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ORIGINAL ARTICLE

The Penile Fracture, Surgical Outcome, and Post-operative Complications

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ABSTRACT

Objective: The present study aims to identify the causes and symptoms of penile fracture, as well as the postoperative results.
Study Design: Prospective study
Place and Duration: Present study was conducted at Department of Urology, LUMHS, Jamshoro, during from the period October 2022 to September 2023.
Methods: A total of 36 individuals with penile fractures were included in this investigation. Included patients ranged in age from 18 to 45 years. Upon obtaining informed written consent, comprehensive demographic data on the recruited patients was gathered, including age, body mass index, residence, and marital status. The causes and clinical characteristics of the fracture were evaluated. Patients had surgery, and the success rate was evaluated. The post-treatment complication rate among enrolled cases was also determined. The data was analyzed using SPSS version 23.0.
Results: The mean age was 31.4±10.86 years and BMI 23.62±3.89 kg/m2. Most patients were married 29 (80.56%) and unmarried 7 (19.44%). 20 (55.56%) patients had resided in urban and 16 (44.44%) in rural areas. 25 (69.44%) fractures were caused by coital, 6 (16.67%) by masturbation, and 5 (13.89%) by sleep manipulation. The most prevalent symptoms were deformity, edema, detumescence, and crackling. Right corpus was most common tunical tear 29 (80.56%) and proximal location 27 (75%). Success percentage was 88.89% in 32 instances. Post-operative complications included plaques/nodules, curvature, erectile dysfunction, discomfort, and edema in 7 (19.44%) cases.
Conclusion: Prompt initial surgical treatment of a penile fracture can restore normal erection function and prevent serious complications. Common results of this surgery include rapid erectile function restoration and shorter hospital stays.
Keywords: Penile Fracture, Causes, Surgery, Complications

INTRODUCTION

Penile fractures occur in one out of every 175,000 individuals, rendering it an uncommon presentation in Urology departments. During sexual intercourse, the penis makes contact with the perineum, resulting in the rupture of the tunica albuginea inside the corpora cavernosa. Masturbation and sexual intercourse are the primary causes of tunica albuginea rupture. Additional explanations encompass rolling over in bed with an erect penis, applying strong bending to facilitate detumescence, and experiencing external physical damage[2]. Nevertheless, no systematic investigation has been undertaken to substantiate the widely accepted notion that women adopting the 'woman on top' position are at the greatest risk of penile fracture.[3] A review of the literature indicates that the etiology of penile fracture differs by geographic region[3]. Numerous recorded incidents in various Middle Eastern countries stem from patients 'kneading and snapping' the erect penis to attain rapid detumescence in unsuitable circumstances[2,4,5]. An Iranian study revealed that 269 out of 352 people (76 percent) had a penile fracture due to this practice, referred to as 'Taqnaadan'[5]. This is the most prevalent example of this practice, sometimes referred to as Taqnaadan.

The tunica diminishes from 2mm to 0.25mm when the spine is in an upright posture, rendering it more vulnerable to trauma-induced rupture. Urethral injury is rather uncommon in instances of penile fracture.[6] The most common causes of injury to the erect penis include coitus, masturbation, and inadvertent nocturnal penile manipulations or movements in bed.[7,8] Upon examination, a popping or cracking sound is noted, accompanied with significant discomfort and rapid detumescence. Swelling, bruising, lateral deformity, and hematoma indicate a severe injury. Urethral hemorrhage signifies a concomitant urethral injury. The patient has been clinically diagnosed with a tunical tear, and probing a localized clot at the site of the rip is indicative of the diagnosis.[7,10] Cavernosography, penile ultrasonography, and magnetic resonance imaging (MRI) have also been utilized in some cases.[7,11] Despite the dispute, prompt surgical investigation and repair is widely recognized as the preferred treatment for penile fractures, being superior to non-operative management in nearly all instances.[1,8,12]

The rising incidence of penile fracture cases prompted us to examine the clinical presentation, diagnosis, and surgical methods employed in our patients, along with intra-operative findings and potential post-operative complications.

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MATERIAL AND METHODS

This prospective study was conducted at Department of Urology, LUMHS, Jamshoro, during from the period October 2022 to September 2023 and comprised of 36 patients had penile fracture. After receiving informed written permission, detailed demographic information about the enrolled patients was compiled, including age, body mass index, place of residence, and marriage status. Patients had history of surgery and those did not give written consent were not included in this study.

Included cases were aged between 18-45 years. Patients were subjected to a full assessment, which included obtaining a medical history and physical, as well as RGU (retrograde urethrography) for suspected urethral damage and cavernosography if there was any question. To ensure consistency in patient care, all patients were treated with the same standard operative technique, which included thorough examination of all three corpora and the urethra through a subcoronal degloving incision, thorough wound toilet, and corporal and tunical repair with interrupted inverted nonabsorbable sutures. The catheterization technique developed by Foley was used on all of the patients. It was removed on the second postoperative day after the surgery. The postoperative problems such as wound-related issues, penile curvature, and nodule as well as voiding and sexual function status were assessed in all patients at 1, 3, 6, and 12 months after the surgery was performed. We used SPSS 23.0 version to analyze complete data.

RESULTS

The mean age was 31.4±10.86 years and BMI 23.62±3.89 kg/m2. Most patients were married 29 (80.56%) and unmarried 7 (19.44%). 20 (55.56%) patients had resided in urban and 16 (44.44%) in rural areas. (table 1)

Table 1: Baseline characteristics of enrolled cases

Variables	Frequency	Percentage
Mean age (years)	31.4±10.86	
Mean BMI (kg/m^2)	23.62±3.89	
Married		
Yes	29	80.56
No	7	19.44
Residence		
Urban	20	55.56
Rural	16	44.44

25 (69.44%) fractures were caused by coital, 6 (16.67%) by masturbation, and 5 (13.89%) by sleep manipulation.(fig 1)

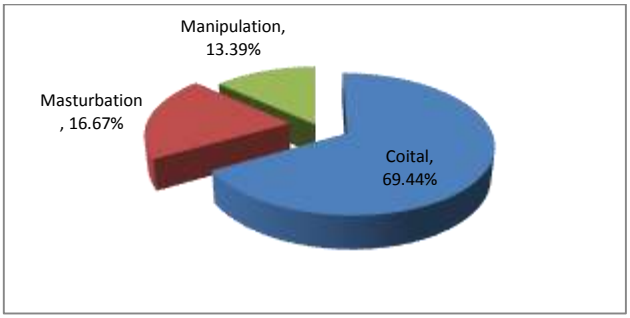

Figure 1: Causes of penile fracture

The most prevalent symptoms were deformity, edema, detumescence, and crackling.(table 2)

Table 2: Clinical features of enrolled cases

Variables	Frequency	Percentage
Deformity	27	75
Detumescence	23	63.89
Swelling	21	58.33
Crackling Sound	17	47.22

Table 3: Operative findings among enrolled cases

Variables	Frequency	Percentage
Tunical tear		
Right corpus	29	80.56
Left corpus	5	13.89
Bilateral	2	5.56
Site		
Proximal	27	75
Mid Shaft	6	16.67
Distal	3	8.33

Figure 2: Post surgery success rate among cases

Right corpus was most common tunical tear 29 (80.56%) and proximal location 27 (75%). (table 3)

Success percentage was 88.89% in 32 instances. (fig 2)

Post-operative complications included plaques/nodules, curvature, erectile dysfunction, discomfort, and edema in 7 (19.44%) cases. (table 4)

Table 4: Association of complications among cases

Complications	Frequency	Percentage
pain and swelling	4	11.11
erectile dysfunction	1	2.78
curvature	1	2.78
plaques/ nodules	1	2.78
Total	7	19.44%

DISCUSSION

Despite the fact that penile fractures are uncommon, they have the potential to have devastating impacts on a person's physical, functional, psychological, and social life. Through the use of a meta-analysis, a complete investigation of the aetiology, indications and symptoms, and therapy choices for this uncommon urological emergency is being carried out for the very first time. Conservative therapy has generally been the favored option among medical professionals; nevertheless, the information that has been published demonstrates that early surgical repair leads in significantly better outcomes than conservative treatment or postponing surgery. The participants in this prospective research ranged in age from 18 to 45 years old and had a total of 36 incidences of penile fracture. With a mean age of 31.4±10.86 years, the body mass index (BMI) was 23.62±3.89 kg/m2. The majority of patients were married by 29 (80.56%), while just 7 (19.44%) were single. Among the patients, 20 (55.56%) had lived in metropolitan settings, whereas 16 (44.44%) had lived in rural areas. Our findings were consistent with those of the earlier studies that were conducted. 13 and 14 It was found that forty-five percent of the patients were between the ages of thirty and forty, as stated by Kumar et al. 40% of patients who suffered from penile fractures were between the ages of 21 and 30, according to a study conducted by Mahapatra and colleagues. Furthermore, in our investigation, we found that fifty percent of the patients were between the ages of thirty-one and forty.

The most prevalent cause of fracture was determined to be coital, which was discovered in 25 instances (69.44%), followed by masturbation, which was found in 6 cases (16.67%), and sleep manipulation, which was found in 5 cases (13.89%). The ages 13 to 16 Coital trauma to the erect penis was the most prevalent cause of fracture in other research as well, according to Kochakarn W et al., who showed that 83% of penile fractures occurred during sexual activity.[17] Other individuals have claimed that the most prevalent method for penile fracture is the manipulation of an erect penis in order to produce detumescence.[18] The most prevalent symptoms included deformity, edema, detumescence, and a crackling sound throughout the body.[19,20]. The right corpus and the proximal site were the most prevalent locations for tunical tears, with 29 (80.56%) and 27 (75%). 88.89% of the cases were determined to have a successful outcome in the current research. In addition, Yapanoglu et al.[21] and Gamal et al.[22] demonstrated that rapid surgical repair was superior to conservative therapy in terms of the outcomes that were favorable. It was determined that about ninety percent of the patients in the research by Kumar et al. who had positive results were quickly examined.[15] Surgical treatment was administered to patients in Mahapatra et al. in 95% of the instances, and all of the patients recovered to a satisfactory level.[16] Post-operative problems were discovered in seven cases, which accounted for 19.44% of the total. These issues included plaques or nodules, curvature, erectile dysfunction, discomfort, and edema for the patient.[13] Due to the reduced duration of stay, the findings of this study show that hospitals may be able to save money by performing surgical procedures. Throughout the course of this research, a number of different incisions, sutures, and approximation techniques were found. In a study[23], an inverted continuous 3/0 non-absorbable nylon suture was utilized, and the

116 patients who had surgical treatment experienced only one issue: the presence of a painless nodule. One of the most common types of incisions is the subcoronal circumferential degloving incision. As a consequence of this, it would appear that this approach is the most favored one because it allows access to all three corpora. It is [24].

CONCLUSION

Penile fractures may be successfully treated with immediate primary surgical repair, resulting in normal erection without substantial sequelae. Short hospital stays and fast restoration of sexual function are common outcomes of this procedure.

REFERENCES

1 Koifman L, Barros R, Júnior RA, Cavalcanti AG, Favorito LA: Penile fracture: diagnosis, treatment and outcomes of 150 patients. Urology 2010;76:1488–1492.

2 Ateyah A, Mostafa T, Nasser TA, Shaeer O, Hadi AA, Al-Gabbar MA: Penile fracture: surgical repair and late effects on erectile function. J Sex Med 2008;5:1496–1502.

3 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. Adv Urol 2014;2014:768158.

4 Jack GS, Garraway I, Reznichek R, Rajfer J: Current treatment options for penile fractures. Rev Urol 2004;6:114–120.

5 Zargooshi J: Sexual function and tunica albuginea wound healing following penile fracture: an 18-year follow-up study of 352 patients from Kermanshah, Iran. J Sex Med 2009;6:1141–1150.

6 Heng CT, Brooks AJ. Penile fracture with complete urethral rupture. Asian J Surg 2003; 26(2): 126-7.

7 Aman Z, Qayyum A, et al. Early surgical intervention in penile fracture. J Postgrad Med Inst 2004; 18(3): 432-8.

8 Gondal KM, Ali AA, Ranjah MA, et al. Management of penile trauma. Ann KE Med Coll 2001; 7(1): 47-9.

9 Kochakarn W, Viseshsindh V, Muangman V. Penile fracture: Long-term outcome of treatment. J Med Assoc Thai 2002; 85(2): 179-82.

10 Morris SB, Miller MA, Anson K. Management of penile fracture. J Roy Soc Med 1998; 91(8): 427-8.

11 Mydlo JH, Hayyeri M, Macchia RJ. Urothrography and caversonography imaging in a small series of penile fractures: a comparison with surgical findings. Urology 1998; 51(4): 616-9.

12 Muentener M, Suter S, Hauri D, Sulser T. Longterm experience with surgical and conservative treatment of penile fracture. J Urol 2004; 172(2): 576-9.

13 Shimpi, Rajendra K.; Patel, Pranay J.; Bhondave, Suraj T. Penile fracture, Urology Annals: Oct–Dec 2021 - Volume 13 - Issue 4 - p 351-355

14 Kulovac B, Aganović D, Junuzović D, et al. Surgical treatment and complications of penile fractures. Bosn J Basic Med Sci. 2007;7(1):37-39. doi:10.17305/bjbms.2007.3087

15 Kumar L, Tiwari R, Arya MC, Sandhu A, Vasudeo V, Baid M. A tertiary center experience of fracture penis: Early surgical management with a clinical diagnosis Urol Sci. 2018;29:298–302

16 Mahapatra RK, Ray RP, Mishra S, Pal DK. Urethrocutaneous fistula following fracture penis Urol Ann. 2014;6:392–4

17 Kochakarn W, Viseshsindh V, Muangman V. Penile fracture: Long-term outcome of treatment. J Med Assoc Thai 2002; 85(2): 179-82

18 Blair BM, Vilson F, Kocher NJ, Kloniecke E, Clark JY. Longitudinal Rupture of Distal Corpus Cavernosum With Concomitant Urethral Injury: An Uncommon Result of a Common Mechanism. Urology. 2018 Aug 1; 118: e5-6.

19 Zargooshi J. Penile fracture in Kermanshah, Iran: report of 172 cases. J Urol 2000; 164(2): 364-6.

20 Chung CH, Szeto YK, Lai KK: 'Fracture' of the penis: a case series. Hong Kong Med J 2006; 12:197–200.

21 Yapanoglu T, Aksoy T, Adanur S, Kabadayi B, Ozturk G, Ozbey I. Seventeen years experience of penile fracture: Conservative vs. surgical treatment J Sex Med. 2009;6:2058–63

22 Gamal WM, Osman MM, Hammady A, Aldahshoury MZ, Hussein MM, Saleem M, et al Penile fracture: Long-term results of surgical and conservative management J Trauma. 2011;71:491–3

23 Ahmadnia H, Younesi Rostami 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.

24 Tijani KH, Ogo CN, Ojewola RW, Akanmu NO: Increase in fracture of the penis in southwest Nigeria. Arab J Urol 2012;10:440–444.

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