

Case Series

Penile fracture in the general hospital of Mexico: prevalence and case series

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ABSTRACT

Penile fracture is a rare urological emergency and a condition rarely reported in the literature. This lesion is produced by a break in the continuity of the tunica albuginea of corpora cavernosa, due to trauma to the erect penis. When the fracture occurs, patients may report a popping sound followed by severe pain, bruising, ecchymosis, and deformity. Diagnosis is based primarily on clinical history and examination; in some cases, ultrasound may be useful to confirm the diagnosis. It is a urological emergency that requires adequate and prompt attention in order to prevent serious sexual complications. Below, we present a series of 18 cases of penile fracture that were treated at the General Hospital of Mexico, with emphasis on sexual function after surgical repair.

Keywords: Penile fracture, Sexual function, Complications

INTRODUCTION

Penile fracture is a rare pathology with an incidence of 1 in 175,000.¹ It is defined as rupture of tunica albuginea of the corpora cavernosa due to trauma.² In Mexico it is difficult to determine a specific incidence because many cases are not reported. There are different mechanisms of penile trauma that vary in frequency depending on the geographical area. In US of America, sexual activity is reported as 1st cause, in Japan, masturbation, and in Muslim countries, self-fracture to force "Taghaandan" detumescence.^{1,4} First documented repair by Fernstrom in 1957.⁷ Initially, benefit of conservative versus surgical treatment was discussed in years 1960-1990, however, benefit of surgical treatment to avoid complications is currently clear.^{3,4} Complications are highly varied, the most studied being the formation of nodules, penile curvature, erectile dysfunction, Peyronie's disease, surgical site infections, aneurysms, and need for surgical reintervention.¹ Aim was to predict risk of complications

through association with patient characteristics such as comorbidities, age and weight; and characteristics of fracture such as the fracture mechanism, including in analysis even sexual position; likewise, clinical characteristics at the time of the fracture event and at time of presentation for care such as: penile deformity, volume increase, pain, and lately analyzing the size, 3rd, and laterality of the tear.^{1,7,9}

Based on this knowledge, the present study is carried out, presenting the clinical experience of the General Hospital of Mexico in 18 patients with penile fracture.

CASE SERIES

Identified 18 patients diagnosed with penile fracture who were treated in ED of general hospital of Mexico during period from January 1, 2020 to July 31, 2023, age of patients-40 years and all of them underwent surgical management (Table 1).

Case 1

A 69-year-old with medical history dyslipidemia presented with genital pain of 3 hours of evolution, he refers that he was maintaining sexual activity when he felt extremely pain as well as heard a crack in his penis, he comes to the emergency room where an ultrasonograph is performed, finding the penile fracture of the proximal third with an 8.5 cc hematoma with apparent component of dorsal branches of the dorsal penile artery. He refers during the act he was using phosphodiesterase inhibitors. A penis exploration is performed with the following findings: proximal fracture of 1x1 cm, repaired with the no complications. Patient is discharged one day after. Follow up reports the patient with the no consequences.

Case 2

A 25-year-old male with toxicological history (cocaine and alcoholism) was admitted to the ER presenting multiple gunshot wounds. He was admitted by the emergency team due to a gunshot wound in his penis. At the physical exploration is found a 2 cm wound with neat borders. He was intervened surgically and found the following: 2x2 cm wound in the medial and distal third of the penis. He was also intervened for 3 wounds found in the abdomen and right limb. After surgery he went to UCI and 21 days later, he was discharged. On follow up the reports Peyronie disease to right and erectile dysfunction that don't respond to phosphodiesterase inhibitors.

Case 3

A 30-year-old male with alcoholism and tabaquism occasionally was admitted to the ER for presenting a gunshot wound in the genitals. At physical exploration we found a 2x1 cm wound in the dorsal face of the penis with edema and ecchymosis. No complementary studies were performed and he was admitted to the OR where we found a 4x3 cm lesion and 50% of the anterior circumference urethra injure. The surgery was made with no complications and he was discharged 1 day later. In the follow up the patient refers to have a 1 cm shortening of his penis and sexual disfunction.

Case 4

A 43-year-old male with alcoholism history was admitted in the ER presenting a gunshot trauma in genitals. Physical exploration is performed, finding a wound that compromises penis and scrotum, therefore he's taken to the OR for surgical exploration, where we found a 1x1 cm lesion in the proximal third of the penis and twenty percentages lesion of the anterior face of the urethra, lesion is repaired with no other complications. He was discharged one day later and in the follow up he refers a Peyronie disease to the left side that doesn't interfere with his sexual activity.

Case 5

A 50-year-old presented to the ER referring 8/10 pain in his penis, he refers to be having sexual relations with her wife and they heard a crack when the pain started. He is a user of tadalafil. Physical exploration is performed finding a sub-dermic hematoma of 2x3 cm so he is taken to the OR for surgical exploration. The surgery was performed with the following findings: 1x1 cm lesion in proximal third of penis repaired with no complications. In the follow up we found Peyroine disease to the right that don't intervene to his sexual activity.

Case 6

A 54-year-old male with a history of being overweight, reports having suffered blunt trauma to the penis, for which a diagnosis of fracture of the middle third of the penis is made. Using penile ultrasound, it is identified at the level of the base of the penis in the thickness of Buck's fascia, a lesion length of 1.5 cm is identified. Patient underwent surgery for penile fracture repair and circumcision, with a 3-day hospital stay. IIEF-5 score of 8 (severe dysfunction).

Case 7

A 35-year-old male with a history of hepatitis C infection, reports having suffered trauma to the penis during sexual intercourse, managing to hear a clicking sound, for which a diagnosis of fracture of the middle third of the penis is made. Penile ultrasound identified bilateral penile lesions of 1 cm each. Patient underwent surgery with exploration of the penis, with a 2-day hospital stay. IIEF-5 score of 23 (no erectile dysfunction). Patient perceives penis shortening of 2 cm

Case 8

40-year-old male with a history of being overweight and taking tadalafil. He refers to having suffered trauma to the penis when having sexual intercourse, managing to hear a clicking sound, for which a diagnosis of fracture of the proximal third of the penis is integrated. Penile ultrasound identified a fracture of the proximal right corpus cavernosum with a solution of continuity in the tunica albuginea, a hematoma between the tunica albuginea and Buck's fascia of 4.7 cc. Lesion length 1 cm. Patient underwent surgery by exploring the penis and repairing the tunica albuginea in the right corpus cavernosum, with a 2-day hospital stay. IIEF-5 score of 24 (no erectile dysfunction). Patient perceives deviation to the right of the penis when maintaining erections.

Case 9

42-year-old male with a history of being overweight. He refers to having suffered trauma to the penis when having sexual intercourse, managing to hear a clicking sound, for which a diagnosis of fracture of the proximal third of the

penis is integrated. Penile ultrasound identified a fracture of the proximal right corpus cavernosum with an adjacent hematoma of 5.1 cc. Lesion length 1 cm. Patient who underwent surgery for penile repair, with a 1-day hospital stay. IIEF-5 score of 24 (no erectile dysfunction). Patient perceives deviation to the right of the penis when maintaining erections.

Case 10

23-year-old male with a history of being overweight. He refers to having suffered trauma to the penis through a gunshot wound, for which a diagnosis of penile trauma is included. Penile ultrasound identified a rupture of the left corpus cavernosum at a proximal level with a scrotal and prepuce injury, as well as a urethral injury. Lesion length 1.5 cm. Patient underwent surgery by exploring the penis, with a 1-day hospital stay. IIEF-5 score of 21 (mild erectile dysfunction). Patient perceives deviation to the left of the penis when maintaining erections.

Case 11

A 54-year-old male with a history of being overweight and type 2 diabetes mellitus. He reports having suffered trauma to the penis during sexual intercourse, managing to perceive a clicking sound at the time of the injury, for which the diagnosis of penile fracture is integrated. Penile ultrasound identified a fracture of the right corpus cavernosum with a solution of continuity of the tunica albuginea. Hematoma located between the tunica albuginea and Buck's fascia of 24.4 cc, without evidence of vascular injury. Lesion length 1 cm. Patient underwent surgery by exploring the penis, with a 1-day hospital stay. IIEF-5 score of 25 (no erectile dysfunction). Patient perceives deviation to the left of the penis when maintaining erections.

Case 12

A 25-year-old male with no significant medical history. He refers to having suffered trauma to the penis when having sexual relations, managing to perceive a clicking sound at the time of the injury, for which a diagnosis of fracture of the middle third of the penis is integrated. A penile ultrasound identified a hematoma in the right corpus cavernosum. At the base of the penis with a hematoma with an approximate volume of 14 cc. Tunica albuginea without evidence of a solution of continuity at the time of the study, as well as edema of the subcutaneous tissue. Lesion length 1 cm. Patient underwent surgery by exploring the penis, with a 1-day hospital stay. IIEF-5 score of the 25 (no erectile dysfunction).

Case 13

A 22-year-old male with no significant medical history. He refers to having suffered trauma to the penis when masturbating, managing to perceive a click at the time of

the injury, for which a diagnosis of fracture of the middle third of the penis is integrated. Penile ultrasound identified a fracture in the right proximal third of the corpus cavernosum with rupture of the tunica albuginea associated with a small prealbumin hematoma, as well as a urethral lesion. Lesion length cm. Patient underwent surgery by exploring the penis and repairing the right corpus cavernosum, with a one-day hospital stay. IIEF-5 score of 23 (no erectile dysfunction). Patient perceives right deviation of the penis when having erections.

Case 14

A 53-year-old male with a history of being overweight and taking phosphodiesterase inhibitors (sildenafil). He refers to having suffered trauma to the penis while having intercourse, managing to perceive a clicking sound at the time of the injury, for which a diagnosis of fracture of the proximal third of the penis is integrated. Penile ultrasound identified a rupture of the tunica albuginea in the proximal right third, with an acute hematoma that extended towards Buck's fascia. Lesion length 2 cm. Patient underwent surgery by exploring the penis, with a 1-day hospital stay. IIEF-5 score of 25 (no erectile dysfunction). Patient perceives shortening of 1.5 cm when having erections.

Case 15

A 58-year-old male with a history of being overweight and microcytic anemia. He refers to having suffered trauma to the penis while having sexual intercourse, managing to perceive a clicking sound at the time of the injury, for which a diagnosis of fracture of the distal third of the penis is integrated. Penile ultrasound identified a 4-mm fracture of the penis in the left two-sided region, distal third, with adjacent hematoma and areas of ecchymosis and edema. Lesion length 4 mm. Patient underwent surgery for tunica albuginea repair plus hematoma drainage with a 1-day hospital stay. IIEF-5 score of 25 (no erectile dysfunction).

Case 16

A 35-year-old male with no significant medical history. He refers to having suffered trauma to the penis when having sexual relations, managing to perceive a clicking sound at the time of the injury, for which a diagnosis of fracture of the proximal third of the penis is integrated. Penile ultrasound identified grade III penile fracture at the level of the right base. Lesion length 2 cm. Patient who underwent surgical exploration of the penis with a 1-day hospital stay. IIEF-5 score of 24 (no erectile dysfunction). The patient perceives deviation of the penis to the right when maintaining erections.

Case 17

A 41-year-old male with overweight medical history came referring a one-hour old pain in his penis. He

referred to be having sexual activity when he heard a crack and the pain began. A ultrasound was performed reporting a right corpora cavernosa fracture with a collection of apparently hematic content of 7.7 cc. He was surgically intervened with a penis exploration right corpora cavernosa reparation and a circumcision reporting the following: 1×0.5 cm lesion in the proximal third of the penis with the no urethra injury, it was also found the right inguinal hernia that was not repaired in that particular surgery. The surgical intervention was performed without complications. He was discharged three days later. On the follow up patient refers a deviation to the right when his penis is erect that not interfere with his sexual activities.

Case 18

A thirty-six-year-old male with no medical history came to the emergency room for presenting pain in his genitals since four hours ago when he was masturbating and heard a crack. Ultrasonograph scan of the penis was performed finding a grade IV fracture in the tunica albuginea and a hematoma. An exploration of the penis and corpora cavernosa reparation was performed with a circumcision and reparation of the tunica albuginea with the following findings: 1.5×1 cm lesion in the proximal third with no other findings and no complications. He was discharged two days later and in the follow up he refers no other complication.

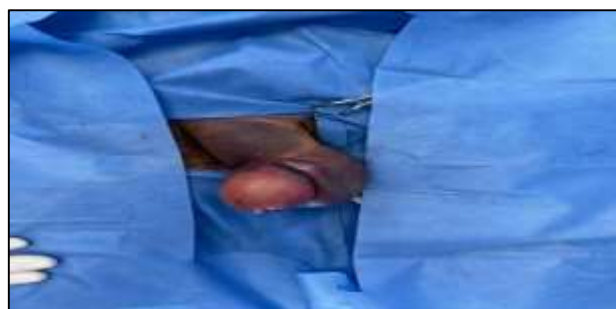


Figure 1: This pre-op picture shows clinical appearance of penile fracture.



Figure 2: Intra-op image of appearance of continuity solution of tunica albuginea of corpora cavernosa.

Table 1: Clinical summary of the patients studied.

Age (In years)	Mechanism of injury	Presentation of "click"	Third injured	Length of lesion	Complication	Erectile dysfunction
69	Sexual intercourse (woman above)	Yes	Proximal third	1 cm	No	No
25	Gunshot wound	No	Middle and distal third	2 cm	Right deviation	Severe
30	Gunshot wound	No	Middle and distal third	4 cm	Shortening of 1 cm	Severe
43	Gunshot wound	No	Proximal third	1 cm	Left deviation	No
50	Sexual intercourse (woman above)	Yes	Unspecified	1 cm	Right deviation	No
54	Blunt object trauma	No	Middle third	1.5 cm	No	Severe
35	Sexual intercourse (woman above)	Yes	Middle third	1 cm	Shortening of 2 cm	No
40	Sexual intercourse (woman above)	Yes	Proximal third	1 cm	Right deviation	No
42	Sexual intercourse (4 points)	Yes	Proximal third	1 cm	Right deviation	No
23	Gunshot wound	No	Unspecified	1.5 cm	Left deviation	No
54	Sexual intercourse (4 points)	Yes	Unspecified	1 cm	Left deviation	No
35	Sexual intercourse (woman above)	Yes	Middle third	1 cm	No	No
22	Masturbation	Yes	Middle third	1 cm	Right deviation	No
53	Sexual intercourse (4 points)	Yes	Proximal third	2 cm	Shortening of 1.5 cm	No
58	Sexual intercourse (woman above)	Yes	Distal third	4 mm	No	No

Continued.

Age (In years)	Mechanism of injury	Presentation of "click"	Third injured	Length of lesion	Complication	Erectile dysfunction
35	Sexual intercourse (woman above)	Yes	Proximal third	2 cm	Right deviation	No
41	Sexual intercourse (4 points)	Yes	Unspecified	1 cm	Left deviation	No
36	Masturbation	Yes	Unspecified	1.5 cm	No	No

DISCUSSION

In the general hospital of Mexico, a prevalence of 0.012% of the diagnosis of penile fracture was registered in the urology consultation during 2022, being the largest urological center in the country, the infrequency of this pathology is confirmed. In the old literature the conservative treatment was discussed vs the surgical treatment demonstrating superiority the second and currently the early treatment (<24 hrs) vs the late treatment is discussed having advantages the early treatment.^{1-3,7} In our center all patients present themselves to the emergency area and are operated on early, having 100% of this study within this group, unlike the literature that refers an average presentation of the patient to the emergency area of 28.9 hours.⁷ In the population characteristics, the age has a median of 40 years, which is slightly higher than those reported in other latitudes such as Africa 26.4 years; Asia 33.7 years; Europe 38.7 years; North America 37.6 years.² The 61% (n=11) presented the fracture while having sex, of them, 38.9% (n=7) referred to the sexual position of "woman up", and 22.2% (n=4) "puppy". What correlates with some studies that confirm these risk positions for the penis to have a blunt blow with the pubis.^{1,15,16} The next most frequent mechanism of injury was the wound by a firearm projectile, in 22.2% (n=4), and in third place masturbation with 11.1% which correlates with the literature if we exclude the second place occupied by the "Taghaandan" which consists of self-fracture which is practiced in the Middle East.^{4,9} The typical clinical presentation of clicking, pain and detumescence was presented in 66.7% that correlated the international literature of 69%, and in 100% of our patients hematoma and deformity were presented that correlated with the 97% reported in the literature.^{1,9} In our center, 100% of patients were diagnosed by clinic. The 50% presented lesion in the right corpora cavernosum, 11.1% in the left and 5.6% in both corpora cavernosa.

The third of the penis most affected was the proximal, followed by the middle and third distal third, which does not correlate with the literature where the first place is the middle.^{1,9}

The fractures had a median length of 1 cm with a minimum range of 0.4 cm and maximum of 4 cm, however, when grouped into smaller and greater than 2 cm, a direct relationship was found with erectile dysfunction (100%) in those greater than 2 cm, however, because there were only 2 patients of the 18 who had this

greater length. But it correlates with what is reported in the literature where when grouping patients with complications and without complications the first group has an average lesion of 20 mm and the second of 14 mm, which supports it as a predisposing factor to complications.⁷

83.3% maintained normal erectile function after fracture repair surgery, and 16.7% reported severe impairments of erectile function which is greater than the 1.9% to 11% reported in the literature when performing an early surgical intervention as it was in our patients.^{1,4,8} 56% of patients reported having a deviation of the body of the penis, likewise, 16.7% noticed a shortening of the penis in erection. This was higher than the 2.7-4% reported with surgical management and 13-16% with conservative treatment.^{1,4}

CONCLUSION

With the analysis of the series of cases presented, it can be concluded that in the general hospital of Mexico penile fracture occurs in the fourth decade of life. The most common mechanism of injury is sexual activity, in terms of sexual position the sexual position of the woman prevailed over the man. Finally, although it was infrequent, 3 cases of patients with severe sexual dysfunction after surgical repair were found, so this is a complication that must be taken into account both for the impact on the patient's life and in the overload of health services destined to the care of these patients.

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