PENILE FRACTURE: A TEN YEAR EXPERIENCE AT A TERTIARY CARE CENTRE

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ABSTRACT
We retrospectively reviewed the clinical profile and treatment outcome of patients of penile fracture, managed in the urology department of Sher-i-Kashmir Institute of Medical Sciences, Kashmir, India. This study retrospectively assessed 42 cases of penile fracture admitted at our center from January 2003 to March 2013. Majority of the patients were diagnosed on history and physical examination. Eight patients required complimentary examination. Penile ultrasound was performed in 4 patients, while 4 patients needed retrograde urethrogram to rule out concomitant urethral injury. The most common cause was blunt trauma to erect penis during sexual intercourse. 34 (80.95%) patients were treated by an open surgical repair while 8 (19.05%) patients were managed conservatively. The age of patients ranged from 23 to 62 years (mean 36.71 years). Site of tunica albugenia tear was at the base in 20 (58.82%) and mid-shaft in 14 (41.18%) patients treated surgically. Associated urethral injuries were seen in 4 (9.52%) patients. All conservatively treated patients had complications on follow up, while around 80% of surgically treated patient had no or minimal complications. Penile fracture is caused by rapid blunt force to an erect penis, usually during sexual intercourse or aggressive masturbation, with a relatively straight forward clinical diagnosis. Early surgical repair is the preferred and ideal treatment in order to avoid complications associated with conservative management.

Keywords: Corpus Spongiosum, Penis, Sildenafil, Tunica albugenia, Urethra

INTRODUCTION
Penile fracture is one of the rare urological traumas Eke (2009). The true incidence of penile fracture is not known because it is under reported as many patients fail to seek medical help owing to various socio-cultural inhibitions. Blunt trauma to the erect penis occurring during sexual intercourse and aggressive masturbation are the most common mode of injury El-Sherif (1991), Schonberger (1982), Nicoliason (1983), Klein (1985), Taha (1988). By definition penile fracture denotes rupture of the tunica albugenia of the corpus cavernosum. Corpus spongiosum and urethra may also be involved. The mechanism of injury is sudden and abrupt bending of tense and thin tunica albugenia in an erect penis Cecchi (1997). The other rare reported modes of injury include penis rolling over one’s own body during nocturnal erection, direct blow on an erect penis, forced bending or hastily removing or applying clothing with the penis erect, gigong exercise which is a type of martial art Badar (2009), Hung-Jen (2007). Patients present with a classical history of a popping or cracking sound followed by immediate detumescence, pain, swelling, hematoma and deformity Meares (1971), Mydlo (1998), Ruckle (1992).10-20% of patients present with haematuria and retention of urine secondary to urethral injury Mydlo (1998), Tsang (1992). Diagnosis is purely made on history and local examination but in rare cases penile USG and MRI may be needed. Conservative management, because of its associated morbidity has been replaced by early surgical repair El-Taher (2004), Ralash (1984). The aim of our study is to share the experience of 42 patients of penile fracture managed at our center over period of ten years.

MATERIALS AND METHODS
Patients and Methods
The present study is a retrospective analysis of 42 patients of penile fracture managed between January 2003 and March 2013 in the department of urology at Sher-i-Kashmir Institute of Medical Sciences, Kashmir, India. However, patients who were initially managed by surgical or conservative treatment but
were lost to follow up were not included in the study. Medical records of all these patients were studied and recorded in a pre-designed proforma and the data was subsequently analysed. The patients were in the age group of 23 to 62 years (mean age 36.71). Majority of the patients were diagnosed on the basis of history and local examination of the genital area (Figure 1).

**Figure 1: Pre operative picture of fracture penis showing ecchymosis over shaft of penis extending over upper part of scrotum**

In 4 patients penile ultrasonography was done to establish the diagnosis. Retrograde urethrography, to rule out urethral trauma was done in 4 patients who presented with haematuria. Surgical exploration was advised to patients who presented with in the golden period of 48 hours of trauma. A per urethral catheter was put in all patients except in those with a suspicion of concomitant urethral injury in whom pre-operative retrograde urethrography was done before exploration. Incision was made 1 cm proximal to coronal sulcus in a circumferential manner. The penile skin was degloved and corpus cavernosum and corpus spongiosum exposed. Penile heamatoma was identified at the site of injury and drained. The rent in the tunica albugenia was clearly demarcated (Figure 2)

**Figure 2: Intra operative picture showing rent in the tunica albugenia**
and cut edges were sutured using 3-0 polygalactin interrupted sutures in a water tight manner. Urethral injuries were primarily sutured over the indwelling catheter with interrupted 4-0 polygalactin sutures. Post-operatively erection was suppressed for 5-7 days. The per urethral catheter was kept for 24-48 hours in non urethral injury patients and for 7-10 days in urethral injury patients. At discharge patients were advised to avoid sexual intercourse for 6-8 weeks. Patients who presented late and those who refused surgery were managed conservatively with analgesics, anti-inflammatory drugs, and cold sponging. Follow up of patients ranged from 6 months to 1 year (mean 8.2 months) after treatment.

RESULTS
Medical record data of 42 patients of penile fracture was retrospectively analysed in our study. Blunt trauma to the erect penis during sexual intercourse was found to be the most common cause seen in 22 (52.38%) patients followed by aggressive masturbation in 12 (28.57%) patients. Other modes of injury included rolling over patient’s own body during nocturnal erection, seen in 4 (9.52%) patients and sildenafil induced erection with subsequent penile fracture during intercourse, occurring in 4 (9.52%) patients. The interval of trauma to presentation in hospital ranged from 4 hours to 7 days with mean of 23.94 hours (Table 1).

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<th>Table 1: Clinical Parameters of patients</th>
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<td><strong>Age</strong></td>
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n = number of patients

In the present series 34 (80.95%) patients were treated surgically while 8 (19.05%) were managed conservatively. In conservatively managed patients 5 presented late (> 3 days after trauma) and 3 refused surgery. From 34 patients submitted to surgical procedure, 22 (64.70%) patients had break in tunica albugenia on the right lateral aspect of penile shaft, 8 (23.53%) had break at left lateral aspect, while 4 (11.76%) patients had injury to corpus spongiosum with associated urethral trauma. Size of tear in tunica albugenia ranged from 0.5cm to 2.5cm. Site of injury was at base of penis in 20 (58.82%) patients and on mid-shaft in 14 (41.18%) patients (Table 2).

<table>
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<th>Table 2: Operative findings in 34 patients</th>
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<td><strong>Site of Injury</strong></td>
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<td>Base</td>
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<td>20</td>
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<td>(58.82%)</td>
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The mean hospital stay was 3.2 days. On follow up, 27 (79.41%) patients of the surgically treated group had no major complaints after 1 year. Five patients had painful erection and prickling sensation at the site of repair. Two patients developed urethral stricture requiring optical internal urethrotomy. In
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conservatively treated group all had complications including penile deviation during erection, painful erection and erectile dysfunction.

DISCUSSION

Penile fracture is a rare urological trauma because of well protected location of penis against blunt trauma. Penile fracture invariably occurs in an erect penis as the tunica albugenia thins from 2 - 2.5mm to 0.5mm during erection, hence more prone to injury Asgari (1996). The mean arterial pressure of 100 mmHg is the normal pressure inside an erect penis. The intracorporeal pressure of 1500 mmHg is required to rupture or overcome the tensile strength of tunica albugenia De Rose (2001). As per the reported literature the common etiological conditions include blunt trauma to erect penis during sexual intercourse followed by blunt trauma during aggressive masturbation Eke (2002), El-Sherif (1991), Schonberger (1982), Nicoliasen (1983), Klein (1985), Taha (1988). In our series also we have found that in 60% of patients trauma occured during sexual intercourse and in 25% patients during masturbation. Also sildenafil induced penile erection with subsequent fracture was seen in four elderly patients consistent with published literature Nicholas (2010), Anup (2002).

Penile fracture is mostly a clinical diagnosis in which a patient typically hears a snapping sound followed by immediate detumescence, pain, swelling, discoloration and deformity Meares (1971), Mydlo (1998), Ruckle (1992). The penile shaft usually deviates to the side opposite to fracture Tiong (1988). In rare cases imaging techniques may be used for diagnosis Koga (1993), Beysel (2002), Zaman (2006), Agarwal (1991). In 90% of our patients diagnosis was made on history and clinical examination while 10% patients required penile ultrasonography to establish the diagnosis. Retrograde urethrography was done in four patients with suspicion of associated urethral injury. The site of penile fracture is mostly at the base of penile shaft as the fulcrum during intercourse lies at the base. In the present series 58.82% of patients had fracture at base, which is consistent with the reported literature. The frequency of urethral injuries associated with penile fracture ranges from 10-20% Mydlo (1998), Tsang (1992). In our series there were 4 cases of urethral injury confirmed by retrograde urethrography.

In the past management of fracture penis was quite controversial and majority of the patients were being managed conservatively. Subsequently most of the reported studies revealed that the conservative treatment was associated with a significantly high complication rate. Presently penile fracture is considered as a urological emergency and early surgical intervention is the recommended treatment option Nicolaisen (1983), Bennani (1992), De Giorgi (2005). In our study 80% of patients treated with early surgical repair reported a normal sexual intercourse on follow up consistent with the reported literature Mydlo (2001). Painful erection, deviation on erection and erectile dysfunction were seen in all the conservatively treated patients.

Conclusion

Penile fracture is a relatively rare urological condition. It is invariably caused by rapid blunt force to an erect penis, usually during sexual intercourse or aggressive masturbation, with a relatively straightforward clinical diagnosis. Early surgical repair is the preferred and ideal treatment in order to avoid complications associated with conservative management.

Conflict of Interest

All the authors have significant contribution in framing and compiling the study. There is no conflict of interest between authors in view of finance or any other matter related to article.

REFERENCES


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