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Original article

EVALUATION OF LONG-TERM OUTCOMES FOR PENILE FRACTURES FOLLOWING IMMEDIATE VS. DELAYED SURGICAL REPAIR- A PROSPECTIVE STUDY.

Sumanta Kumar Mishra[a], Sumit Kumar Panda[a], Jagat Ballav Jagdev[b], Dr. Pabitra Kumar Mishra[c,*]

[a] *Department of Urology, Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India.*
[b] *Department of General Surgery, Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India.*
[c] *Department of Urology, Utkal Hospital, Bhubaneswar, Odisha, India.*

Abstract

Purpose:

The penile fracture may affect erectile dysfunction (ED) and overall sexual satisfaction. This study aimed to compare the long-term effects of immediate versus delayed surgical repair of penile fractures on postoperative ED, fibrous tunica plaques, and chordee formation.

Materials and Methods:

This is a prospective observational study conducted over two years, which included patients with penile fractures. Details of injury, symptoms, treatment, and long-term outcomes (up to 12 months) were collected. Data were presented using summary statistics.

Results:

A total of 21 patients (early surgical repair [Group A], n = 13; delayed surgical repair [Group B], n = 8) were enrolled in this study. The common cause of penile fracture was masturbation (n1 = 5 [early presentation]; n2 = 5 [delayed presentation]) and sexual intercourse (n3 = 7 [early presentation]; n4 = 4 [delayed presentation]) in Groups A and B, respectively. Penile ecchymosis/swelling and pain were present in all the patients of Group A (n = 13), while the typical pop-up sound was heard by eight patients (61.54%) of Group A and six patients (75.00%) of Group B. The most common reason for the delay in the presentation was fear/embarrassment (75.00%). Penile paresthesia (n = 2) and penile curvature (n = 3) were observed in Group A, while penile paresthesia (n = 3) was also reported in Group B. None of the patients from both groups reported ED. All three patients with urethral injury repaired had mild degree of ventral chordee with a satisfactory erection and a good penetration.

Conclusion:

The results showed that delayed repair did not affect the long-term outcome with no major impact on erectile function and overall sexual satisfaction.

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1. Introduction:

A rare urological emergency is known as penile fracture is caused by the tunica albuginea of the corpus cavernosum rupturing [1]. It frequently happens in an erected penis. Penile fractures can result from many different things, such

* Corresponding author.
Email address: mishrasumant20@gmail.com (Dr. Pabitra Kumar Mishra)

as turning over in bed, masturbation, direct blunt trauma, rapid forceful flexion, and sexual activity [2-4]. Immediately acute pain, penile detumescence, fast swelling, hematoma, urethral bleeding, and extensive ecchymosis are the most common symptoms of penile fracture in patients [2-4].

Penile fracture often happens when a blunt sexual trauma causes the engorged and erect penile corpora to actually "pop" beneath the pressure. It is acknowledged that injuries to the flaccid penis are not recognized as "fractures" because of the different nature of the damage, despite the fact that cavernosal lacerations to the flaccid penis can develop from gunshot traumas and sporting injuries [5,6]. The flaccid penis's anatomy prevents it from breaking and features a rather thick tunica albuginea, which guards against internal rupture under stress. Contrarily, the erect penis' tunica thins to about 0.25 mm upon expansion, and a fully engorged corpora under buckling stress can produce pressures that are greater than 1500 mm Hg and reach beyond the tunica's limit [7, 8]. The first penile fracture instance was documented in the literature in 1924 by Malis [9]. This study aimed to compare the long-term effects of immediate versus delayed surgical repair of penile fractures on postoperative ED, fibrous tunica plaques, and chordee formation.

2. Methods:

Between two years from March 2020 to May 2022, a prospective observational study was carried out at the Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India. Before enrolment, all patients provided written informed consent. In this study, 21 patients with penile fractures were included. Patients were divided into two groups: Group A, who had their fractured penis repaired quickly (within 24 hours), and Group B, who had their repairs done gradually (over 24 hours). A 24-hour period of time was chosen at random. A thorough history, symptoms, sexual orientation (homosexual or heterosexual), the mechanism of the trauma, the sexual position at the time of the trauma (if applicable), a history of substance abuse, clinical findings at the physical examination, imaging results (when requested by the urologist), and the presence of urethral injury were evaluated. Patients who did not give consent for the study were excluded from this investigation. However, consent was gathered from all the patients in this study.

This study covered all patients who presented with a clinical suspicion of penile fracture. Retrospective data collection from patient records yielded the necessary information, which included the following: a thorough medical history, symptoms, relationship status (homosexual or heterosexual), mechanism of trauma, sexual position (when appropriate), clinical findings at physical examination, imaging results (when indicated by the clinical judgment of the urologist), presence of urethral injury, outcomes, and long-term complications affecting sexual and urination functions.

3. Results:

15 of the 21 patients (Group A, n = 13, Group B, n = 8) in total who were referred to us had undergone ultrasonography (USG) of the penis and perineum, even though it felt unneeded at the time of surgical surgery. 14 patients reported hearing the typical pop-up sound and experiencing a sudden detumescence of the erected penis. Adult patients made up most of the patients. Masturbation (n1 = 5 [early presentation]; n2 = 5 [delayed presentation]) and sexual activity (n3 = 7 [early presentation]; n4 = 4 [delayed presentation]) were the most frequent causes of penile fracture in Groups A and B, respectively. One patient (7.69%) in Group A sustained a penile fracture after falling during masturbation and hitting a hard surface. Pain and penile ecchymosis/swelling were experienced by all of Group A's patients (n = 13). Eight patients (61.54%) in Group A and six patients (75.00%) in Group B both reported hearing the typical pop-up sound. 3 patients (14.3%) had a history of urethral bleeding. 14 After RGU, the catheter for Fr. Foley was inserted.

4. Discussion:

Based on a clinical examination and the patient's medical history, it is typically simple to di-

Table 1: **Clinical proftle of the patients**

Characteristics	Group A (early repair < 24 h) (n=13)	Group B (delayed repair >24 h) (n=8)
Causes of penile fracture		
Masturbation	6 (38.46)	6 (62.5)
Sexual intercourse	6 (53.84)	2 (37.5)
Falling on a hard surface	1 (7.69)	0 (0)
Clinical presentation		
Penile ecchymosis/swelling	13 (100)	0 (0)
Penile pain	13 (100)	0 (0)
Pop-up sound heard	7 (61.54)	6 (75)
History of bleeding per urethra	6 (38.46)	0 (0)
Finding during surgical exploration		
Incision	Circumcoronal	Circumcoronal
Side of tear		
Left	3 (15.38)	2 (37.50)
Right	7 (61.54)	6 (62.50)
Bilateral	3 (23.08)	0 (0)
Site of tear		
Proximal	11 (84.62)	8 (100)
Midshaft	2 (15.38)	0 (0)
Urethral injury	3 (23.08)	0 (0)
Data shown as n (%)		

agnose a penile fracture. Patients typically mention a crackling sound. Although penile fractures can be treated surgically or conservatively, surgery is the preferable method. It has been shown in numerous studies that surgery has better results than conservative treatment [10,11-13] Injury causes a hematoma, and if blood is allowed to sit between the skin and tunica albuginea, it can deform the aubergine. The greater quantity of fibrosis that occurs throughout the spontaneous tissue repair process may be the cause of the worse long-term prognosis.

The majority of patients who got early repair of their penile had fractures that occurred during sexual activity, whereas those who underwent delayed repair had fractures that occurred through masturbation. They arrived late because they were embarrassed. The literature reveals a variety of penile fracture causes. A prior study found that 80.9% of patients had penile fractures as a result of sexual activity; however, a subsequent study found that 54.1% of patients had penile fractures as a result of manually bending their erected penis. [14] Another study from Nigeria identified sexual activity (53.38%) and forced bending of the erected penis (47.62%) as the causes of penile fracture. [15]

Penile fracture is frequently an easy diagnosis that may be made with confidence through a thorough medical history and physical examination. Usually, when the tunica tears, patients report hearing a popping or cracking sound, which is then followed by discomfort, fast detumescence, discoloration, and enlargement of the penile shaft. The penile hematoma stays trapped between the skin and tunica if the Buck fascia is still there,

leading to the classic aubergine deformity. Because such injuries are sometimes accompanied by fear and embarrassment, the patient's arrival at the emergency room or clinic can occasionally be significantly delayed.

5. Conclusion:

Despite its limitations, our study showed that postponing repair (up to 5 days in our series) had little to no impact on overall sexual satisfaction or erectile function in the long run. Although there is no universal agreement on the appropriate time for surgical intervention, we think the best course of action is a clinical diagnosis of penile fracture, quick investigation, and immediate surgical repair. In our small sample of men with penile fractures treated quickly after the presentation, erectile function is preserved, and the potential for long-term overall sexual satisfaction exists regardless of the timing of surgical repair.

6. Limitations:

The small sample size of this study was a major limitation.

7. Acknowledgment:

None.

8. List of abbreviations

ED- Erectile dysfunction.

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Author biography

Sumanta Kumar Mishra Assistant Professor, Department of Urology, Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India

Sumit Kumar Panda Assistant Professor, Department of Urology, Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India.

Jagat Ballav Jagdev Assistant Professor, Department of General Medicine, Kalinga Institute of Medical Sciences, Bhubaneshwar, Odisha, India.

Dr. Pabitra Kumar Mishra Senior Consultant, Department of Urology, Utkal Hospital, Bhubaneswar, Odisha, India.