Rupture of the Corpus Cavernosum: Outcome of Surgical Management

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Abstract

Objective: The aim of this study is to present our experience in the management of patients with penile fracture by immediate surgical repair.

Patients & methods: A total of 14 men with fractured penis had been evaluated and treated from January 1994 to February 2003. Their age ranged from 20-35 years with a mean age of 25 years. All were managed by immediate surgical exploration with evacuation of the hematoma and repair of the lacerations.

Results: Our operative and post operative plan resulted in a brief hospital stay, very few complications and good to excellent results in 12 (86 %) of cases with preservation of normal penile erection, normal marital relations and no penile deformity.

Conclusion: These results compare favorably to operative management reported by most studies. Therefore, early surgical repair of the rupture is advocated.

Key words: Corpora rupture, penile fracture, Treatment, Outcome.

Introduction:

Generally penile injuries such as fracture of the penis with rupture of the erectile tissues are rare [1] . It is most often caused by a blunt trauma to or abrupt lateral bending of an erect penis breaking the markedly thinned and stiff tunica albuginea, resulting in a fractured penis [2].

In the Western countries the most common cause is vigorous sexual intercourse when the penis becomes dislodged from the vagina and sustains a buckling injury, other causes include industrial accidents, masturbation, gunshot wounds, or any other mechanical trauma that causes forcible breaking of an erect penis. In Middle Eastern countries the injury is usually due to penile manipulation to reduce an erection. Additional rare etiologies include turning over in bed, a direct blow, forced bending, or hastily removing or applying clothing when the penis is erect. [3, 4, 5]

The characteristic pathology is a tear in the tunica albuginea of one of the corpora cavernosa with hemorrhage, hematoma formation, discoloration and swelling of the penis and scrotum. In rare instances both corpora cavernosa may be torn and in some cases the urethra also is injured. Extravasations of blood and urine may occur along the fascial planes into the scrotum and perineum [6, 7] .Characteristically, the patient hears a cracking sound which is accompanied by penile pain, immediate flaccidity, rapid swelling, angulations and local skin discoloration.

Upon physical examination, evidence of penile injury is self-evident. A diffuse purple-black ecchymosis involves the entire shaft of the penis from its base to corona and the scrotum occurs. The penis is deviating towards the uninjured side. The mass is tender and some-what fluctuant [8, 9].

The patient can usually void satisfactorily unless an associated urethral injury occurs. However voiding difficulties may develop since hematoma formation and tissue swelling grossly distorts the penis. Penile rupture can usually be diagnosed based solely on history and physical examination findings; however in equivocal cases, diagnostic cavernosography or MRI should be performed. Concomitant urethral injury must be considered; therefore, preoperative retrograde urethrography should generally be performed [10, 11, 12] .A penile fracture is generally considered a urologic emergency and emergency medical or surgical repair is the usual treatment. Early reports stressed non-operative management consisted of splinting the penis, inserting an indwelling catheter and applying ice packs while recent studies have proposed early surgical exploration with primary repair of the tunica albuginea[13-17] .

Patients & methods:

From January 1994 to February 2003 we had evaluated and treated 14 men with rupture of the corpus Cavernosum. Patient age at presentation ranged from 20-35 years with a mean age of 25 years. Of these patients 8 reported penile injury coincident with sexual intercourse when the penis slipped out of the vagina hitting the perineum or the pubic symphysis of the female partner, 3 had been injured during masturbation, 2 during penile manipulation to achieve detumescence and 1 while attempting to place the erect penis into his pants. The time between the injury and hospital arrival ranged from 3-12 hours (average 6 hours).Patient characteristics were

documented including age, marital status and the details of clinical picture. Diagnosis of penile fracture was made in all patients based on history and physical examination findings; we did not use imaging studies for diagnosis.

The patients could void spontaneously clear urine without difficulty. Only 1 patient had gross hematuria therefore, a retrograde urethrography was performed and there was no evidence of urethral injury.

We treated all 14 patients by immediate surgical exploration via a distal circumferential incision and degloving of the penis, followed by evacuation of the hematoma, identification of the tear which was involving only one corpus in all our patients and sharp debridement of the edges as necessary, the tear (1.5 to 2 cm long) was closed primarily with interrupted absorbable sutures and the skin was closed over a small strip of corrugated plastic drain. An indwelling Foley catheter and a pressure dressing were applied. The corrugated drain was removed in the second post operative day while the urethral catheter and the pressure dressing were removed 3 days post operatively. All patients were discharged from the hospital 4 days post operatively. Patients received antibiotic therapy for a week and large doses of diazepam therapy for 3 weeks to prevent erection.

Results:

During the study period, 14 incidents of fracture penis were recorded at our hospital. The mean age of the patients was 25 years. The etiology of the fracture was related to coital activity in 8 (57%) of cases.

Table (1) presents the patients' characteristics and clinical picture. None of our patients sustained a urethral injury and no patient subsequently experienced urinary retention. Surgery was performed on the 14 patients within 6-8 hours of arrival using the standard method detailed earlier.

Table (2) details the anatomical sites of the tunical tears. Patients were discharged from hospital on removal of urethral catheter and spontaneous voiding.

The follow up period was limited in most patients and ranged from 1 to 3 months (average 1.4 months).

Postoperative complications were few reported in only 2 (14%) of our patients; 1 complained of painful coitus and the other had erection less than optimum with minimal penile deviation; however potency was not affected in both patients.

Our operative and postoperative plan resulted in a brief hospital stay of 3-4 days and the follow-up period had revealed good to excellent results in 12 (86%) of cases with preservation of normal marital relations, normal erection and no penile deformity.

Table (1) Patient criteria and Clinical picture:

Patient criteria		**No. of cases**	**%**
Age (years)	20-30	10	71.24
	>30	4	28.57
Marital status	Married	8	57.14
	Single	6	42.85
Clinical picture	Cracking sound	14	100
	Localized pain	10	71.24
	Immediate Flaccidity	9	64.28
	Hematoma & swelling	12	85.71
	Deformity/ Curvature	14	100

Table (2) Operative findings:

Findings		**No. of cases**	**%**
Tunical tear	Right corpus	9	64.28
	Left corpus	5	35.71
	Bilateral	0	0.00
Site	Proximal	10	71.24
	Mid shaft	3	21.42
	Distal	1	7.14
Associated urethral injury		Nil	0.00

Table (3) Overall success rate in penile fracture repair:

Series(references)	Year	No. of cases	% Success rate
Gross et al (1)	1971	2	98
Mansi et al (14)	1993	14	86
Palomar et al (17)	1980	17	70.5
Mydlo (23)	2001	31	80.6
Asgari et al (24)	1996	68	86.7
Present study	2003	14	86

Discussion:

The age of patients with penile fracture discussed in the literatures ranges from 26 to 41 years [18-22] the mean age in this study, 25 years, falls within this range. In 8 of our 14 patients (57%), the fracture incidents were related to sexual intercourse, which is similar to the (58%) reported by Nicolaison et al [21] , but varies greatly with the (9.5%) reported by El-Sherif et al [19] .

All our patients were managed by early operative intervention. In no case has there been a complication such as expanding hematoma, or development of a fibrotic plaque precluding intercourse. Furthermore, this treatment plan is associated with early hospital discharge.

In this study our data agree with those for surgical management reported in the literatures. (Table 3) [1,14,17,23,24], citing fewer complications, increased patient satisfaction, shorter hospital stay and better outcomes, in comparison to non-surgical approach, advocated by some workers in the past [6,25,26] , with its unfavorable outcome because of the longer hospital stay and the higher complication rate (29-53%) including erectile dysfunction, permanent penile curvature, penile abscess, nodule formation at the site of rupture, painful erection, missed urethral injury and fibrotic plaque formation. [4, 13, 15, 27]

Conclusion:

Treatment of rupture of the corpus cavernosum is directed toward evacuation of the hematoma, identification and primary repair of the tear since our data indicate that this approach results in a brief hospital stay and excellent recovery with rapid return of normal erectile function.

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