Clinical Spectrum and Risk Factors of Penile Fracture in a Tertiary Care Hospital, Pakistan

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Abstract

Objective: To determine the clinical spectrum, operative findings, and determination of potential risk factors responsible for penile fracture.

Methods: A prospective, cross-sectional, observational study was done in the Department of Urology, Services Hospital Lahore. Study duration was two and half years from January 2018 to June 2020. A total of 18 patients were enrolled in study. Informed written consent was obtained from patients. Detail history, demographic data, presentation, risk factors and operative findings were recorded. No invasive investigations were done as the diagnosis was made clinically. Surgical repair was done in all patients.

Results: Patients age was 25-56 years (mean 33.78.6). All patients were married 18(100%). Majority of patients (61.1%) belonged to rural versus 7(38.9%) urban area. Mean time to present in urology was 7 hours ±5.5(range 2-24). Few 3(16.7%) went to general practitioner before urologist. 50% (9) reported heard a snap. Unilateral versus bilateral corporal injury was observed in 10 (55.6%) and 8(44.4%) respectively. Mid-corporal injury was observed in 6(33.3%), shaft in 4 (22.2%) and root of penis in 3 (16.7%). Urethral injury was reported in 4 (22.2%). Half of patients had eggplant deformity. Rolling sign was positive in 10(55.6%) followed by detumescence post-coitus (72.2%) of patients. Missionary style sex was common 12(66.6%) and one (5.6%) did not disclose information. 2(11.1%). penile fractures were due to masturbation and 3(16.7%) forceful blows to erect penis. Early presentation was in 14 (77.8%) varuses late in 3 (16.7%). 4 (22.2%) had delay due to behaviour. 10(55.6%) patients lived near to Hospital while 8(44.4%) lived far away. No use of medication for erectile dysfunction was reported. Mostly patients were middle -income class 6(33.3), low 10(55.6%) and 2(11.1%) higher income. 13 patients (72.2%) presented during summer as compared to 1(5.6%) in winter.

Conclusion: Missionary position was the most precarious position observed. The unilateral and mid-corporal injury was the most common operative finding.

Keywords: Penile fracture, corporal injury, urethral injury, eggplant plant deformity, detumescence, rolling sign

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Introduction

Penile fracture is an infrequent presentation in a urological emergency. The most common cause of fracture reported is sexual intercourse.[1] The incidence of penile fracture is uncertain even in emergency setting, varies among different populations depending upon sexual behaviour, ethnicity and other social norms.[2] Discussion about sexual practices is considered a taboo or a cause of an embarrassment in some societies, therefore, remain under-reported. Sex positions ("doggy style", "woman on top", rear-entry position, "man on top"), sharp below to the erect penis, traumatic aggressive masturbation or penile manipulation, deflating an erection are the reported risk factors.[3]

Fracture of the penis occurs when there is blunt trauma to the straight and rigid penis during sexual intercourse; when penis strikes with either symphysis pubis or perineum, or penile manipulation that instigates the

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rupture of tunica albuginea of corpus cavernosum, which is quite thin during erection.[5] Rolling over in bed as a cause of injury has also been reported in the literature.[5] Clinical symptoms and signs demonstrated by patients include; excruciating pain, swelling due to hematoma formation, bruising, sudden audible click, immediate detumescence.[4] If penile fracture is accompanied by urethral injury (Suggested on history and clinical examination), haematuria, retention of urine followed by pain on urination is experienced by the patients.[6] Possible pathognomonic physical signs observed are; eggplant deformity; ecchymosis of the shaft, rolling sign; penile skin covering the hematoma over the site of rupture, tenderness of penis, flaccidity and curvature of a penis.[4] Urethral injury is seen even small amount of blood at meatus.[7] Surgical intervention is a fundamental treatment, should be done as early as possible. Delay in treatment can result in permanent sexual dysfunction, penile nodule, pain during sexual intercourse, penile chordee and urethral stricture.[8]

The main aim of this study to scrutinise the clinical spectrum, operative findings, and determination of potential risk factors. this study was done because of the rarity and under estimation of disease, data is relatively scarce on this topic.

Methods

A prospective, cross-sectional, observational study was conducted in the Department of Urology Services Hospital Lahore. Duration of study was two and a half years beginning from January 2018 till June 2020. A total of 18 patients were enrolled in this two-and-a-half-year study. The study was approved by the Ethical and review board of the Hospital. Informed written consent was obtained from all recruited patients. All patients with penile fracture were recruited in the study. A detailed history was taken from all patients about the event, the time has gone by since the onset and where did they seek treatment first. The demographic data, presenting symptoms and signs, and risk factors and operative findings were recorded on a predesigned Proforma. Proforma was filled out by researchers themselves. The diagnosis was made exclusively on clinical history and examination and later confirmed during surgery. No invasive investigations were carried out for diagnosis. Surgical repair was done in all patients with penile fracture.

Data were analysed using SPSS version 20.0. Quantitative variables such as Patient's age, onset to presentation time in hours is presented as mean and standard deviation. Demographics, Clinical findings, operative findings, education status, and risk factors are presented as frequency and percentage.

Results

The age ranged between 25-56 years of subjects (mean 33.7±8.6) All patients recruited were married 18(100%). Majority of patients (61.1%) were from a rural area and only 7(38.9%) were from the urban area.

Mean of time from onset of trauma to presentation in the urology department was 7 hours ±5.5 (range 2-24 hours).

Majority of patients and their wives were illiterate 4(22.2%) and 6(33.3%), respectively. Primary passed males were 3(16.7%) females 2(11.1%). Middle passed were 2 (11.1%) and females 2 (11.1%) , matric passed were 3(16.7%) and females 2(11.1%) , intermediate passed were 2(11.1%) and females 2(11.1%), graduates were 3(16.7%) males and 2(11.1%) females, and 1(5.6%) males and2 (11.1%) females had master's degree.

44.4% (n=8) of patients presented in urological emergency whereas, 7(38.9%) presented in a surgical emergency. Few 3(16.7%) went to see general practitioner before transfer to urology.

Half (50%) of patients had eggplant deformity on clinical examination. Rolling sign was positive in 10(55.6%) of subjects. Detumescence post-coitus was reported by most (72.2%) of the patients. Most common position reported by patients was "missionary style" or "man on top" sex position in 66.6% (n=12) and one (5.6%) subject did not disclose the information. 2(11.1%) experienced penile fracture during masturbation and 3(16.7%) of patients experienced a forceful blow to the erect penis. 50% (9) of subjects reported having heard a snap. None of the patients had erectile dysfunction and reported use of medication for sexual dysfunction before the presentation.

Unilateral and bilateral injury of corpora was observed in 10 (55.6%) and 8(44.4%), respectively. The mid-corporal injury was observed the most 8(44.4%) followed by shaft 4 (22.2%) and roof of penis 3 (16.7%). The right corporal injury was in 8(44.4) and left as 2(11.1) The urethral injury was reported in only 4 (22.2%) of cases. Microhaematuria was observed in 2(11.1%) and macrohematuria in 2(11.1%) and urinary retention was reported by all patients with urethral injury.

The referral was made early in 14 (77.8%) while late

in 3 (16.7%). 2 (11.1%) had to delay because of Behaviour and only 1(5.6%) reported delay caused by attitude. 10(55.6%) patients lived near to the tertiary care Hospital while 8(44.4%) lived far.

There was a preponderance of middle -income class 6 (33.3%), and the low-income family was 10(55.6%), and only 2(11.1%) subjects belonged to higher socioeconomic status.

Seasonal variation is described in **Table-1**.

Table 1: *Patients characteristics*

Variables	Years (range)
Age	25-56(33.7±8.6)
Marital Status	**N (%)**
Married	18(100%)
Unmarried	0
Residence	
Rural	11(61.1%)
Urban	7(38.9%)
Education of Patient	
Illiterate	4(22.2)
Primary	3(16.7%)
Middle	2(11.1)
Matric	3(16.7)
Intermediate	2(11.2)
Graduate	3(16.7%)
Masters	1(5.6%)
Education of Wife	
illiterate	6(33.4%)
Primary	2(16.7%)
Middle	2(11.1%
Matric	2(11.1%)
Intermediate	2(16.7%)
Graduate	2(11.1%)
Masters	2(11.1%
Mechanism of injury	N (%)
Sexual intercourse	
Missionary, man on top position	12(66.6%)
Penile manipulation	2(11.1%)
Forceful blow	3(16.7%)
Unclear	1(5.6%)
Clinical Findings	**N (%)**
Eggplant deformity	9(50%)
Rolling sign	10 (55.6%)
Immediate Detumescence	13(72.2%)
Audible click	8(44.4)
Operative Finding	**N (%)**
Corporal injury	
Unilateral	10 (55.6%)
Bilateral	8(44.4%)
Location of injury	
Mid-corpora	8(44.4)
Shaft	4(22.2%)
The roof of the penis	3(16.7%0
Mid-shaft	2(11.1%)
Superficial skin tear	1(5.6%)
Urethral injury	4(22.2%)
Season	
Summer	13(72.2%)
Winter	1(5.6%)
Rainy/Pleasant	4(44.4%)
Spring	0

Discussion

Penile fracture is a misnomer, it is a rupture of tunica albuginea of corpus cavernosum. Rupture of albuginea may be accompanied by a tear of the deep dorsal vein, however; it is an infrequent complication.[9] Typical clinical findings and presentation is usually an exemption of supplementary invasive investigations.[10]

Majority of patients presented were married, from a rural area, belonged to low socioeconomic status, and were un-educated. Therefore, it can be inferred that the lack of education among patients is associated with this condition. In a study by Rooh-ul-Muqim et al had a significant number of (58.8%) patients from rural area same as our study.[11] However, the lack of sex education due to cultural prohibitions and shyness may also be a contributing factor as illustrated by Naouar et al.[12]

Majority of our patients presented directly in a urological emergency. Few patients went to seek care from GP. That may be due to paucity of awareness among patients about where to seek care in circumstances like these. No data was found on the literature review regarding the first presentations of this condition to compare our results. More than half of the subjects presented early in hospital, whereas only 16.7% of patients presented late. Delay in seeking medical treatment in our study was due to the fear of humiliation and shame in 11%. The reason for delayed presentation in 44% was due to the unavailability of the health-care facility that deals with urological emergencies. Early presentation and surgical intervention are associated with a lower risk of complications compared to late presentation.[5,12]

Sexual intercourse has been reported to be the most common reason stated of this entity in literature.[1] The most common position described in our cohort was a man on top or missionary style sex position. In contrast, a study done by Barros et al reported "doggy-style" position to be a riskier position to fracture a penis than a "man on top" position and was associated with bilateral fractures of corpus cavernosum.[12] Whereas, frac-

ture due to penile manipulation and forceful blow were similar as stated by malik et al in 2002 done in chandka medical college[13] The predisposing causes depicted in our study are similar to that are ascribed in literature.

Clinical findings displayed in our subjects were the same as the findings reported by Frirdi et al in three case reports and literature review study.[14] Instant detumescence was most frequently reported by our patients. Eggplant deformity as evident by swelling and ecchymosis and Rolling sign marked by rolled skin over the clot, hence the name rolling sign[4] were observed in almost half of our cohort.

Urethral ruptures are unusual and occur in only 10-20% of patients and are generally associated with bilateral corporal body injury.[15] The urethral injury was observed in 22% of our patients and manifested with either microhaematuria 2(11.1%), macrohematuria 2(11.1%) or retention of urine in 4(44.4%). Attam Amit et al reported a 24% incidence of urethral injury with a penile fracture.[16]

Middle corporal body injury was largely observed in our study in approximately 70% of patients. Shaft injury was the second most common approximately 22.2%. In a study done by Wani, proximal corporal injury[17] was reported in the majority of cases with 63.4%. The right-sided tear was more common than left in our study, a finding analogous to reported by Satyendra Persaud et al.[18]

We observed an increased influx of patients during the summer months. one study reported a greater number of patients during summer months akin to our study.[19] On the contrary, a study by Moslemi et al described an increased incidence of patients presenting with penile fracture during spring.[20]

Conclusion

In conclusion, several risk factors can lead to this dramatic malady. Education about sex and spreading awareness of risk factors and guidance regarding where to seek medical assistance in this crisis among people is a plausible way to mitigate the problem.

Limitations of the Study

There are few limitations to our study such as smaller sample size and absence of investigations in patients with urethral injury.

Conflicts of Interest: None

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S.J: Date Collection

A.M: Date Collection

A.A: Date Collection

I.S: Date Collection

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