

# EXPERIENCE OF THE EARLY PENILE FRACTURE REPAIR: A CROSS-SECTIONAL STUDY IN A TERTIARY CARE CENTER

MAMUN AMA<sup>1</sup>, RASUL MA<sup>2</sup>, CHOWDHURY SA<sup>3</sup>, DAS PK<sup>4</sup>, HOSSAIN MS<sup>5</sup>

## Abstract:

**Background:** Penile fracture is a surgical emergency and most often it can be diagnosed clinically. But delayed presentation due to the embarrassing nature of the injury makes surgical outcome worse.

**Objectives:** This study was conducted to compare results of early and delayed surgical interventions of patients presenting with penile fracture.

**Methodology:** A cross-sectional study was conducted at the department of Urology, in Dhaka Medical College of hospital, Bangladesh from 30th July 2018 to 30th January 2020. Twenty-Seven (27) patients with penile fracture were enrolled in this study. They were diagnosed on the basis of history and clinical findings. They were divided into two groups; early presenter (15 patients) who came within 24 hours and delayed presenter (12 patients) who came after 24 hours. Among the early presenters, 13 patients had unilateral corporeal injury and 2 patients had bilateral corporeal injury. On the other hand, in delayed presenters, 11 patients had unilateral corporeal injury and 1 patient had bilateral corporeal injury. Surgical repair was done in all patients.

**Results:** Patient age range was between 15 to 60 years. The commonest presenting complaints were cracking sound 26 out of 27 (96.30%), penile swelling 24 out of 27 (88.88%), pain 22 out of 27 (81.48%) and detumescence during sexual intercourse or an erection 17 out of 27 (62.96%), urethra bleeding 3 out of 27 (11.1%). Among different causes, vigorous intercourse where female on top (62.9%) was the commonest followed by bending during erection (18.5%), masturbation (11.1%) and rolling over bed (7.4%). Out of 15 patients in early group, patients presented with urethral injury. The complications in delayed repair group were, plaque formation 3 out of 15 (20%); penile shaft deformity 2 (13.3%); erectile dysfunction 1 (6.6%) and skin necrosis 2 (13.3%). But in early repair group only one patient developed skin necrosis which was managed conservatively.

**Conclusion:** Fracture of the penis is a surgical emergency. Immediate surgical repair gives excellent results even in the presence of urethral injury. Early diagnosis by history and clinical examination and timely surgical intervention is essential for better outcome with minimal long-term complications.

**Key words:** Fracture Penis, Urethral injury, sexual intercourse.

DOI: <https://doi.org/10.3329/jdmc.v31i2.73127>  
J Dhaka Med Coll. 2022; 31(2) : 210-214

## Introduction:

Penile fracture is a relatively rare injury that is defined as the disruption of the tunica albuginea with rupture of the corpus cavernosum. Tunica albuginea two layers-inner circular layer and outer longitudinal layer. The outer layer determines the strength and thickness of the tunica, which varies in different locations along

the shaft and is thinnest ventrolaterally<sup>1</sup>. The tensile strength of the tunica albuginea is remarkable, resisting rupture until intracavernous pressures increase to more than 1500 mm Hg<sup>2</sup>. Abnormal bending of erect penis causes sharp rise of intracavernosal pressure exceeding the tensile strength of the tunica albuginea, and a transverse laceration of the

1. Dr. Abu Masud Al Mamun, Assistant professor, Department of Urology, Dhaka Medical College
2. Prof. Md Amanur Rasul, ex Head of Department, Department of Urology, Dhaka Medical College
3. Prof. Md Shafiqul Alam Chowdhury, Principal and Professor of Urology, Dhaka Medical College
4. Dr. Prosunto Kumar Das, Assistant Professor, Department of Surgery, Dhaka Medical College
5. Dr. Mohammad Sajjad Hossain, Consultant, Department of Urology, National Institute of Kidney Diseases and Urology, Dhaka

**Correspondence:** Dr. Abu Masud Al Mamun, Assistant Professor, Dept. of Urology, DMC, Mobile- 01715152008, email: riplonmamun@gmail.com

**Received:** 12/05/2022

**Revision:** 16/06/2022

**Accepted:** 29/07/2022

proximal shaft usually results. Although penile fracture has been reported most commonly with sexual intercourse with the “doggy style” position being the most common<sup>3</sup>. Other causes of fracture are masturbation, sudden direct trauma to the penis, rolling over or falling on to the erect penis<sup>4</sup>. Penile fracture is diagnosed mainly on the basis of clinical presentation. Patients typically hear a cracking or snapping sound, followed by rapid detumescence, sharp penile pain, and swelling with or without ecchymosis of the penile shaft.<sup>5,6</sup>

Early surgical exploration (within 24 hours of injury) and closure of the tunica is recommended to avoid long-term complications<sup>8,9</sup>. But unfortunately due to the social and personal reason, some men may delay seeking medical help immediately. In our country, due to ignorance, living in remote places and poor transportation, patients reach in hospital in late.

The aim of the study was to compare results of early (within 24 hours of injury) and delayed (after 24 hours of injury) intervention of penile fracture in terms of overall and specific complications.

#### **Materials and Methods:**

This was a cross-sectional study which was done in the department of Urology, Dhaka Medical College of hospital, a tertiary care hospital in Bangladesh from 30<sup>th</sup> July 2018 to 30<sup>th</sup> January, 2020. All the 27 patients diagnosed to have penile fracture were enrolled in the study group. The diagnosis was made based on the clinical findings in the patients, and no invasive diagnostic procedures were carried out. Those who came within 24 hours were considered as early presentation while those who came after 24 hours were considered as delayed presentation. The false penile fracture like tearing of penile superficial dorsal vein, deep dorsal vein and dorsal artery are excluded from the study. A standard surgical approach, that is, a sub coronal degloving incision in the penile skin, a careful examination of the tunica, corpora, and the urethra to record the extent of the injury followed by evacuation of the hematoma, careful hemostasis, and repair

of the tear using 3/0 vicryl suture with interrupted, inverted knots. Three patient of early group having urethral injury were repaired with end to end anastomosis using 4/0 vicryl. The patients were discharged from the hospital on second day onwards depending on the wound status with the advice and medication to suppress erection for one week and abstain from sexual activity for 6–8 weeks. After discharge from hospital, they were followed up as following schedule after one month, at three months, six months after one year. During follow up history was taken regarding erectile activity, pain, sexual performance, urethral stricture, presence of nodule/plaque and angulation of the penis. RGU & MCU was done who had urethral injury to exclude urethral stricture. Erectile activity was assessed by using international index of erectile function (IIEF-5).

#### **Result:**

During the study period, 27 patients having a fracture of the penis were managed at our hospital. Among them 15 were early and 12 were delayed group. In early cases, 13 presented with unilateral corporeal injury while had 2 patients' bilateral corporeal injury. In delayed cases, 11 had unilateral corporeal injury while 1 patient had bilateral corporeal injury. Mean age of the patients was 35 (Range 15 to 60 years). The commonest presenting complaints were penile swelling 24 out of 27 (88.88%), pain 22 out of 27 (81.48%), cracking sound 26 out of 27 (96.30%), and detumescence during sexual intercourse or an erection 17 out of 27 (62.96%), urethra bleeding 3 out of 27 (11.1%). Commonest causes of penile fracture were vigorous intercourse where female on top seventeen (62.9%), bending during erection five (18.5%), masturbation three (11.1%) and roll over in bed two (7.4%). Out of 15 patients in early group, 3 (20%) patients presented with urethral injury. The commonest complications in delayed repair were plaque formation 3 out of 12 (25%), penile curvature 2 (16.66%), erectile dysfunction 1 (8.33%) and skin necrosis 2 (16.66%). whereas early repair only one patient developed skin necrosis which was managed conservatively.

**Table I**  
*Age distribution*

Age groups(years)	No. of patients	%
15-30	16	59.26
31-45	9	33.33
46-60	2	7.41

**Table II**  
*Presenting complaints*

Presenting complaints	Number of patients	%
Penile swelling	24	88.8
Pain	22	81.48
Creaking sound	26	96.30
Detumescence	17	62.96
Bleeding Per urethral	03	11.10
<b>Presenting complaints</b>		
Penile swelling	24	88.8
Pain	22	81.48
Creaking sound	26	96.30
Detumescence	17	62.96
Bleeding per urethral	03	11.10

**Table-III**  
*Causes of fracture*

Causes of fracture	Number of patients	%
Vigorous intercourse when female on top	17	62.9
bending during erection	5	18.5
Masturbation	3	11.1
Roll over in bed	2	7.4

**Table IV**  
*Complications of early repaired group and delayed repaired group*

Complications	Early group (n=15)	Delayed group (n=12)
Skin necrosis	1 (6.6%)	2(16.66%)
Plaque formation	0	3(25%)
Penile curvature	0	2(16.66%)
Erectile dysfunction	0	1(8.33%)

(Erectile dysfunction was scored according to international index of erectile function (IIEF-5)



**Fig.-1:** The classical presentation of penis fracture. The hematoma and the bending of penis seen in penile fracture.



**Fig.-2:** Preoperative finding with urethral injury

**Discussion**

Though penile fracture is uncommon but has devastating physical and psychological consequences. The prompt diagnosis and skilled surgical correction of the condition gives excellent results<sup>8</sup>. in our study, we diagnosed all cases on history and physical examination, which is comparable to previous study. While historically surgeons favored conservative

management, the presented evidence make worldwide practice to show that early surgical repair achieves significantly better outcomes compared to conservative management or delayed surgery. Yapanoglu T et al. showed complication rates of 40.7% for conservatively treated patients and 8.2% for patients who were treated surgically<sup>20</sup>. Main complications of conservative treatment and delayed surgery are plaque/nodule formation, penile curvature, erectile dysfunction and skin necrosis. Kalash and Young Jr. reported complications rate of conservative treatment before and after 1971 were 10 percent and 53 percent, respectively, including deformity of the penis, pulsatile diverticulum, decrease in rigidity, and failure of conservative treatment<sup>25</sup>. Because of the excellent results, shorter hospitalization, less morbidity, and early return to full sexual activity, the authors recommended early surgical treatment. Their review also revealed that the incidence of associated urethral injury before and after 1971 was 33 percent and 14 percent, respectively<sup>25</sup>. Urethral injury is to be suspected if there is history or presence of blood at the external urethral meatus, gross hematuria, or inability to pass urine<sup>26</sup>. In our series urethral injury was 3 cases out of 27 (11.1%). Hinev in his review has recommended immediate surgical treatment of all cases of penile fracture; also emergency surgical repair offers a chance for complete recovery, even in the presence of urethral injury and is the best method for providing a good functional prognosis<sup>27</sup>. It has been shown that urethral injuries can be closed in a spatulated, water tight fashion with subsequent urethral catheter drainage for at least three weeks.

Long-term success of surgical treatment is mainly influenced by timing of repair. Surgical repair within eight hours of injury have significantly better long-term result in comparison to surgery after thirty six hours or more hours after the injury<sup>28</sup>

Trauma sustained during sexual intercourse is reported as the main cause of penile injury in United States of America; manipulating the erect penis to achieve detumescence is reported as a major cause in the Middle East<sup>3</sup>, whereas

rolling over an erect penis in bed and masturbation are the commonest causes in Japan<sup>4</sup>. In our study, vigorous sexual intercourse (62.9%) was the commonest cause followed by bending during erection (18.5%) and rolling over an erect penis in bed (7.4%). Karadeniz et al study revealed that the most common presenting complaints were penile detumescence during sexual activity and penile swelling (100%), followed by crackling sound (97.2%), pain (94.5%), and bleeding per urethra (5.6%)<sup>21</sup>. In our study main presenting complaints were creaking sound 26 out of 27 (96.30%), penile swelling 24 out of 27 (88.88%), pain 22 out of 27 (81.48%) and detumescence during sexual intercourse or an erection 17 out of 27 (62.96%), urethra bleeding 3 out of 27 (11.1%) which is comparable to above study.

#### Conclusion:

The early surgical intervention gives better results than delayed repair in terms of complications. Fracture of the penis is a surgical emergency which can be best managed by immediate surgical repair with excellent results even in the presence of urethral injury. Early diagnosis by history and clinical examination and timely surgical intervention is essential for better outcome with minimal long-term complications.

#### References:

1. Brock G, Hsu G, Nunes L, et al. The anatomy of the tunica albuginea in the normal penis and Peyronie's disease. *J Urol.* 1997; 157:276-281.
2. Morey AF, Dugi DD., 3rd. Genital and lower urinary tract trauma. In: Wein AJ, Kavoussi LR, Partin AW, Novick AC, editors. *Campbell-Walsh urology*. 10th ed. Philadelphia: Elsevier-Saunders, Co.; 2012. p. 2507.p. 2520.
3. Barros R, Schulze L, Ornellas AA, et al. Relationship between sexual position and severity of penile fracture. *Int J Impot Res.* 2017;29(5):207-209
4. Al Ansari A, Talib RA, Shamsodini A, et al. Which is guilty in self-induced penile fractures: marital status, culture or geographic region? A case series and literature review. *Int J Impot Res.* 2013; 25:221-223
5. Derouiche A, Belhaj K, Hentati H, Hafsia G, Slama MR, Chebil M. Management of penile fractures complicated by urethral rupture. *Int J Impot Res.* 2008; 20:111- 114.
6. Hoecx L, Wyndaele JJ. Fracture of the penis: role of ultrasonography in localizing the cavernosal tear.

- ActaUrol Belg.* 1998; 66:23–25.
7. Miller S, McAninch JW. Penile fracture and soft tissue injury. In: McAninch JW, editor. *Traumatic and reconstructive urology*. Philadelphia: W.B. Saunders; 1996. pp. 693–698.
  8. Zargooshi J. Penile fracture in Kermanshah, Iran: the long-term results of surgical treatment. *BJU Int.* 2002; 89:890–894.
  9. Jack GS, Garraway I, Reznichak R, Rajfer J. Current treatment options for penile fractures. *Rev Urol.* 2004; 6:114–120
  10. Zargooshi J. Penile fracture in Kermanshah, Iran: report of 172 cases. *J Urol.* 2000; 164:364–366.
  11. Koga S, Saito Y, Arakaki Y, Nakamura N, Matsuoka M, Saita H, et al. Sonography in fracture of the penis. *Br J Urol.* 1993; 72:228–229.
  12. Eke N. Fracture of the penis. *Br J Surg.* 2002; 89:555–565.
  13. Muentener M, Suter S, Hauri D, Sulser T. Long-term experience with surgical and conservative treatment of penile fracture. *J Urol.* 2004; 172:576–579.
  14. Agarwal MM, Singh SK, Sharma DK, Ranjan P, Kumar S, Chandramohan V, et al. Fracture of the penis: a radiological or clinical diagnosis? A case series and literature review. *Can J Urol.* 2009; 16:4568–4575.
  15. Mahapatra RK, Ray RP, Mishra S, Pal DK. Urethrocuteaneous fistula following fracture penis. *Urol Ann.* 2014; 6:392–394.
  16. Abolyosr A, Moneim AE, Abdelatif AM, Abdalla MA, Imam HM. The management of penile fracture based on clinical and magnetic resonance imaging findings. *BJU Int.* 2005; 96:373–377.
  17. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. *Urology.* 1997; 49:822–830.
  18. Feldman HA, Goldstein I, Hatzichristou DG, Krane RJ, McKinlay JB. Impotence and its medical and psychosocial correlates: results of the Massachusetts Male Aging Study. *J Urol.* 1994; 151:54–61.
  19. Naroda T, Yamanaka M, Matsushita K, Kimura K, Kawanishi Y, Numata A, et al. Evaluation of resistance index of the cavernous artery with colour Doppler ultrasonography for venogenic impotence. *Int J Impot Res.* 1994;6: D62.
  20. Yapanoglu T, Aksoy Y, Adanur S, Kabadayi B, Ozturk G, Ozbey I. Seventeen years' experience of penile fracture: conservative vs. surgical treatment. *J Sex Med.* 2009; 6:2058–2063.
  21. Karadeniz T, Topsakal M, Ariman A, Erton H, Basak D. Penile fracture: differential diagnosis, management and outcome. *Br J Urol.* 1996; 77:279–281.
  22. Bar-Yosef Y, Greenstein A, Beri A, Lidawi G, Matzkin H, Chen J. Dorsal vein injuries observed during penile exploration for suspected penile fracture. *J Sex Med.* 2007; 4:1142–1146.
  23. Fetter TR, Gartmen E. Traumatic rupture of penis. Case report. *Am J Surg.* 1936; 32:371–372.
  24. Malis J, Zur K. Der fractura penis. *Arch KlinChir.* 1924; 129:651.
  25. Kalash M.D., John D. Young Jr. M.D. Fracture of penis: Controversy of surgical versus conservative treatment: *J urol.* 1984;24:1: 21-24
  26. Walton JK. Fracture of the penis with laceration of the urethra. *Br J Urol.* 1979; 51:308–309.
  27. Hinev AI. Re: Penile injury [letter]. *J Urol.* 2002; 167:1802–1803
  28. Gamal WM, Osman MM, Hammady A, Aldahshoury MZ, Hussein MM, Saleem M. Penile fracture: long-term results of surgical and conservative management. *J Trauma.* 2011;71: 491–4