Immediate Surgical Repair of Penile Fracture: Experience in 14 Cases

Mohammed A. Al-Ghazo,[1] Ibrahim F. Ghalayini,[1] Yousif S. Matani,[1] Ibrahim H. Bani-Hani[2]*

Abstract

Objective: The aim of this study is to detect the results of immediate surgical repair of penile fracture.

Patients and Methods: In the period from 1998 to 2008, 14 patients were treated at Princess Basma Hospital and King Abdullah University Hospital with the diagnosis of penile fracture. Patient's age ranged between 23 and 39 years (mean 30.1 years). The diagnosis was based on clinical history and physical findings. In the case with urethral bleeding, retrograde urethrogram was obtained. All patients underwent surgical exploration and repair within a few hours after presentation. Under general anesthesia, circumferential degloving incision was carried out, along the circumcision scar. Diazepam 10mg at night was used to prevent complications for 10 days. Patients were advised to avoid sexual intercourse for 8 weeks after surgical repair.

Result: The cause of penile fracture in these patients was rigorous masturbation in 4 patients, enthusiastic sexual intercourse in 3, trauma during rolling over in bed in 2 patients, manipulation of erected penis in 3 patients, during trying to lift up a watermilon by putting the erected penis in a whole made in it in 1 case, and direct trauma to erect penis in 1 patient. Only 7.1% experienced complications (decreased sensation was noticed on the left side of the penis in 1 patient). Erectile function was preserved in all patients without pain.

Conclusion: Immediate surgical repair of penile fracture gives an excellent long-term outcome. Most cases of penile fracture can be diagnosed on the basis of clinical findings, Blood at the tip of the penis indicates urethral injury, and so retrograde urethrogram is indicated in such cases.

Keywords: fracture, penis, urethra, rupture, corpus cavernosus, diagnosis.

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Introduction

Fracture of the penis or rupture of the corpus cavernosum is an uncommon injury, but probably under-reported entity. [1] The Tunica albuginea is a fibroelastic sheath surrounding the trabecular smooth muscle of the corpus cavernosum and composed mainly of thick collagen bundles and elastic fibres. [2] The tunica albuginea is susceptible to injury during erection because it

1. **Associate Professor of Urology, MD, FRCS, Department of Surgery and Urology, King Abdullah University Hospital, Faculty of Medicine, Jordan University of Science and technology, Irbid, Jordan.**
2. **Professor of Urology, MD, FRCS, Department of Surgery and Urology, King Abdullah University Hospital, Faculty of Medicine, Jordan University of Science and technology, Irbid, Jordan.**

**** Correspondence should be addressed to:***
Mohammed A. Al-Ghazo
P. O. Box: 3030, 22110 Irbid, Jordan
E-mail: alghazo@just.edu.jo

becomes less elastic and thins from a usual thickness of 2mm to 0.25-0.5mm. [3] Penile fracture is a serious urological disorder that demands surgical repair. In Western countries, it occurs most commonly during over enthusiastic sexual intercourse, usually due to striking the symphysis pubis or the perineum after the penis slips out the vagina.[4] In Middle Eastern countries, penile fracture occurs as a result of manipulation of the erect penis to achieve detumescence, [5-7] other mechanisms of injury are direct external blunt trauma, abnormal bending of the penis during masturbation, and rolling over in bed with an erect penis.[1]

Usually, the patient's history and physical examination are sufficient to diagnose the case of penile fracture. The patient may recall hearing a cracking sound followed by rapid detumescence of the erect penis, and at times severe local pain. Penile swelling, deformity and bruising then follow. A palpable tunical defect and a hematoma with a "rolling sign" are usually pathognomonic features.[8] In rare cases; superficial haematoma can result in a similar picture without an associated tunical tear, [9] and lead to unnecessary surgery. The urethra can also be injured, which occurs in 10-22% of reported cases, causing bleeding from the external meatus, inability to void, or exravasation of urine. [10, 11] Therefore, there is still a controversy over preoperative investigations and the proper method of treatment of the patients with this type of injury.

In this article, we report our experience in 14 cases treated as acute penile fracture at Princess Basma Teaching Hospital and King Abdullah university Hospital over the last 10 years.

Materials and Methods

Between 1998 and 2008, 14 patients of penile fracture were referred to Emergency Department in Princess Basma Teaching Hospital (PBTH) and King Abdullah University Hospital. Patient's age ranged between 23 and 39 years (mean 30.1 year). Findings on medical history and physical examination, the results of investigations and the details of management were recorded. Urine analysis was performed in all patients.

The diagnosis was made clinically in all cases, and no radiographic studies were used to confirm the diagnosis of the penile fracture. In the case with urethral bleeding, retrograde urethrogram was obtained.

All patients underwent surgical exploration and repair within a few hours after presentation. To prevent inadvertent urethral injury during surgical exploration, 16 F urethral catheters were placed in all patients. Under general anesthesia, a circumferential degloving incision was carried out; along the circumcision scar (all patients were circumcised at childhood for religious reasons). The Buck's fascia was opened and the haematoma evacuated (figure 1). The tunical tear was identified in all cases (figure 2a) and closed with interrupted 3-0 Nylon sutures (figure 2b.) The urethral catheter was removed after 24 hours, and the patient was discharged from the hospital 1 to 2 days after the operation. Ceftriaxone (third generation cephalosporin) was given as a prophylactic antibiotic for 3 days. Also, 10 mg diazepam at night was used for 10 days to decrease the frequency and intensity of erections which may disrupt the sutured corpus cavernosum. Patients also were advised to avoid sexual intercourse for 8 weeks after surgical repair.

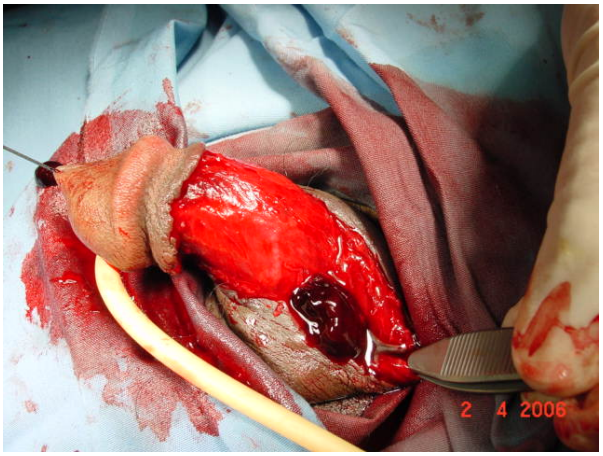

Figure (1): Buck's fascia was opened and haematoma evacuated.

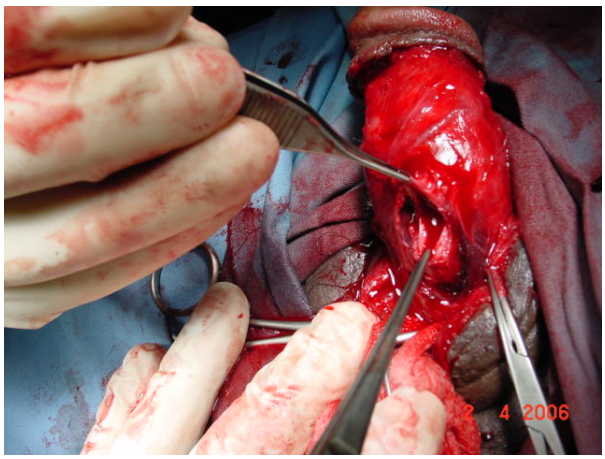

Figure (2a): Tunical tear is identified.

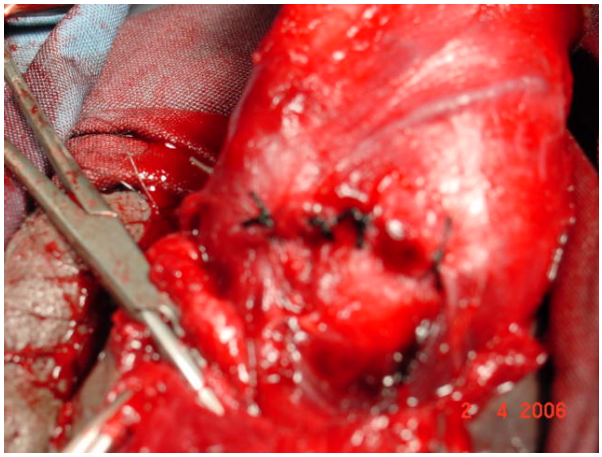

Figure (2b): Tunical tear repaired with interrupted sutures.

Results

During the study period, 14 patients with penile fracture were admitted to our hospital.

The cause of penile fracture in these patients was rigorous masturbation in four patients (28.5%), enthusiastic sexual intercourse in three (21.4%), trauma during rolling over in bed in two (14.3%) patients, manipulation of erected penis to achieve detumescence in three (21.4%) patients, during trying to lift up a watermilon by putting the erected penis in a whole made in it in one (7.1%) case, and direct trauma to an erect penis because of car accident was the cause of the case of one (7.1%) patient.

All patients presented within the first 24 hours after injury. None of them had abnormal erection before the trauma.

All patients experienced sharp pain at the time of injury and the erection was lost immediately after the injury. All of them noticed swelling and deformity of the penis and discoloration of the penile skin (figure 3). One patient reported blood at the tip of the penis and difficult urination. Retrograde urethrogram in this patient was negative.

During surgical exploration none of our patients had urethral injury, and all patients had tears in the corpus cavernosum. Apart from decreased sensation which was noticed on the left side of the penis in one patient, there were no operative or postoperative complications. Only 7.1% experienced complications (One out of 14 patients). Erectile function was preserved in all patients without pain. All patients had normal urination immediately after Foley catheter removal.

The follow-up period for all patients ranged from one to 38 months (average 13).

Figure (3): Deformity of the penis and discoloration of the penile skin.

Discussion

The age of patients with penile fracture discussed in the literature ranges from 27 to 42.5 years. [4, 12] The mean age in this series, 30.1 years, falls within this range.

In our series, only four of the 14 injuries were related to sexual intercourse (28.5%), which defers significantly from previous findings, where more than 58% (7 out of 12 patients) of injuries were not related to intercourse, [13] ($p<0.05$).

The diagnosis of penile fracture was made on a clinical basis in all our patients.

Preoperative diagnostic imaging studies are still a controversial issue. Although the diagnosis is mainly based on the clinical picture, several radiological investigations, including cavernosograpy, utrasonography, magnetic resonance imaging, and colour Doppler douplex scaning have been used to help in preoperative diagnosis. [14] Urethrography is mandatory in suspected urethral injury. [15]

We support Fergany et al. [4] in that the history and physical examination are reliable to confirm the diagnosis and there is no need for further imaging studies such as ultrasonography, cavernosography or magnatic resonance imaging. We also agree with Fergany et al. [4] in that additional diagnostic imaging studies should be used only in cases with equivocal clinical findings.

The incidence of urethral injury in our series was zero, similar to its incidence in some reported series[5], while other series reported an incidence percentage that is as high as 38%. [4]

Using the circumferential degloving incision, compared with a longitudinal incision directly over the fracture site[16] and a scrotal inguinal incision, [17] the best exposure of all three corpora with an acceptable complication rate was provided. Because all our patients had a previous circumcision, we found that it was more cosmetic to perform the incision at the site of the previous scar.

In agreement with most of the reported studies,[13,18] urethral catheter was inserted preoperatively in all our patients and was removed after 24 hours postoperatively. The catheter was used to prevent inadvertent urethral injury during surgical exploration and facilitated the application of compression dressing.

We used Nylon sutures for penile fracture repair. It was reported that Nylon is the suture of choice for penile fracture repair and produced no specific complications. e.g. increased nodule formation, related to its use. [12]

For a long period of time, immediate surgical repair of penile fracture has been considered as superior to conservative treatment, and proved to be the optimal method of management, with improved results, shorter hospitalization, and less chance of penile curvature. [14] It was reported that the complication rate of immediate surgical repair of penile fracture range between 4.7% and 12.2%. [12, 19] While the reported complication rate for conservative treatment was about 30%, in the form of persistent pain or angulations, arteriovenous fistula, or impotence. [20, 21] Our results are consistent with the literature.

Penile refracture at coitus has been reported at three weeks after the initial injury and while it is often ipsilateral, contra lateral recurrence is recognized. [14] Abstinence from coitus and penile manipulations for 6-8 weeks after fracture has been recommended to prevent recurrence. [14]

The use of Diazepam to prevent erections in the early postoperative period is still controversial, with some advocating its routine use [22] and others prohibiting its use, because they believe that erections do not increase complications and improve the patient's moral, as his anxiety have had lessened when he experienced erection postoperatively. [7] We agree with those who believe that it is necessary to use Diazepam routinely [22] and it was used in all our patients.

Conclusion

Immediate surgical repair of penile fracture gives an excellent long-term outcome. Most cases of penile fracture can be diagnosed on the basis of clinical findings, but radiological imaging such as ultrasonography or MRI may help in the diagnosis of equivocal cases which are very difficult to diagnose clinically so that to avoid

unnecessary surgical exploration.

Blood at the tip of the penis does not indicate urethral injury and retrograde urethrogram is indicated in such cases.

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الإصلاح الجراحي الفوري لكسر القضيب: تجربة في 14 حالة

محمد الغزو، ابراهيم الغلاييني، يوسف المتاني، ابراهيم بني هاني

قسم جراحة المسالك البولية، مستشفى الملك عبد الله الجامعي، كلية الطب، جامعة العلوم والتكنولوجيا الأردنية، اربد، الأردن

الملخص

الهدف: هدف هذه الدراسة هو تحديد نتائج الإصلاح الجراحي الفوري لكسر القضيب.

المرضى والأساليب: من عام 1998 إلي عام 2008، تم علاج 14 مريضاً في مستشفى الأميرة بسمة ومستشفى الملك عبدالله الجامعي، وقد تراوحت أعمارهم ما بين 23 و39 سنة (المتوسط : 30.1 سنة).

تم التشخيص بناءً على السيرة المرضية والفحص السريري. وفي حالة وجود دم خارج من الإحليل فإن ذلك يتطلب إجراء صورة ظليلة عكسية للإحليل. جميع المرضى أجريت لهم عملية جراحية خلال عدة ساعات من حضور المريض إلى المستشفى وذلك بإجراء جرح دائري حول القضيب مكان ندبة الظهور، وذلك تحت البنج العام. أعطي المرضى لمدة 10 أيام دواء الفاليوم لمنع حدوث مضاعفات، ونصح المرضى بترك الجماع لمدة 8 اسابيع بعد العملية الجراحية .

النتائج: سبب كسر القضيب عند المرضى كان استخدام العادة السرية المفرط عند 4 مرضى، الجماع بطريقة حماسية عند 3 مرضى، الإصابة أثناء التقلب بالفراش عند مريضين، محاولة تصحيح الوضعية وهو منتصب عند 3 مرضى، محاولة رفع بطيخة عن طريق عمل ثقب فيها بواسطة القضيب وهو منتصب عند مريض واحد. والإصابة المباشرة للقضيب وهو منتصب عند مريض اخر.

المضاعفات كانت فقط 7.1 % (نقصان الإحساس في الجهة اليسري عند مريض واحد). وظيفة الإحساس حفظت عند جميع المرضى بدون ألم.

الخلاصة: الإصلاح الجراحي الفوري لكسر القضيب يعطي نتائج ممتازة على المدى البعيد. معظم حالات كسر القضيب يمكن تشخيصها بناء على المعطيات السريرية. وجود الدم على نهاية القضيب يعتبر مؤشراً على إصابة الإحليل ولا بد في هذة الحالة من عمل صورة ظليلة عكسية للإحليل.

الكلمات الدالة: إصلاح جراحي فوري، كسر القضيب، صورة ظليلة عكسية، الإحليل.