

## PENILE FRACTURES: EVALUATION, THERAPEUTIC APPROACHES AND LONG-TERM RESULTS

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### ABSTRACT

**Purpose:** Traumatic rupture of the corpus cavernosum of the penis is rare and has been reported infrequently. We demonstrated the moderate frequency and most common etiologies of this condition.

**Materials and Methods:** Between February 1990 and June 1993, 68 patients underwent an emergency operation 3 hours to 4 days after penile fracture.

**Results:** Among 32 patients who completed a questionnaire functional results were excellent except for 3 with penile curvature and pain during coitus who underwent surgery more than 48 hours after injury.

**Conclusions:** Fracture of the penis is a common urological problem. In our series the most common cause was manipulation. To avoid serious complications immediate surgical intervention is recommended.

**KEY WORDS:** penis; wounds and injuries; fractures; genitalia, male

Penile fracture is an unusual urological emergency that is not always reported (see figure). The true incidence is unknown but 110 cases were reported in the literature until 1983.<sup>1</sup> The injury consists of rupture of the tunica albuginea of 1 or both corpora cavernosa in an erect penis. The corpus spongiosum and urethra may be involved. In our patients penile fracture usually was due to manipulation, that is the patient awakened with an erect penis, which he forcibly and manually deflected downward. Other causes included sexual maneuvers, a fall onto the erect penis and hitting the floor during coitus (see table). Characteristically, all patients heard a cracking sound associated with sharp pain followed by immediate loss of the erection, deformity, discoloration and swelling of the soft tissues.

### MATERIALS AND METHODS

Between February 1990 and June 1993, 68 patients 14 to 50 years old (mean age 28) were hospitalized with penile fracture and only 32 completed a questionnaire designed to evaluate the condition. To determine functional results post-operatively, in addition to completion of the questionnaire the patients were interviewed directly. Followup ranged from 1 to 3 years (mean 16 months).

At presentation to the hospital a careful history was obtained and physical examination was performed to ascertain the cause of the fracture, interval since injury, extent of penile hematoma, signs of blood at the external meatus and side of penile curvature. Blood was present at the meatus in 6 patients and urethrography did not demonstrate extravasation or a urethral wall tear. At emergency operation a 16F urethral Foley catheter was placed and the penis was explored through a circular subcoronal incision. The indwelling urethral catheter was necessary to prevent inadvertent urethral damage during exploration. No urethral wall disruption or trauma was noted. In all patients the tunica albuginea of the corpora cavernosa in the proximal third of the penis was torn (range 5 to 15 mm.) but the corpus spongio-

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Penile fracture after 2 hours

sum was intact. The tear in the tunica albuginea was unilateral and transverse in all cases, involving less than half of the circumference of the corpus cavernosum. Defects in the tunica albuginea were repaired with 4-zero polypropylene interrupted sutures and the hematoma was evacuated. Operations were performed 3 hours to 4 days after injury. Only 6 patients were treated within 7 hours and no complications were noted. The urethral catheter was removed after 24 hours and the patient was discharged from the hospital 1 to 2 days postoperatively. Prophylactic antibiotics (usually cephalexin) were also given but anti-inflammatory drugs were not prescribed. The use of diazepam has been recommended to decrease the frequency and intensity of erections but the dosage required for flaccidity causes pronounced somnolence as a side effect.<sup>2</sup>

### RESULTS

Average interval to presentation was 30 hours. No patient had difficulty with urination. In our series only 1 case was

*Characteristics of penile fracture in 32 patients*

	No. Pts.
Cause:	
Sexual maneuvers	1
Manipulation	25
Fall onto erect penis	5
Fall to floor during coitus	1
Site of injury:	
Rt. dorsolat. distal penis	12
Lt. dorsolat. distal penis	20
Complications:	
Penile curvature	2
Pain during coitus	1
Residual fibrotic area	2
Wound infection	2

due to coitus. There were no significant postoperative complications and the patients were discharged from the hospital 1 to 2 days postoperatively. Of the patients 27 had a normal penis on erection with excellent functional results, 2 had mild curvature, 1 had pain at the repair site during coitus and 2 had a residual area of fibrosis due to nonabsorbable suture material. Penile curvature and pain during coitus were noted only in patients who underwent surgery more than 48 hours after injury. Patients with penile curvature had no difficulty with coitus and did not seek any treatment but the cosmetic appearance was altered. The patient with the painful repair site reported tolerable pain that occurred only in the erect penis. He had no problem with coitus and no treatment was offered.

Wound healing was uncomplicated and there was no skin necrosis. Wound infection occurred in 2 patients despite routine prophylactic antibiotic therapy. All patients were potent.

#### DISCUSSION

In our experience penile fracture is a moderately common injury that is easy to diagnose but there is some controversy about the therapeutic approach. Many support the necessity for immediate surgery.<sup>3,4</sup> Patients in whom treatment was delayed presented with a residual fibrous area associated with slight deviation of the penis during erection. However, regular sexual function was possible. Late or postponed surgery achieved less favorable results due to urinary extravasation, fibrous tissue formation, sepsis and incision of deeper intracavernous fibrotic tissue.<sup>3</sup>

The aim of immediate surgery is to avoid formation of the fibrous tissue that causes penile curvature, achieve good results, shorten hospital stay and prevent possible penile deformity. With lesions diagnosed soon after injury the hematoma was limited but with late presentation and delayed treatment the hematoma had spread to the scrotum, perineum, groin and hypogastrium. Preoperative cavernosography has been strongly recommended by some to demonstrate the site of injury and to aid in planning the surgical approach.<sup>5,6</sup> None of our patients underwent cavernosography.

We performed preoperative urethrography only when urethral injury was suspected. The absence of associated urethral rupture in our series is due to the high incidence of manipulation injuries. The violence and trauma that occur during manipulation are much less severe than with injuries caused by falls or during sexual intercourse. Perhaps the cause of the urethral bleeding was a mucosal injury.

The surgical approach is by a subcoronal circumferential<sup>1,7</sup> or dorsal longitudinal incision. A simple dorsal longitudinal incision<sup>8</sup> may be sufficient for a recent simple lesion with limited hematoma and edema but the site of injury must be identified by palpating the penile shaft between the thumb and index finger. We were able to identify the site of injury preoperatively in all of our patients. To identify the site of the lesion cavernosography may be performed. We recommend a circumferential coronal incision made under the glans to expose the corpus cavernosum, and repair the tunica albuginea and any associated conditions. Prompt surgery allows for earlier resumption of sexual activity with less likelihood of fibrous tissue formation, chordee, painful erection and psychophysical, social or medicolegal problems. Postoperative complications were noted only in patients who underwent delayed repair. When treatment is not performed initially the resultant penile curvature may be repaired by delayed surgical exploration with either excision of the organized hematoma, delayed repair of the laceration or placement of a dermal graft within the defect.<sup>9</sup>

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