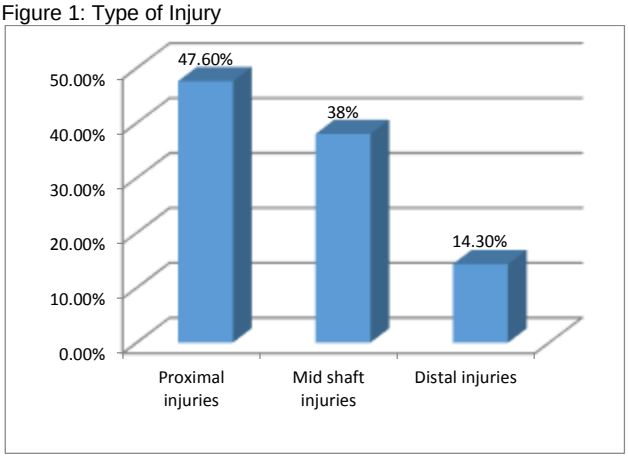

Figure 2: Mode of incision

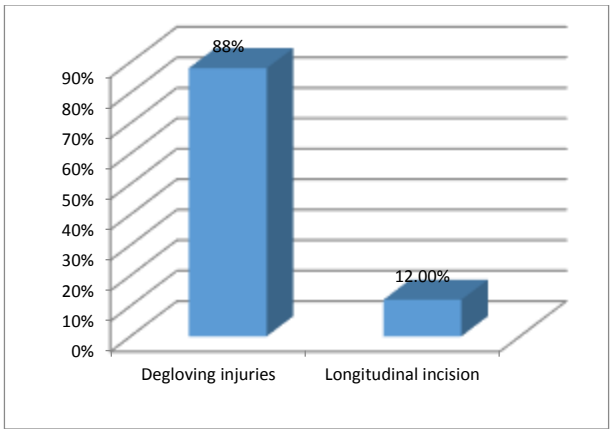

Table 1: Presenting complaint

Cause	Frequency	%age
Sexual intercourse	35	83.3
Masturbation	3	7.1
Rolling over bed	2	4.8
Stretching	2	4.8

Table-2: Postoperative outcome

Type	Frequency	%age
Normal on erection with excellent functional result	33	91.7
Mild penile curvature	2	5.6
Pain at repair site	1	2.7

DISCUSSION

A somewhat uncommon condition known as a penile fracture is when the tunica albuginea ruptures resulting from trauma to the erect penis. In recent past, there have been more reports of penile fractures. Sporadic or low reporting creates the appearance that this is a rare trauma, and one explanation for this can be that not all urologists or surgeons disclose their actual clinical experiences with the disease. The underreporting may be a result of the injury's embarrassment and the circumstances around how injuries often occur[11].

Recent studies and the WHO's recommendations have demonstrated the clear benefit of early surgical exploration since the majority of penile fracture patients are young, sexually active, and very motivated to resume sexual activity as soon as the healing process is complete.[12] Relief of severe symptoms, prevention of erectile dysfunction, enabling normal voiding, and minimising risks from delayed diagnosis are the objectives of immediate surgical repair. The healing process moves more quickly when the damaged tissue is immediately re-closed. Additionally, surgery lowers the risk of complications by up to 10% 28.[13,14]In this study, all patients were treated surgically, with the early surgical repair's goals being hematoma evacuation, tunical damage diagnosis, local corpora debridement, and tunical laceration closure.

Between 26 -41 years is the stated range of age in various studies and majority of patients were in their fourth decade[15,]. Patients in this series ranged in age from 18-60 year (mean 36.5 years). Majority of patients in our study 19(45.2%) were in their third decade of life which is when sexual activity in peaks, which is almost similar to the published literature.[16] The predominant etiological element in our series is sexual interaction, but non-coital variables including masturbation, physical trauma etc have also been recorded in earlier studies. Malik MA et al (84.6%) and Ahmad S et al (41%) similarly identified sexual activity as the primary factor causing penile fracture in their research.[17,18]
According to reports, the incidence of urethral injury related to penile fracture ranges from 11 to 22% in Europe and US and 2-3% in the Asia and the Middle East[19]. Both in our study and the study

of Aman Z et al there was no evidence of urethral damage[20]. However in contrast to this Nawaz H et al observed an incidence of urethral injuries of 8.2% and 15.3% in his study[21]. When treating penile fracture, the surgeon determines the type and location of the incision. The most frequent degloving incision according to some is linked to neurovascular damage and necrosis. In this study, longitudinal incision was performed in just 12% of cases whereas degloving incision was used in 88% of cases. Neither incision was associated with a postoperative problem. Degloving incisions have the advantages of reasonably acceptable aesthetic outcomes, good exposure, and single-incision repair in cases of bilateral tunica rupture and associated urethral injury. Depending on the surgeon, urethral catheterization may be used during surgery, with some recommending regular insertion and others against it. In this study, urethral catheters were always placed postoperatively. The catheter simplifies the administration of a pressure dressing, aids intraoperative dissection without damaging the urethra, and guards against postoperative wound infection.

In 85.7% of cases 04 months follow-up was obtained, although 14.3% were lost to follow-up after six weeks. Approximately 92% reported having typical, pain-free erections. Only 5.6% patients experienced a small penile curvature during an erection & 2.7% experienced discomfort at the repair site, but neither symptom interfered with the patients' ability to engage in sexual activity. No wound infection was noted in current study.

CONCLUSION

Fracture of the penis is an actual urological emergency. The mechanism of trauma and clinical symptoms must be understood in order to make a diagnosis; more investigation is not necessary. Early surgical repair was intended to prevent complications and preserve both voiding and sexual function, and it was successful.

Recommendation: Early surgical repair is recommended to prevent complications and preserve both voiding and sexual function

Conflicts of interest: This study has no conflict of interest to be declared by any author.

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Ethical Approval: Ethical approval obtained from hospital ethical approval committee.

REFERENCES

1. Nerli RB, Sharma V, Mungarwadi A, Pingale ND, Wagh AT, Sarnaik SM, *et al*. Long term outcome of patients with penile fracture undergoing delayed repair. Open J Trauma 2017;1:32-6.
2. Barros R, Schul A, Ornellas P, Koifman L, Favorito LA. Impact of Surgical Treatment of Penile Fracture on Sexual Function. Urology. 2019;126:128-33.
3. De Luca F, Garaffa G, Falcone M, Raheem A, Zacharakis E, Shabbir M, et al. Functional outcomes following immediate repair of penile fracture: a tertiary referral centre experience with 76 consecutive patients. Scand J Urol. 2017;51:170-5.
4. Mao YS, Hua B, Pan WX, Li WF, Gu YF, Yao HJ, Cai ZK, Wang Z, Lu C. Surgical repair of the tunica albuginea for penis fracture: Selection of incision. Zhonghua Nan KeXue. 2018 Apr;24(4):331-334.
5. Falcone M, Garaffa G, Castiglione F, Ralph DJ. Current Management of Penile Fracture: An Up-to-Date Systematic Review. Sex Med Rev. 2018;6:253-60.
6. Amer T, Wilson R, Chlosta P, AlBuheissi S, Qazi H, Fraser M, et al. Penile Fracture: A Meta-Analysis. Urol Int. 2016;96:315-29.
7. Barros R, Schulze L, Ornellas AA, Koifman L, Favorito LA. Relationship between sexual position and severity of penile fracture. Int J Impot Res. 2017;29:207-9.
8. Wong NC, Dason S, Bansal RK, Davies TO, Braga LH. Can it wait? A systematic review of immediate vs. delayed surgical repair of penile fractures. Can UrolAssoc J 2017, 11: 53-60.
9. Amer T, Wilson R, Chlosta P, AlBuheissi S, Qazi H, Fraser M, *et al*. Penile fracture: A meta-analysis. UrolInt 2016;96:315-29
10. Saglam E, Tarhan F, Hamarat MB, Can U, Coskun A.Efficacy of magnetic resonance imaging for diagnosis of penile fracture: A controlled study. InvestigClinUrol2017, 58: 255-260.
11. Li S, Lin Y. Clinical analysis of penile fracture: A 19 cases report. LingnanXiandaiLinchuangWaikeZazhi 2017: 58-60.
12. Ahmadnia H, YounesiRostami M, Kamalati A, Imani MM: Penile fracture and its treatment: is retrograde urethrograghy necessary for management of penile fracture? Chin J Traumatol 2014;17:338-340.
13. Reis LO, Cartapatti M, Marmiroli R, de Oliveira Júnior EJ, Saade RD, Fregonesi A: Mechanisms predisposing penile fracture and long-term outcomes on erectile and voiding functions. AdvUrol 2014;2014:768158.
14. Swanson DE, Polackwich AS, Helfand BT, Masson P, Hwong J, Dugi DD 3rd, et al: Penile fracture: outcomes of early surgical intervention. Urology 2014;84:1117-1121.
15. Parker RA 3rd, Menias CO, Quazi R, Hara AK, Verma S, Shaaban A, et al. MR Imaging of the Penis and Scrotum. *Radiographics*. 2015 Jul-Aug. 35 (4):1033-50
16. Gaspar SS, Dias JS, Martins F, Lopes TM. Sexual Urological Emergencies. *Sex Med Rev*. 2015 Apr. 3 (2):93-100
17. Bhoil R, Sood D. Signs, symptoms and treatment of penile fracture. *Emerg Nurse*. 2015 Oct 9. 23 (6):16-7.
18. Malik MA, Bashir MT, Malik NA, Hussain M, Sohail M. Penile fracture; Etiology and management. JUMDC 2011;2(2):11-14.
19. Ahmad S, Haq Z, Khan M. Clinical diagnosis of penile fracture. J Med Sci 2011,19(4):189-191
20. ZahidAman, Abdul Qayum, ViqarAfridi, Mumtaz Khan. Early surgical intervention in penile fracture. JPMI 2012; 18(3): 432-38.
21. Nawaz H, Khan M, Tareen FM, Khan M. Penile fracture: Presentation and management. JCPSP 2010, Vol. 20 (5): 331-331-34.