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Unveiling Penile Fractures: Retrospective Analysis from a Tertiary Care Center

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Abstract

Penile fracture, an emergent and distressing urological condition, requires prompt medical intervention. This retrospective study investigates penile fractures at a tertiary care center, aiming to elucidate the clinical spectrum, management approaches and outcomes. The study aims to analyze the demographic trends, causative factors, diagnostic modalities, surgical techniques and postoperative ramifications of penile fractures to provide clinicians with informed perspectives for improved diagnostic accuracy and tailored therapeutic strategies. This retrospective observational study was conducted at Mamta Medical College in Khammam, Telangana, covering cases from January 2019 to December 2022. Data from 20 cases of diagnosed penile fractures were reviewed, incorporating both retrospective chart reviews and prospective clinical assessments. The surgical procedure, sub-coronal degloving, was uniformly performed by a single surgeon. Data were analyzed using EPI info (version 7.2), with qualitative variables expressed as percentages and quantitative variables as mean and standard deviations. The study included 20 cases, with the majority of fractures caused by sexual intercourse, followed by masturbation and accidental trauma. Common clinical features included pain, hematoma, detumescence and a snapping sensation. Unilateral corporal injuries were predominant. The mean presentation time was approximately 17 hours, with significant variability. Complications included nodules and erectile dysfunction, with a notable number of urethral injuries observed. Sexual intercourse is the primary cause of penile fractures, with specific positions posing higher risks. Prompt surgical intervention is crucial for minimizing complications and preserving erectile function. The study underscores the importance of patient education on safe sexual practices and the need for timely medical response. Despite its limitations, this research contributes valuable insights into the management of penile fractures, highlighting the need for increased awareness and further investigation into this urological emergency.

INTRODUCTION

In recent years, penile fracture has garnered attention as an emergent and distressing urological condition, necessitating prompt medical intervention^[1]. This retrospective study presents a comprehensive investigation into penile fractures through an ambispective lens, amalgamating retrospective analysis with prospective insights. Conducted at a distinguished tertiary care center, this study endeavors to shed light on the clinical spectrum, management approaches and outcomes associated with penile fractures^[2,3].

Penile fracture, though relatively uncommon, represents a traumatic rupture of the tunica albuginea, often resulting from vigorous sexual activity or accidental trauma. With limited empirical research on this subject, this study significantly contributes valuable insights to the medical literature. By retrospectively analyzing a considerable cohort of cases, this research seeks to elucidate demographic trends, causative factors, diagnostic modalities, surgical techniques and postoperative ramifications of penile fractures^[3,4,5].

The outcomes of this retrospective analysis are anticipated to not only enrich the current understanding of penile fractures but also provide clinicians with informed perspectives for improved diagnostic accuracy and tailored therapeutic strategies. Ultimately, this study aspires to advance clinical management protocols, augment patient care and encourage further investigation into this intricate domain of urological medicine.

MATERIALS AND METHODS

The retrospective observational study was conducted within the Department of Uro-Surgery at Mamta Medical College in Khammam, Telangana. This distinguished tertiary care center is renowned for its specialized proficiency in addressing various urological conditions. The study encompassed a comprehensive review of data spanning the preceding four years, from January 2019-December 2022, thus facilitating an exhaustive representation of cases and capturing temporal trends. The study sample comprised 20 cases, encompassing all instances of diagnosed penile fractures within the specified study duration, bolstering the internal validity of the investigation. Data collection encompassed both retrospective and prospective dimensions. In the retrospective facet, meticulous chart reviews extracted essential demographic information, medical histories, etiological factors, clinical presentations, diagnostic procedures, treatment modalities and outcomes from electronic medical records within the Department of Uro-Surgery. Simultaneously, through the prospective approach, acute cases of penile fractures were continuously monitored and documented, incorporating comprehensive clinical assessments inclusive of

physical examinations and imaging studies. These evaluations were executed to validate diagnoses and amass crucial baseline data. Notably, the surgical procedure known as sub-coronal degloving was uniformly conducted by a single surgeon across all cases. Within the context of this study, the terms hematoma, denoting localized swelling comprised of blood, snap, indicative of an audible cracking sound at the time of fracture, erectile dysfunction, referring to the inability to attain or sustain an erection, nodule, signifying a small, abnormal tissue growth and detumescence, representing the return of the penis to its flaccid state after erection, were systematically defined and considered in the analysis of outcomes and complications.

Ethical Considerations: Strict confidentiality about their particulars was maintained throughout the study. The Institutional Ethics Committee approved the study before the start of the study.

Statistical Analysis Plan: The data was collected, compiled, and analyzed using EPI info (version 7.2). The qualitative variables were expressed in terms of percentages. The Quantitative variables were expressed in terms of mean and standard deviations.

RESULTS AND DISCUSSIONS

We have included 20 cases of penile fractures in the present study.

The mean age of the subjects included in the present study was 36.50 ± 8.17 years. In terms of marital status., the study included 3 cases (15.00%) of unmarried individuals and 17 cases (85.00%) of married individuals. The mean time of presentation for all cases was recorded as 17.05 ± 19.01 hours, indicating the average duration between the occurrence of penile fracture and patients seeking medical attention. [Table 1]

The etiology of penile fractures was identified, with sexual intercourse accounting for 80.00% (16 cases) of cases, followed by masturbation at 15.00% (3 cases) and a single case (5.00%) attributed to rolling on a bed.[Table 2]

The observed clinical features of penile fractures encompassed pain in 75.00% of cases, bleeding through the urethra in 15.00% of cases, the presence of hematoma in 100.00% of cases, detumescence in 95.00% of cases and the occurrence of a snap sensation in 85.00% of cases. [Table 3]

Table 4 outlines the distribution of corporal injuries in penile fracture cases. Unilateral corporal injuries were observed in 85.00% of cases (17 cases), while bilateral injuries were noted in 15.00% of cases (3 cases).

In Table 5, which presents complications in a cohort of 20 cases, the observed complications

Table 1: Demographic particulars of the present sample

Demographic particulars	Frequency	Percentage
Age group		
20 to 30	4	20.00
31 to 40	11	55.00
41 to 50	3	15.00
>50	2	10.00
Marital status		
Unmarried	3	15.00
Married	17	85.00
Mean time of presentation (Mean \pm SD)	17.05 \pm 19.01	

Table 2: Etiology of penile fractures

Etiology	Frequency	Percentage
Sexual intercourse	16	80.00
Masturbation	3	15.00
Rolling on bed	1	5.00

Table 3: Clinical features of penile fractures (n=20)

Clinical features	Frequency	Percentage
Pain	15	75.00
Bleeding through urethra	3	15.00
Haematoma	20	100.00
Detumescence	19	95.00
Snap	17	85.00

Table 4: Corporal injury

Corporal Injury	Frequency	Percentage
Unilateral	17	85.00
Bilateral	3	15.00
Total	20	100.00

Table 5: Complications (n=20)

Complications	Frequency	Percentage
Nodules only	3	15.00
Nodule and erectile dysfunction	1	5.00

following penile fractures are outlined. Nodules without associated erectile dysfunction were recorded in 15.00% of cases (3 cases), while the presence of nodules alongside erectile dysfunction was identified in 5.00% (1 case).

Our findings indicate that the primary cause of penile fractures was engaging in sexual intercourse, accounting for 80.00% (16 cases). Additionally, masturbation contributed to 15.00% (3 cases), while one case (5.00%) was attributed to rolling on a bed. This aligns with Barros R *et al.*'s research [7], where sexual trauma was similarly identified as the primary cause. Barros R *et al.*'s study revealed specific positions leading to fractures: doggy style was responsible for 43.1%, man on top for 40.3%, woman on top for 12.1% and other positions for 4.3%. [7] Similarly, Shimpi R *et al.*'s research reported cases stemming from coital activity (57.14%), masturbation (21.43%) and rolling onto the erect penis (21.43%) [8]. Correspondingly, Nawaz H *et al.* found manipulation in 56 (40.87%) cases, sexual maneuvers in 39 (28.46%) cases, rolling or falling on a bed in 18 (13.13%), and direct blows on the erect penis in 11 (8.02%) patients as causes of fractures [9]. Aikawa K *et al.* highlighted that 31% of fractures occurred during intercourse and 25% during masturbation [10]. In Mahapatra *et al.*'s study, the clinical presentation frequently involved an audible popping sound (85%), followed by pain (50%), rapid detumescence (95%) and the development of swelling and discoloration (90%) [11]. Furthermore, two patients experienced bleeding through the urethra. These

findings underscore the scenarios where penile fractures can occur and the consistent clinical features associated with such incidents.

Prevalent clinical signs of penile fractures included pain in 75.00% of instances, urethral bleeding in 15.00%, the presence of hematoma in all cases (100.00%), loss of erection (detumescence) in 95.00%, and a distinctive snapping sensation in 85.00%. In line with this, Barros [7] documented that the most frequent observations during clinical presentations were hematoma in all cases and detumescence in 238 cases (82.6%). Similarly, Bali RS *et al.* noted that all 36 patients experienced detumescence, swelling and a noticeable cracking sound upon injury [12]. Pain was widespread (94.4%), while 5.6% encountered urethral bleeding. Likewise, Mahapatra *et al.* recognized typical symptoms, including audible popping sounds (85%), pain (50%), rapid detumescence (95%), swelling, and discoloration (90%) [11]. These findings underscore the recognizable and consistent indicators of penile fractures across various studies.

The current investigation highlighted the prevalence of unilateral injuries. This was reflected in the study by Nawaz [9], where the injuries primarily involved one side of the corpora cavernosa in 126 cases (89.78%). In 11 cases (8.02%), both corpora cavernosa and the urethra were affected bilaterally. Concerning the time between injury and medical presentation, our study reported that the mean presentation time for all cases was 17.05 \pm 19.01 hours. Similarly, Nawaz H *et al.*'s study revealed a time frame

of 4 hours-45 days^[9]. Likewise, Patil B *et al.* highlighted the role of sexual activity as a notable cause, with an average delay of 25.11±12.48 hours before seeking medical attention. In Shimpi RK *et al.*'s research, the interval between fracture occurrence and presentation ranged from 2-48 hours, with an average of 8 hours^[8]. Bali RS *et al.* further demonstrated the varied time frame, reporting that patients took between 2 hours and seven days to present at the hospital after the trauma. 12 Notably, a majority (63.9%) arrived within 24 hours, while 33.3% sought medical care within 24 to 72 hours. One patient presented after seven days. The diverse time frames for seeking medical help highlight the variability in patients' responses to penile fractures. The reasons for the delayed presentation could include embarrassment, a lack of awareness about the seriousness of the injury, or attempting self-treatment before seeking professional medical assistance.

The most common complication observed was the occurrence of nodules, which were reported in 15% of cases. As Barros^[7] reported, urethral injuries were documented in 18.7% of cases. These urethral injuries were sometimes associated with complications like erectile dysfunction and penile curvature. In Nawaz H *et al.*'s study, complications manifested in 5.10% of patients, affecting seven individuals^[9]. This underscores the potential complications following penile fractures, encompassing physical deformities and functional impairments. Urethral injuries are particularly concerning due to their potential impact on urinary and sexual function. The variations in reported complication rates could be attributed to differences in study populations, methodologies and the fractures' severity.

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