

## PENILE FRACTURE - EXPERIENCE IN 56 CASES

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### ABSTRACT

**Objective:** The aim of this work is to report the diagnostic and therapeutic options for 55 patients with clinical diagnosis of penile fracture.

**Material and Methods:** The patients were retrospectively assessed between 1982 and 2002. The primary diagnostic evaluation method for 55 patients (56 fractures) was clinical history and physical exam. Ten (17.8%) cases required complementary exams. Ultrasound (US) was performed in 2 cases, and magnetic resonance imaging (MRI) in 1 case. Retrograde urethrocytogram was performed in suspicious urethral injury, which happened for 7 patients.

**Results:** Of 56 assessed cases, 49 (89.5%) were submitted to surgical exploration, and only 7 were conservatively conducted. Surgical treatment was performed in 48 patients (49 fractures), in these cases, 47 (95.9%) presented tunica albuginea disruption and solely 2 (4.1%) evidenced lesion of dorsal vein. Ultrasonography confirmed disruption of tunica albuginea in 1 (50%) case, and in the other it was not possible to determinate the origin of the lesion, and the patient was submitted to surgical exploration, which confirmed the condition. MRI was used only in 1 case, confirming the lesion. Among 7 patients submitted to conservative management, until now, 3 (42.8%) required surgical intervention to correct penile chordee.

**Conclusions:** Penile fracture is an entity of eminently clinical diagnosis, which management should be surgical and immediate, avoiding thus complications related to erectile dysfunction. When suspecting an associated urethral injury, Urethrocytogram is recommended. In cases where there is diagnostic uncertainty, ultrasound and/or MRI may be used to reveal the condition.

**Key words:** penis; urethra; fractures; therapeutics; surgery  
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## INTRODUCTION

Penile fracture is one of the less frequent urological traumas. There are 183 reports about this subject published, with 1,331 cases described from 1935 to 2001 (1). It is defined as a rupture of the corpus cavernosum due to a blunt trauma in an erect penis. Lesions on a flaccid penis or lesions in the suspensor ligament of the penis are not included in this definition (2).

Vaginal intercourse is the most common cause of penile fractures (1,3-5), masturbation is also reported as a cause of penile fracture (6). In lower inci-

dence, the lesion could occur during a nocturnal erection due to the patient rolling over his own body.

Penile fracture has a quite typical clinical presentation. Patients report hearing a snap sound followed by pain, penile detumescence, and late appearing swelling, hematoma and penile deformity (7-9). In the presence of associated urethral injury, happening in 10% to 20% of the cases, findings as urethral bleeding, hematuria and difficulty voiding may be observed (8,10).

There are several reports about management and complications in patients with penile fracture; yet, studies with longer follow-up, and reports about

ultrasound and MRI use as diagnostic tools are uncommon.

The aim of this paper is to report the experience of 56 cases assessed in 55 patients, admitted to our facility with a clinical diagnosis of penile fracture in the last 20 years, and discuss the therapeutic and diagnostic options to this type of lesion.

## MATERIALS AND METHODS

In the period between January 1982 and May 2002, 55 patients (56 fractures—the same patient having had 2 fractures in a 90 days interval) with clinical diagnosis of penile fracture were admitted in our facility and retrospectively assessed. Patients' age ranged from 18 and 63 years (mean 33 years). Sexual trauma was the most common cause corresponding to 53 (94.7%) cases, followed by lesion due to penis manipulation in 3 (5.3%) cases. Time elapsed from the trauma to the arrival at the hospital ranged from 2 hours to 3 weeks (mean 14 hours).

Primary diagnostic assessment was clinical history and physical exam (Figure-1). In 10 (17.8%) cases, complementary exams were required. Ultrasound scan was used in 2 cases and MRI in 1 case. Retrograde urethrocytogram was performed solely when urethral injury was suspected, what happened to 7 patients.

## SURGICAL TECHNIQUE

The surgical technique used consisted of a subcoronal incision, with penile degloving and exposure of the corpora cavernosum and urethra. Bladder catheterization was routinely performed, except for the cases where a urethral injury was suspected. All corpora cavernosa lesions identified during surgical exploration were treated by interrupted polyglactine 3-0 sutures. Urethral lesions were primarily corrected with interrupted absorbable polyglactine 5-0 sutures. Bladder catheter was maintained during 12 hours after the surgical procedure conclusion for patients without urethral lesions; 7-10 days in patients with partial urethral injury; and 14-21 days in patients with total urethral section.



**Figure 1** - Patient with penile fracture, with an hematoma extending through the whole penis.

Only 1 patient required Penrose #1 drain owing to the severity of the lesion (bilateral albuginea disruption and total urethral section), and the presence of a large hematoma. The drain was withdrawn at hospital discharge.

## RESULTS

From 56 cases assessed, 49 (87.5%) were submitted to surgical exploration, and only 7 (12.5%) were conservatively managed. Table-1 shows lesions observed during surgical exploration.

From 48 patients (49 fractures) submitted to surgical procedure, 47 (95.9%) presented disruption of tunica albuginea and only 2 (4.1%) showed lesion of the dorsal vein (Figure-2). In 6 (12.2%) patients urethral injury occurred, and in all these we found associated corpus cavernosum lesions.



**Figure 2** - Patient with history suggesting penile fracture. During surgical exploration, only dorsal vein (arrow) rupture was identified.

**Table 1** – Lesions found in patients presenting penile fractures submitted to surgery. Patients with urethral lesion presented associated corpus cavernosum lesion, and in 2 cases, lesions were bilateral.

Type of Lesion	Cases	%
Corpus cavernosum only	41	83.6
Dorsal vein only	2	4
Urethra + corpus cavernosum	6	12.2
Total	49	100

From 47 penile fracture cases, with albuginea disruption, 45 (95.7%) presented unilateral lesion, and 2 (4.3%) bilateral lesion. Both cases of bilateral corpora cavernosa lesion were associated to urethral injury. Lesion size ranged from 0.3 cm to 4.0 cm (mean 1.5 cm).

In the group of patients submitted to surgical exploration, 32 had follow-up longer than 1 year. In this group, there was no complaint about erectile dysfunction after the trauma, and only 2 (6.2%) patients developed slight penile curvature, without sexual function impairment.

We have observed urethral bleeding and difficulty voiding in 7 (12.5%) cases, for which

Urethrocytogram was performed, evidencing contrast medium leakage in 6 cases. After their surgical exploration, the urethral injury was confirmed in all 6 cases, demonstrating the exam accuracy. Of 6 patients with confirmed diagnosis of urethral injury, only 1 had total lesion. Among these patients, 4 presented unilateral corpus cavernosum lesion, and 2 presented bilateral lesion.

Ultrasound study confirmed an albuginea disruption in 1 (50%) case, in the other, it was not possible to determine the lesion, and the patient was submitted to surgical exploration that confirmed the condition. MRI was used in only 1 case, confirming the lesion (Figure-3).

Among 7 patients conservatively managed (treatment decided by the urologist during the admission), until nowadays 3 (42.8%) needed surgical procedures to correct the penile chordee.

**DISCUSSION**

There are few reports with a significant series about penile fracture in the literature (11). Penile fracture is an entity that generally has its diagnosis confirmed by its clinical presentation. The typical history, associated with physical exam findings, exempts performing complementary exams. For the rare exceptions where there is diagnostic uncertainty, some imaging methods may be used.



**Figure 3** - A) Sagittal view of MRI showing rupture in the tunica albuginea (arrow). B) Frontal view of the same patient showing disruption in the tunica albuginea of the corpus cavernosum (circle).

Ultrasound has a limited role in the diagnosis of penile fracture (12-14). As it is an examiner-dependent method, for which interpreting depends on the examiner's experience, rareness of these lesions often precludes an accurate diagnosis (12). Small albuginea disruptions and the presence of clots at the place where fracture site occurred may easily be unperceived (12-15).

In both cases assessed by ultrasound, albuginea disruption was observed only in 1 patient. However, as it is a non-invasive method, with low cost and accessible in the great majority of institutions, it may help to evaluate uncertain cases.

Magnetic resonance imaging has been also used for demonstrating corpus cavernosum lesions (11,12,16,17). Its high accuracy can discriminate the intensity of corpora cavernosa vascular sinusoids (high intensity) relative to tunica albuginea (low intensity), allowing for accurate diagnosis (12,16,17). Nevertheless, it is a high-cost exam, and it is not available at most institutions. In our series, only 1 patient (with diagnostic uncertainty) was submitted to this exam, with an accurate confirmation of the lesion.

In suspicion of urethral injury, an urethrocytogram shall be performed. As it is a low-cost exam, easy to perform and highly accurate, all patients with an urethral injury suspected were submitted to the exam. Of 7 cases assessed, 6 presented contrast medium leakage. After surgical exploration, urethral injury was confirmed for all 6 cases. However, it is worth remembering that, in other published series, Urethrocytogram did not demonstrate this efficiency, being thus criticized by some authors (8,18).

Previous studies report 10% to 41% complications rates from conservative management of penile fracture, and surgical treatment is, thus, the main option for this type of trauma (4,6,7,11,12,18-20). We have observed medical complications for 37.5% of conservatively managed patients, supporting the data presented in previous publications. In our series, none of surgically treated patients presented penile curvature during post-operative period, a relatively infrequent complication that generally does not affect sexual intercourse (21).

During sexual intercourse the rupture of dorsal vein of the penis may occur, leading to a clinical

presentation similar to penile fracture (22). Differentiating these 2 types of trauma sometimes is possible only through surgical exploration, which is the treatment of choice for both conditions. Among 56 cases in our series, only 2 presented dorsal vein of penis lesion.

Disagreement about the type of incision to be used in treating penile fracture remains. Longitudinal incisions over the area where the fracture is suspected, parapenile incisions exposing shaft or even inguino-scrotal incisions were proposed (23-25). Penile deglovement, however, offers a better exposure, in addition to allowing evaluation of both corpora cavernosa and corpus spongiosum.

## CONCLUSIONS

Penile fracture is an entity which diagnosis is eminently clinical, and its management should be surgical and immediate, avoiding thus complications related to erectile dysfunction.

In suspicious of urethral injury, Urethrocytogram is recommended. In cases where there is diagnostic uncertainty, an ultrasound and/or magnetic resonance imaging may be use to reveal the condition.

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