Penile Fracture- Outcome of Early Surgical Intervention

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Abstract
Background To evaluate the clinical features, treatment options and outcome of different modalities of treatment, for penile fracture.

Methods: In this descriptive study cases of penile fracture were enrolled on the basis of history, physical examination. Cause of fracture and extent of urethral damage was assessed. In patients who underwent surgical exploration, urethral tear was repaired. In patients with complete urethral transection end to end anastomosis was performed.

Results: Out of 32 cases, 27 (84.4%) underwent surgical exploration, 5 were conservatively managed because of refusal from surgery. Surgery was performed in 27 patients (all had fractures). Majority (70.4%) had tear of tunica albuginea of Rt. Corpus cavernosum. In 06 (22.22%) cases associated urethral injury was found. In 02 cases, with complete urethral transection, end-to-end anastomosis was performed and good voiding function (urine flow rates 22-24 ml/sec mean 23.4ml/sec) was achieved. All 27 cases achieved normal curvature and erectile function. Among 5 patients submitted to conservative management, 2 developed curvature abnormality but with satisfactory erection, one patient has mildly painful erection requiring analgesics before sexual activity and one patient has residual penile mass unable to perform sexual activity.

Conclusions: Penile fracture is a urologic emergency requiring clinical diagnosis and early surgical management to avoid complications related to erectile dysfunction.

Key words: Penile Fracture.

Introduction
Penile fracture is one of the rare, under reported urological emergency. It is defined as a rupture of the corpus cavernosum due to blunt trauma to an erect penis. It can be accompanied by partial or complete urethral rupture or with injury to a blood vessel such as the deep dorsal vein. The most common cause of penile fractures is sexual intercourse. Masturbation is also reported as a cause of penile fracture. It can occur during a nocturnal erection due to the patient rolling over his own body. Clinical presentation of penile fracture is usually typical. Patients report hearing a snap sound followed by pain, immediate detumescence, with development of penile swelling due to hematoma and leading to penile deformity. If associated urethral injury has occurred there may be urethral bleed, hematuria and difficulty in voiding may be observed.

The treatment of choice for penile fracture is immediate surgical repair of the defect in the tunica albuginea of corpus cavernosum with evacuation of hematoma. Surgery reduces the risk of developing the complications like post traumatic curvature, erectile dysfunction and allows earlier resumption of sexual activity. Conservative treatment has only place when patient refuses surgery. Though penile fracture cases were managed conservatively claiming satisfactory results, but currently there is no role for conservative treatment and it has now been abandoned by most surgeons because of its high complication rate (25% to 53%). Non-operative management leads to unacceptable deformity, prolonged hospitalization, residual penile mass, pulsatile cavernosal diverticulum, and expanding penile haematoma.

Patients and Methods
In this study 32 patients, admitted in Urology Department of Benazir Bhutto Hospital, between January 2001 and December 2010, with clinical diagnosis of penile fracture were included(fig. 1). The most common cause was trauma sustained during sexual intercourse and occurred in 29 patients (90.6%). Three patients (9.4%) had injury to erect penis while rolling over in bed. The time elapsed from injury to arrival in the emergency department was from 1 hour to 48 hours (Mean 6.4 hours). The diagnosis was made on the basis of typical history i.e. popping sound, pain and immediate detumescence, followed by progressive swelling and ecchymosis and local examination of the genitalia. Surgical exploration was done in 27 patients. In all cases the organ was degloved by sub coronal incision. After incising Buck’s fascia, underlying hematoma was evacuated (fig2). All patients had a rent in the corpora cavernosa which
was repaired with 2/0 vicryl by applying continuous sutures (fig 3 & 4). Associated urethral injury and partial penile urethral tear were repaired with 4/0 vicryl. Complete urethral transection was repaired by end to end anastomosis. All the urethral injuries were repaired by applying interrupted stitches. The incision in Bucks fascia was closed with interrupted 4/0 vicryl sutures. Skin closed with 2/0 vicryl and pressure dressing was applied on all patients. Foley catheter was passed in all patients to drain urine. Oral Diazepam was given to reduce frequency of erection in the post-operative period. The catheter was removed after two days in patients without urethral injury, after 10 days with partial urethral injury and after 21 days who had associated complete urethral disruption.

Results

The mean age of the patients was 35yrs (range 19yrs - 53yrs). Majority(90.6%) were married. Twenty seven patients (84.4%) under went surgical exploration. Out of all surgical patients 19 (70.4%) patients had disruption of tunica albuginea of Rt. Corpus cavernosum and in 8(29.6%) cases disruption of tunica albuginea of Lt Corpus cavernosum was found. The length of the rent in the corpora was ranging from 0.8cm to 3.5cm.In all the cases the rent was involving one corpus only. All patients, except two, had uneventful recovery and were discharged on 5th day. Two patients with skin necrosis, were managed conservatively with satisfactory cosmetic and functional outcomes. The hospital stay of operated cases was ranged from 5days to 12 days. Five patients were managed conservatively with cold applications, pressure dressings, injectable antibiotics, catheterization, anti-inflammatory drugs, and erection suppressing drugs. They had long hospital stay, delayed resumption of sexual activity, persistence of curvature in two patients and one patient had residual mass.

All 32 patients were followed up in the out-patient clinic. Majority of the patients returned to the normal sexual activity, with acceptable curvature and normal voiding function. Six patients with associated urethral injury were followed up for 05 years had good mean urinary flow rate of 23.4ml/sec (22ml/sec-24ml/sec), so retrograde urethrogram was considered unnecessary.

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>No(%)</th>
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<tbody>
<tr>
<td>Rent in Corpora Cavernosa</td>
<td>32(100%)</td>
</tr>
<tr>
<td>Urethral Injury</td>
<td>6 (18.75)</td>
</tr>
<tr>
<td>Partial urethral Tear</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>Complete Urethral Transection</td>
<td>2 (6.25)</td>
</tr>
</tbody>
</table>

Discussion

The tunica albuginea, about 2 mm thick in the flaccid state, is one of the toughest fascias in the human body. Its thickness is reduced to 0.25-0.5 mm during erection, and it becomes vulnerable to traumatic injury. The firmly engorged corpora under the strain of buckling can generate pressures in excess of 1500 mm Hg and exceed the limit of the thinned tunica. Initially regarded as a relatively rare injury, fracture of the penis is now increasingly reported. Causes of penile fractures are varied in different geographical locales. In Western countries, cause of penile fracture in most cases is strike of erect penis against symphysis pubis or perineum after slippage of penis out of vagina during intercourse. In Middle East penile fracture is more common than Western world and cause in most cases is self inflicted manipulation and injury during masturbation. In Japan, only 19% of cases are attributed to sexual intercourse, with the majority of cases reported as the result of masturbation and rolling over in bed onto an erect penis. Majority of the cases in Mediterranean countries are the result of patients snapping their penis during erection. In Iran, only 8% of the cases were attributed to sexual intercourse; the remaining cases were due to self manipulation and potentially fabricated events, i.e., donkey bite to the erect penis, penile injury while falling from mountain and a brick falling onto an erect penis. In our setup the causes of penile fractures are manipulation, sexual maneuver, rolling or fall on bed, direct blow on erect penis, reverse coitus and accidentally during sleep.

Patients typically present with complaints of a classic “cracking” sound, excruciating pain, rapid
Several techniques for the surgical repair of penile fractures have been proposed, including penile degloving, longitudinal incision over the hematoma, inguino-scrotal incision, suprapubic incision and high scrotal midline incision on the raphe. In the present study circumferential degloving was employed. It provides the maximum exposure of all three corpora with an acceptable complication rate. In multiple corporal fractures or in concomitant urethral injury no incision, other than circumferential degloving is comparable. Non-absorbable sutures can cause painful, palpable knots and should be avoided.

Conclusions

1. In suspicious urethral injury immediate exploration by degloving technique is helpful, but use of MRI and cavernosonography should be contemplated, if required.
2. Ultrasound is helpful in detecting the site and length of rupture.

References