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Original Article

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Fracture Penis: Diagnosis, Treatment and Outcome of 9 Patients

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Abstract

Background: *First reported case of penile fracture was made an Arab physician, more than 1000 years ago. Fracture penis not an uncommon genitourinary trauma, once it was thought. Sexual intercourse, masturbation, rolling over or falling onto the erect penis, abrupt blunt trauma by forceful bending of the erect penis etc. are the main causes of penile fracture. Treatment option of fracture penis now a days is operative.*

Materials and methods: *It was a retrospective study. Patients with fracture penis admitted in the Department of Urology and Surgery Rangamati Medical College hospital and Chattogram National Hospital (Pvt.) Ltd. since May 2008 to December 2019 were included in this study. Total 9 patients were treated with fracture penis in this period of time. Patients were diagnosed by proper history, physical examination and investigations. Patients with genitourinary trauma due to other reasons were excluded from the study. Patient's data were collected from hospital records and were analyzed later on.*

Results: *Nine patients with fracture penis were included in this study. Six patients developed fracture during sexual intercourse, two during penile manipulation and one gave ambiguous history. After proper preoperative preparation and counselling, they underwent operation. The defect of tunica albuginea was identified and repaired. One patient had urethral injury which was also repaired at the time of repair of tunica albuginea. All the patients were evaluated post operatively. One patient had mild erectile dysfunction, others were normal.*

Conclusion: *Immediate repair of the tunica albuginea was the corner stone of success.*

Keywords: Fracture penis

Introduction:

Abul Kasem, an Arab physician, in Cordoba, today part of Gibraltar (UK), reported first case of penile fracture[1]. Penile fracture is the disruption of the tunica albuginea with rupture of the corpus cavernosum[2]. Penile fracture typically occurs when the engorged corpora are forced to buckle and literally "pop" under the pressure of a blunt sexual trauma, when the rigid penis slips out of the vagina and strikes the perineum or pubic bone[3]. Although penile fracture has been reported most commonly with sexual intercourse, it is also been described with masturbation, rolling over or falling onto the erect penis or other scenarios. In the Middle East, self-inflicted fracture predominate owing to the practice of forceful bending of penis during masturbation or as a means to achieve rapid detumescence[2]. Fracture penis initially regarded as a relatively rare injury, but now it is an increasingly reported genitourinary trauma[4]. A review by one investigator identified more than 1600 cases in the world literature, with more than half of those cases originating from Muslim countries[5]. The largest single series to date describes 172 cases over 9 years in a single province of Iran[6].

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Pathophysiology:

The tunica albuginea is a bilaminar structure (inner circular, outer longitudinal) composed of collagen and elastin. The outer layer determines the strength and thickness of tunica, which varies in different locations along the shaft and is thinnest ventro-laterally. The tensile strength of the tunica albuginea is remarkable, resisting rupture until intra-cavernous pressure increases to more than 1500 mm hg. When the erect penis bends abnormally, the abrupt increase in intra-cavernosal pressure exceeds the tensile strength of tunica albuginea and a transverse laceration of the proximal shaft usually results [2]. The site of rupture can occur anywhere along the penile shaft, most fractures are distal to the suspensory ligament (Fig-1).

Fig.-1: *Tear of tunica albuginea (Per-operative)*

Cavernosal lacerations to the flaccid penis have been reported as the result of gunshot traumas and sporting injuries, it is accepted that injuries to the flaccid penis should not be regarded as "fractures," owing to the different nature of the injury.[7,8] Easy method of detection of tear in the tunica albuginea is penile ultrasonogram (Fig-2).

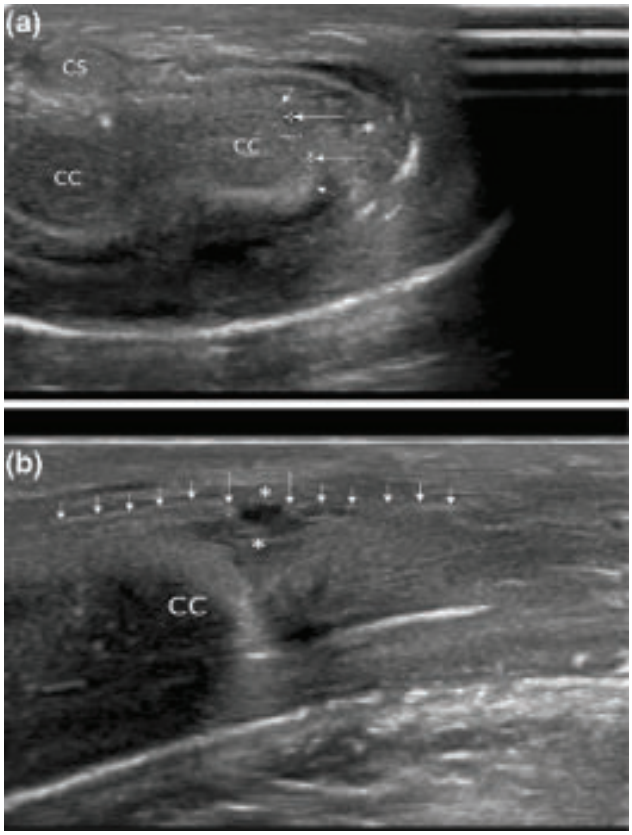

Fig.-2: *Tear at the tunica albuginea (USG)*

Materials and methods:

This was a retrospective study. Patients with fracture penis admitted in Rangamati Medical College hospital and National Hospital (Pvt.) Ltd. Chattogram in between May 2008 to December 2019 were included in this study. All the patients were evaluated by taking history, physical examination and investigations. When diagnosis was confirmed they all were treated surgically by repairing the tunica albuginea. The defect of the tunica albuginea was closed by 3.0 polyglactin 910 sutures. In case of concomitant urethral lesion, the defect was repaired simultaneously by primary absorbable 4.0 Polygalactin 910 sutures and urethral catheterization for 10 days. Abstinence from all sexual activities for 6-8 weeks was recommended after surgery. Per urethral catheter was removed on first post-operative day without urethral injury. Patients were followed up at least six months after operation and their outcome were noted. Later all the data were compiled and were analyzed. Categorical data were expressed as percentage. Statistical analysis was carried out by Microsoft excel.

Result:

Table-I: *Various characteristics of patients with fracture penis.*

Variables	
Age -Years (Range)	Mean age 33 (24-55)
Mechanism of trauma	Number (%)
Sexual intercourse	6 (67%)
Penile manipulation	2(30%)
Unclear	1 (11%)
Clinical Findings	
Erection of penis at the time of trauma	9 (100%)
Pain	9 (100%)
Swelling	8(78%)
Cracking/ Pop up sound	8(90%)
Detumescence	8(90%)
Haematoma	7(11%)
Urethral bleeding	1 (11%)
Diagnostic tools	
USG[1] of penis	9(100%)
RGU[2]	1(11%)

(USG[1]- Ultrasonogram,

RGU[2]- Retrograde urethrogram)

Table shows -fracture penis usually occurs in sexually active young patients. Range of the ages of the patients were 24- 55 Years. Sexual intercourse (67%) was the commonest cause of fracture penis. Classical triad of fracture penis- pain, swelling and cracking sound with detumescence were present in 8 patients. One patient had per urethral bleeding due to urethral injury, so retrograde urethrogram had done. All the patients were subjected to penile ultrasonogram.

Table –ll: *Location of tear of tunica albuginea in penis*

Penile site	No. of patients	Percentage
Proximal	05	55
Middle	03	34
Distal	01	11

Most of the penile fracture occurs at the proximal part of penis (54%)

Table-lll: Direction of tear

Direction	No. of patients	Percentage
Rt. lateral	4	44
Left lateral	3	34
Ventral	1	11
Dorsal	None	None
Ventral tear+ associated urethral injury	1	11

Table shows lateral tears are more common than ventral or dorsal tears

Discussion:

Penile fracture usually occurs in sexually active men. Present study shows the mean age of the patients were 33 years (range 24- 55 Years). In one study it had been shown that the age of the patients were ranged from 23 to 45 years and average age was 33 years [9]. It is similar to the present study.

Penile fractures are commonly diagnosed from their stereotypical clinical presentation.[10] The gross appearance of a fractured penis is often summarized as an "eggplant deformity," which refers to the combination of localized penile swelling, discoloration, and deviation toward the opposite side of the fracture [11]. The pain can vary from minimal to severe and is not proportional to the degree of injury [12]. The "rolling sign" is used to describe a firm, immobile hematoma, which is palpable as the penile skin is rolled over it[13]. It indicates the discontinuity of the tunica albuginea or fracture site[13].

In this study 6 (67%) patients were inflicted by penile fracture at the time of sexual intercourse. In the Western world the most common cause, accounting for about 30%-50% of cases, is over enthusiastic sexual intercourse. Of those, woman-on-top positions resulting in impact against the female pelvis or perineum and bending laterally are most common. In Middle East countries the common cause is physical manipulation of the penis to remove an erection[14,15]. In Iran, only 8% of the cases were attributed to sexual intercourse; the remaining cases were due to self-manipulation and potentially fabricated events[3]. Vigorous sexual intercourse or masturbation or manipulation of erect penis with audible cracking sound followed by rapid detumescence found in almost 90-100% cases of fracture penis. Wani I [16]. reported in

his study, 81% cases had pop-up sound during sexual intercourse. It is almost similar to present study (90%). Cases that lack the popping sound or in which there is gradual detumescence have a higher rate of false-positive diagnosis and may benefit from additional preoperative workup [17]. Most of the time it is due to tearing of dorsal artery of penis or could be damage to the dorsal venous complexes[3].

Although diagnosis of fracture penis purely clinical but it can be confirmed by ultrasonogram, MRI or Cavernosography of the penis. In this study, ultrasonogram diagnosed all the cases (defects in the tunica albuginea). Beysel et al. noticed, ultrasound inaccuracy of 15% of patients in a series of thirteen cases[18,19]. When there is confusion of diagnosis, further investigations i.e. - MRI of penis and Cavernosography are required[3].

Fracture penis associated with urethral injury is suspected when patients with voiding difficulty, hematuria, or blood at the meatus. In this study one patient (11%) had urethral injury with ventral cavernosal injury. It is little bit higher than the Asian incidence. The incidence of urethral injury ranges from 0% to 3% in Asia and the Middle East to 20% to 38% in the United States and Europe [20, 21]. If urethral injury is suspected, most authors advocate a preoperative retrograde urethrogram. Other advocate flexible cystoscopy in the operating room before inserting the Foley catheter or attempt to repair the injured site [22]. We did the retrograde urethrogram for the detection of site of urethral injury and was repaired. Bilateral tear of tunica albuginea is almost always related to the urethral injury [23].

Proximal part of the corpora cavernosa are injured commonly due to high buckling effect. Present series showed about 55% of patients had tear at the proximal cavernosa. In one study, incidence of proximal tear of tunica were in 63% of cases [16].

Tear of tunica albuginea is usually ventral or lateral part of penis, it may be either unilateral or bilateral. Ventral and lateral tears are due to sexual intercourse as because, here tunica albuginea is the thinnest. Dorsal tear of tunica albuginea may be due to other mechanism i.e. kneading of penis, masturbation etc.[2] Current series shows lateral tear in 7(78%) patients and 2 (22%) patient have had ventral tear, none of whom had dorsal tear. Wani I [16] in his study found 85% of cases had lateral tear and 13% had ventral tear.

Surgical repair of penile fractures was popularized in the 1980s after several studies demonstrated that long-term complications were reduced from 30% to 4% in surgically treated patients[24,25]. Immediate repair is the gold standard but delayed repair also accomplishes with good result rather than non-repair policy[15]. In current series we repaired all the cases within 72 hours. The type and location of the incision is operator dependent, although we use and recommend a distal circumferential degloving incision, as advocated by Mc Aninch and others [11, 25]. Closure of the tunica laceration is best performed with running or interrupted absorbable suture[14], however, similar results have been reported with the use of nonabsorbable suture with inverted knots[6]. Intracorporeal saline injection and simulated erection, referred to as a Gittes test [26] might help localize a non-apparent or incompletely repaired tunica laceration[27].

Surgery has been shown to reduce the incidence of penile fracture complications, but in 6% to 25% of patients' still experience long-term morbidity [3]. Reported long-term complaints after penile fracture repair include: penile deviation, painful intercourse, painful erection, erectile dysfunction, priapism, skin necrosis, arteriovenous fistula, urethrocavernous fistula, and urethral stricture [5]. In this series one patient had mild erectile dysfunction which was later managed conservatively. Asgari et al.[20] of Iran showed that the 9% of their patients had erectile dysfunction. It is almost similar to this study.

Conclusion:

Diagnosis of penile fracture depends on history, physical examination and investigations. Sometimes history of the patient may mislead the diagnosis. Then investigations will help to come to a conclusion. Surgery is the treatment of choice. Early surgery prevents the long term complications. Associated urethral injury should be brought in mind if there is voiding dysfunction or per urethral bleeding and to be dealt accordingly.

References:

1. Taha SA, Sharayah A, Kamal BA, et al. Fracture of the penis: surgical management. Int Surg. 1988; 73:63–4.
2. Allen FM, Lee CZ; Genital and Lower urinary tract trauma. Campbell-Walsh UROLOGY, 2016, 11th edition, Vol-3, Elsevier, 2379-2392.

3. Gregory SJ, Isla G, Richard R, Jacob R; Current Treatment Options for Penile Fractures. Rev Urol. 2004, Summer; 6(3): 114–120.
4. Malis J. Zur Kausuistik der fractura penis. Arch Klin Chir. 1924; 129:651. (Ger).
5. Eke N. Fracture of the penis. Br J Surg. 2002; 89:555–565.
6. Zargooshi J. Penile fracture in Kermanshah, Iran: report of 172 cases. J Urol. 2000; 164:364–366.
7. Jallu A, Wani NA, Rashid PA. Fracture of the penis. J Urol. 1980; 123:285–286.
8. Godec CJ, Reiser R, Logush AZ. The erect penis-injury prone organ. J Trauma. 1988; 28:124–126
9. Kurkar A, AE Ahmad, Orabi E . False fracture of the penis: Different pathology but similar clinical presentation and management. doi: 10.4103/0974-7796.127015
10. Ghanem AN. Re: Penile fractures in Kermanshah. Br J Urol. 2002; 89:890-96
11. 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.
12. Fergany AF, Angermeier KW, Montague DK. Review of Cleveland Clinic experience with penile fracture. Urology. 1999; 54:352–355.
13. Naraynsingh V, Raju GC. Fracture of the penis. Br J Surg. 1985; 72:305–306.
14. Eke N. Fracture of the penis. Br J Surg 2002; 89:555–565.
15. Zargooshi J. Penile fracture in Kermanshah, Iran: The long-term results of surgical treatment. BJU Int 2002; 89:890-894
16. Wani I . Urol Ann. 2014 Jan-Mar; 6(1): 23–26.
17. Shah DK, Paul EM, Meyersfield SA. False fracture of the penis. Urology. 2003; 61:1259-65.
18. M. Beysel, A. Tekin, M. G¨urdal, E. Y¨ucebas¸, and F. Dingo,"Evaluation and treatment of penile fractures: accuracy of clinical diagnosis and the value of corpus cavernosography," *Urology*, 2002; 60(3): 492–496.
19. Leonardo OR et al. Mechanisms Predisposing Penile Fracture and Long-Term Outcomes on Erectile and Voiding Functions. Volume 2014, Article ID 768158, 4 pages. http://dx.doi.org/10.1155/2014/768158
20. Asgari MA, Hosseini SY, Safarinejad MR. Penile fractures: evaluation, therapeutic approaches and long long-term results. J Urol. 1996; 155:148–149.
21. Cendron M, Whitmore KE, Carpiniello V, et al. Traumatic rupture of the corpus cavernosum: evaluation and management. J Urol. 1990; 144:987–991
22. C. Kamdar, U. M. M. Mooppan, H. Kim, and F. A. Gulmi. "Penile fracture: preoperative evaluation and surgical technique for optimal patient outcome," *BJU International*, 2008; 102(11):1640–1644.
23. Cumming J, Jenkins J. Fracture of the corpora cavernosa and urethral rupture during sexual intercourse. Br J Urol. 1991; 67:327.
24. Wespes E, Libert M, Simon J, Schulman CC. Fracture of the penis: conservative versus surgical treatment. Eur Urol. 1987; 13:166–168.
25. Seaman EK, Santarosa RP, Walton GR. Immediate repair: key to managing the fractured penis. Contemp Urol. 1993; 5:13
26. Gittes RF, McLaughlin AP. 3rd Injection technique to induce penile erection. Urology. 1974; 4:473–474.
27. Mydlo JH. Surgeon experience with penile fracture. J Urol. 2001; 166:526–529.