

Role of Early Surgical Repair of Penile Fractures

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ABSTRACT:

BACKGROUND:

Fracture of the penis is a relatively rare condition that is defined as a rupture of the tumescent corpora cavernosa as a result of blunt trauma, most commonly during sexual intercourse or masturbation, which needs urgent surgical intervention to achieve good postoperative outcome.

OBJECTIVE:

To study the etiology and outcome of early surgical repair in patients presenting with fracture of penis.

MATERIAL AND METHODS:

This study carried out in the surgical departments of Al-Kindy teaching Hospital from June 2005 to March 2011. Patients with the clinical diagnosis of fracture penis were admitted and operated. All patients were admitted to the hospital 2 to 10 hours after injury. No invasive investigation was used for diagnosis. The treatment was surgical in all cases with subcoronal circumferential degloving incision, evacuation of hematoma and primary suturing of the tunica tear with absorbable suture. No drain was used and a light compression dressing was done in all patients. Catheter was removed on the second postoperative day. All patients had were followed up for 3-12 months postoperatively.

RESULT:

During the study period 30 patients aged 19 to 42 years, presented with a penile fracture were operated for fracture penis. Mean age at presentation was 31 years. The commonest cause of fracture penis was due to sexual intercourse. The commonest mode of presentation was with a cracking sound, local pain and immediate detumescence (90%, 96% & 100% respectively). All patients showed penile haematoma. None of the patients had urethral bleeding. All patients were surgically treated; at the time of surgery unilateral albuginea rupture was found in all cases. With follow up all cases were able to achieve an adequate erection. No complications such as deformations, penile plaque or erectile dysfunction were reported. Average hospital stay was 3.4 days.

CONCLUSION:

The commonest cause of fracture penis is due to sexual intercourse. The best treatment option is immediate surgical repair to obtain better functional outcome and to avoid potential complications.

KEYWORDS: fractured penis; erectile dysfunction; surgical management; morbidity.

INTRODUCTION:

Fracture of penis is a condition where excessive force applied to the long axis of penis in the erect state, results in rupture of the tunica albuginea of the corpus cavernosum. Tunica albuginea which is of 2mm thick during flaccidity become as thin as 0.25- 0.5 mm during erection and is over stretched by sudden increase in intracorporeal pressure.⁽¹⁾ it presents as a sudden penile pain and detumescence during sexual activity with tender, swollen, bruised penis on examination. Penetrating injury and injury to flaccid penis is not therefore included in this definition. Erect penis is more prone to trauma,⁽²⁾ the commonest causes being angulation during coitus mostly

with female-dominant position when penis slips out of vagina and strikes the perineum or pubic bone.⁽³⁾ and physical manipulation of the penis to overcome an erection. Other causes include masturbation, direct blow, forced bending, turning-over in bed, unconscious nocturnal penile manipulation. Discoloration and swelling may extend to scrotum and suprapubic space if Buck's fascia is also torn.⁽⁴⁾ Only in about 2-10% of cases, the presence of hematuria warrants investigations for rupture urethra by retrograde urethrography.^(5,6) Diagnosis is often made by a typical history with classical findings on physical examination. In doubtful cases, MRI⁽⁷⁾, cavernosography⁽⁸⁾ or Ultrasonography⁽⁹⁾ can be

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helpful. Treatment is immediate surgical repair because the complication rate of conservative management is 25-53%.^(10,11) Complications of penile fracture are penile curvature, erectile dysfunction, corporal narrowing, and pain during intercourse and fistulae.⁽¹²⁾ Ninety percent of

patients experience no problem during subsequent sexual intercourse after operation.⁽¹³⁾ The aim of the present study was to review the etiology, the effect of early surgical exploration and repair on the overall healing of these injuries and to determine the maintenance of erectile function.

Table 1: Etiology of fracture penis

Etiology of fracture penis	Etiology No. of pt (n=30)	percentage
Reverse Coitus (women on top position)	16	53.33
Physical manipulation of the penis to overcome an erection (includes masturbation)	8	26.66
Normal sexual intercourse	4	13.33
rolling over in bed	1	3.33
Accidental(direct blow)	1	3.33

MATERIAL AND METHODS:

This study was conducted in the surgical wards of Al-Kindy teaching Hospital from June 2005 to March 2011. All patients with the clinical diagnosis of fracture penis were considered for the study and all patients underwent immediate surgery. All patients were admitted to the hospital 2 to 10 hours after injury and all of them gave a clear history of sustaining blunt trauma to the erect penis, hearing a cracking or popping sound, followed by rapid detumescence, sharp penile pain and swelling. Assessment of the patients included a full history and a careful clinical examination with emphasis on the cause of the fracture, interval since injury, extent of penile hematoma, signs of blood at the external meatus and side of penile curvature. No radiographic studies were done to confirm the diagnosis. All the patients underwent surgery on the day of presentation. Penile degloving through a circumferential subcoronal approach, evacuation of the hematoma, and primary repair of the tear in the tunica albuginea with 0 or 2/0 vicryl continuous suture were performed in all patients. No urethral injury was found. Patients were catheterized with 16 Fr Foley catheter during surgery to prevent an inadvertent injury to urethra and removed on second postoperative day. No drain was used. Light Compression bandage was

applied for 24 hours and a third generation antibiotic was continued in the postoperative period for seven days. The Patients advised to abstain from sexual intercourse for six weeks. The patients had been followed up with emphasis on erection and voiding. Follows up visits were arranged at one week, 3 months, 6 months and 12 months.

RESULT:

During the study period 30 patients were operated on for fracture penis. The etiology of fracture penis is shown in table No 1. The age of patients ranged from 19-42 years (average 23 years). Regarding their marital status, 21 patients married living with wives, and 9 patients were unmarried. The clinical diagnosis was confirmed at surgery in all cases. All the tears in the tunica albuginea were unilateral and transverse with no urethral involvement. the anatomical sites of tunical tears are shown in table 2. The mode of injury was such that fracture occurred in 16 patients during reverse coitus ('the woman on top' position), in 8 by physical manipulation of the penis to overcome an erection (this includes masturbation), in 4 during normal intercourse, in 1 by rolling over the erect penis in bed and in 1

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patient accidentally by direct blow. Their clinical presentation is shown in table 3. Most of the patients heard a characteristic "cracking sound" during intercourse followed by immediate loss of erection along with severe pain and swelling of penis. The hospitalization period ranged from 2-5 days (average 3.4 days). Follow up was

arranged at 3 and 12 months. There were no significant post operative problems. All the patients reported normal erection and sexual activity except one patient who at the last follow up visit had not attempted sexual intercourse due to the fear of re-fracture.

Table 2: Side of penile corporal tear

Side of tear	No of patients (n=30)	percentage
Right corpus	23	76.66
Left corpus	7	23.33

Table 3: Clinical presentation of fracture penis

Presenting symptoms	No. of pt (n=30)	percentage
Cracking sound	27	90
Local pain	29	96.66
Immediate detumescence	30	100
Hematoma and swelling	30	100

Table 4: Site of penile corporeal tears

Site Of Rent	No of patients	percentage
Proximal	26	86.66
Middle	3	10
Distal	1	3.33

DISCUSSION:

During erection the engorgement of the corporeal bodies with blood thins out the surrounding tunica albuginea from 2mm to 0.5-0.25mm.⁽²⁾ this reduction in thickness and associated loss of mobility make the tunica albuginea of the erect penis vulnerable to fracture. The fracture is usually followed by hematoma at the site of fracture that can spread to the scrotum, perineum and suprapubic area when Buck's fascia is disrupted. The mechanism of injury is usually a direct blunt force causing a sudden bending of the erect penis. This most commonly occurs during vaginal intercourse either in the 'woman on top position' when her entire weight lands on the erect penis or in the 'missionary position' when the penis misses the introitus and is thrust against the symphysis pubis or perineum. A variety of other causes of penile fracture have been reported, including bending during masturbation or after a sudden deliberate penile kneading and snapping to achieve detumescence, or unconscious nocturnal manipulation.^(5,6) The management of penile fracture has previously been controversial because early reports favoured a non-operative approach. This included application of cold compresses, anti-inflammatory agents, instructions to abstain from sexual intercourse, and suppression of erections with antiandrogens.^(4,14) However, current literature tends to support immediate surgical repair. In a recent report the success rate was 92% for immediate surgical repair and 59% for conservative management.⁽¹⁵⁾ The complication rate for conservative management was reported to be about 30%, this included fibrous tissue formation with deviation of the penis during erection, prolonged hospital stay and impotence.^(15,16,17) compared with less than 10% for immediate surgical repair.⁽¹⁷⁾

All the patients in this series underwent immediate surgical repair to avoid the potential complications of conservative management. Several incisions to approach the fracture site have been described including a circumcising degloving incision, midline peno-scrotal, inguino-scrotal, and lateral incision.^(4,15,16) in this study a degloving circumferential subcoronal incision was used in all the cases because it allows excellent exposure of the whole penis and penile urethra. The usual age of presentation reported in the literature is from 26 to 41 years.^(1,4,19) In this study it was 31 years that fall in this

range. The commonest cause of penile fracture in this study was reverse coitus (16 patients). This was followed by physical manipulation of the penis to overcome an erection (8 patients) and normal sexual intercourse (4 patients). Etiology differs in different communities, in western series⁽¹⁴⁾ abnormal sexual intercourse has been found to be responsible in 58% of the patient where as in Gulf States⁽⁴⁾ the same cause is responsible for only 9.5 % of patients. All cases in this study were diagnosed on the basis of typical history and physical findings as is done in most of the centers worldwide.^(15, 16) Some investigators have recommended the use of ultrasound, cavernosography and magnetic resonance imaging to locate the site of the tunical tear before surgery.^(8,9,10) However, the positive predictive values in these studies have been shown to be similar to that of history and clinical examination.^(11,12) The operative findings in this study confirmed the clinical diagnosis in all cases, including the location of the tear. History and physical examination are, therefore, reliable enough to make a firm diagnosis and the added expense of these additional tests should be avoided. Because of the high incidence of complication rate, (up to 25-53%), conservative management of fracture penis is not recommended these days, as was practiced in the past.^(10,20,21) Prompt surgery gives better aesthetic and functional results and was adopted as a method of treatment in this study. Experience with penile and urethral surgery is important when lesion is severe or is associated with urethral injury. As a matter of fact surgical skills avoid postoperative complications such as shaft curvature, corporal narrowing or urethral stricture.^(5,12) Surgical treatment by a sub-coronal circumferential incision is the standard incision for all fractures.^{10,20} However in small proximal tears of tunica that can be felt as a gap, a longitudinal incision laterally over the same side is easy and equally good with no short or long term complications.^{4,5} in this study most of the tunical tears were right sided and proximal shaft. Sub-coronal circumferential incision was used in all cases. I used vicryl 3/0 for tunica repair. Absorbable sutures should be used for repair,¹⁵ non absorbable sutures may cause painful palpable suture knots and should be avoided.⁽¹⁶⁾ No medication is used for prevention of erection because pain during erection prevents penile

tumescence. Sexual intercourse and masturbation must be avoided for 6-8 weeks after the repair to prevent hematoma formation around sutured wound.⁽⁸⁾ Large hematoma leads to weak scar which is prone to refracture.⁽¹⁷⁾

All of the patients in this study were routinely catheterized before surgery, catheter was removed on the second postoperative day. This prevents urethral injury during surgery and allows the use of light pressure dressing to relieve edema and prevent hematoma formation. Its use is recommended by some^(1,3,13) and discouraged by others.^{6, 10} I found it useful and without any complication in the short or long term. The use of diazepam was found to be useful in all of my patients as it alleviates anxiety and possibly prevents erection. Its use is favored by some⁽¹²⁾ and discouraged by others.^(4, 22) the long term results of surgery in terms of aesthetic and function were excellent with no complaints. Similar findings are noted in international studies.^(15, 23, 24)

CONCLUSION:

The commonest cause of fracture penis is due to sexual intercourse. The best treatment option is immediate surgical repair. The patient's history and clinical examination is usually enough to make the diagnosis. There are virtually no long-term complications regarding aesthetic or functional aspects.

REFERENCES:

1. Eke N. Fracture of the penis. *Br J Surg* 2002;89:555-65.
2. Maharaj D. Re: Penile fractures in Kermanshah, Iran. *J Urol*. 2001;165:1223-24.
3. Ishikawa T, et al. Fracture of the penis: nine cases with evaluation of reported cases in Japan. *Int J Urol* 2003;10:257.
4. Van Der Horst C, Martinez Portillo FJ, Seif C, Groth W, Junemann KP. Male genital injury. *Br J Urol Int* 2004;93:927-30.
5. Gontero P, Muir GH, Frea P. Pathological Findings of Penile Fractures and Their Surgical Management. *Urol Int* 2003;71:77-82.
6. Heng CT, Brooks AJ. Penile fracture with complete urethral rupture. *Asian J Surg* 2003;26:126-27.
7. Abolyosr A, Abdel Moneim AE, Abdelatif AM, Abdalla MA, Imam HM. The management of penile fracture based on clinical and magnetic resonance imaging findings. *BJU Int* 2005; 96:373-77.
8. Ateyah A, Mostafa T, Nasser TA, Shaeer O, Hadi AA, Al-Gabbar MA. Penile fracture: Surgical repair and late effects on erectile function. *J Sex Med* 2008;5:1496-1502.
9. El Atat R, Sfaxi M, Benslama MR, Amine D, Ayed M, Mouelli SB, et al. Fracture of the penis: Management and long-term results of surgical treatment. Experience in 300 cases. *J Trauma* 2008; 64:121-25.
10. Ekwere PD, Al Rashid M. Trends in the incidence, clinical presentation, and management of traumatic rupture of the corpus cavernosum. *J Natl Med Assoc* 2004;96:229-33.
11. Koifman L. Penile fracture-experience in 56 cases. *Int Braz J Urol* 2003;29:35-9.
12. De Giorgi G, Luciani LG, Valotto C, Moro U, Praturlon S, Zattoni F. Early surgical repair of penile fractures: our experience. *Arch Ital Urol Androl* 2005;77:103-5.
13. Mydlo JH. Surgeon experience with penile fracture. *J Urol* 2001;166:526-28.
14. El-Bahnasawy MS, Gomha MA. Penile fractures: the successful outcome of immediate surgical intervention. *Int J Impot Res* 2000;12:273-77.
15. Cole FL, Vogler RW. Fractured penis. *J Am Acad Nurse Pract* 2006;18:45-48.
16. Kochakarn W, Viseshsindh V, Muangman V. Penile fracture: long-term outcome of treatment. *J Med Assoc Thai* 2002;85:179-82.
17. Muentener M. Long-term experience with surgical and conservative treatment of penile fracture. *J Urol* 2004;172:576-79.
18. Wessels H. Re: Non operative treatment of patients with preserved penile fracture. *J. Urol* 2001; 166:633.
19. Shaeero. J. Methylene blue-guided repair of fractured penis. *J Sex Med*. 2006;3:349-54.
20. Chung CH, Szeto YK, Lai KK. Fracture of penis: a case series. *Hong Kong Med J* 2006;2:197-200.
21. Beysel M. Evaluation and treatment of penile fractures: accuracy of clinical diagnosis and the value of corpus cavernosography. *Urology* 2002;60:492-6.
22. De Rose AF. Traumatic rupture of the corpus cavernosa: New physiopathologic acquisitions. *Urology* 2001;57:319-22.
23. Zargooshi J. Penile fracture in Kermanshah, Iran: the long-term results of surgical treatment. *Br J Urol Int* 2002;89: 890-94.

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24. Mydlo JH, Gershbein AB, Macchia RJ. Non operative treatment of patients with presumed penile fracture. J. Urol 2001;165:424-25.

