

Assessment of Associated Factors and Surgical Outcome of Penial fractures among indoor Patients in a Tertiary Care Hospital

Muhammad Iqbal Khan
Shafqat Ali Tabassum
Mudassar Saeed Pansota
Mumtaz Rasool
Jahanzeb Khan.
Muhammad Shahzad Saleem
Muhammad Farrukh Naveed
Akbar Hussain Mujahid

Post Graduate /Medical Officer, Surgical Unit-I, Sandeman Provincial Hospital, Bolan Medical College Quetta.
Head of the Urology & Renal Transplant Center.

Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Senior Registrar, Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.
Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur.

Address for Correspondence

Dr. Muhammad Iqbal Khan, Post-Graduate/ Medical Officer Surgical Unit –I Sandaman Provincial Hospital, Bolan Medical College Quetta.
Email: miqbaljaffar@yahoo.com

Objective: The objective of this study was to assess the frequency of associated factors and surgical outcome of Penial fracture injuries.

Material and Methodology: Cross sectional descriptive study was conducted for 02 years at Urology and Renal Transplant Department Bahawal Victoria Hospital Quaid-e-Azam Medical College Bahawalpur, taking 13 patients by nonprobability convenience sampling technique. Routine investigations and anesthesia fitness was carried out before surgical intervention after informed consent to all of them.

Subcoronal circumferential incision was made to identify tear in tunica which was repaired with proline 4/0. Hematoma was flushed with normal saline and skin was stitched with chromic Catgut after homeostasis. Foleys catheter was retained for 72 hours and antiandrogens prescribed to prevent erection. All patients were advised to abstain from sexual intercourse and subsequent follow ups were carried out at 10 days, one, three, six and twelve months. The data was collected with help of predesigned performa and analysis done by SPSS-16 software where applicable.

Results: The long term results of surgery in terms of function were excellent. It was seen that at follow up of 6 months 61.53% patients had good normal erection with normal sexual activity. After 12 months 76.91% patients had good erection with normal sexual activity.

Conclusion: The Study revealed hypothesis that early surgical intervention is good strategy for physiological intercourse rehabilitation among penial fracture cases.

Key Words: Penial Fracture, Tunica albuginea.

Introduction

The fracture of penis is a urological emergency ¹, but it is often unreported due to the embarrassment of the patient which often leads to long term complication such as erectile dysfunction in later life. Penile fracture is defined as the fracture of tunica albuginea of corpus cavernosum of penis due to a blunt trauma to erected penis. ²

Penis is formed of two corporal bodies called corpora cavernosa which are joined together by a septum and a corpus spongiosum having penial urethra in it ³. Corpus cavernosa is circled by the tunica albuginea containing sinusoids. The sinusoids are filled up with blood during erection. In an uncircumcised patient the glans is covered by the loose skin called prepuce. ⁴

Erection is a complex process which involves higher brain centers. The higher brain is stimulated by thoughts, visions and stimuli from the external genitalia. The pouring of blood into sinusoids of corpora cavernosa leads to erection. The tumescence is achieved through thinning out of tunica albuginea and its stretching which in turn impedes the venous return. After ejaculation, the blood is poured out from the corpora cavernosa and detumescence results. If there is a blunt trauma to penis during the erection, the tunica albuginea is ruptured transversely usually at its base. ⁵ The blood leaks out and gets accumulated deep under the Buck's fascia, this is palpable and causes the penis to bend in a S-shaped deformity with ecchymosis and swelling at the site of tear. Patient usually notices popping or cracking sound with detumescence. ⁶ It can be accompanied with urethral rupture or with blood vessel like deep dorsal vein. ^{7,8}

Penial injuries include blunt trauma during erection usually when it misses the introitus and hits the pubic bone and perineum. It may also occur during masturbation when erected penis is bent forcefully to achieve detumescence or even when it is being rolled over in erect state during nocturnal erection.^{9,10}

Signs and Symptoms of penile fracture include swelling of penis, deformity and ecchymosis over penile skin. Patient may give the history of bleeding per urethra; a sign of urethral rupture with more aggressive insult.¹¹

The diagnosis of penial fracture is typically clinical and only routine investigations are required for anesthesia.

The management is based on two schools of thoughts one is in favor of conservative management and other favors the immediate surgical intervention. Conservative management includes the use of anti inflammatory drugs, ice packs, antibiotics and medications such as estrogens, antiandrogens to reduce the penial erection. However the conservative management is associated with long term complications like erectile dysfunction, deformity of the tissue and fibrosis.^{3, 12}

Immediate surgical intervention on the contrary has less complication as compared to the conservative management. Subcoronal circumferential incision is made and degloving of penile skin is done. Second most common incision is directly over the hematoma.^{13, 14, 15,}

¹⁶ A rear incision, inguinal scrotal, is used in injuries involving the root of the penis and injuries associated with severe complications.¹⁷

Different suture material is used for the repair of the tunical defect, absorbable and nonabsorbable. Patient in most cases remain admitted in the hospital for 72 hours and were treated with I/V antibiotics, painkillers and sedatives to reduce the pain and penial erection. Foley's is usually removed after 3-4 days or in case of urethral tear after 14 days.⁴

The aim of our study was to assess the associated factors with penial fracture, its presentation, management and surgical outcome at our unit.

Materials and Methods

This descriptive study was conducted at Bahawal Victoria hospital, Quaid-e-Azam Medical College Bahawalpur, which is tertiary care hospital. The Department of Urology and Renal transplantation provides all the essential requirements needed for diagnosis & treatment of Urological diseases.

It was completed within 2 years from 1st February 2009 to 31st of January 2011 taking 13 patients of penial fracture cases selected through nonprobability convenience sampling method. Diagnosis was based on history and clinical examination.

All the clinically diagnosed cases of the Penial Fracture were included in the study. Routine investigations were done for of the anesthesia purpose. Immediate surgical

repair was carried out by subcoronal circumferential incision within 12 hours.

Surgical Procedure: -

1. Patient was examined for the site of tunical injury under general anesthesia.
2. Subcoronal circumferential incision was made.
3. Skin was de gloved in whole circumference up to penoscrotal area.
4. The site of tunical rupture was located and hematoma was removed by flushing with normal saline. Tissue resection was avoided. Continues flushing with normal saline was done until all clots were removed.
5. Tunica was repaired with prolene 4/0 with interrupted sutures and homostasis was achieved.
6. Skin stitched to incised margin at subcoronal level with interrupted sutures with 2/0 chromic Catgut.
7. A urethral Foleys Catheter was placed before suturing.
8. ASD applied.

Foleys Catheter was placed for three days. Patients were given 3rd generation Cephalosporins and aminoglycosides. Patients were advised to abstain from sexual intercourse for more than 6 weeks. Anti androgens were given to avoid erection.

Follow-up visits were arranged after 10 days, 1 month, 3 months, 6 months and 12 months.

Data was collected with the help of predesigned performa and analyzed by SPSS. 16 where applicable.

Results

Total numbers of 13 Patients were included. Out of them, 03(23.07%) patients were below the age of 20 years, 07(53.84%) were from 20 to 30 years of age, 02(15.38%) were from 30 to 40 years of age and only 01(7.70%) patients was above the age of 50 years as shown in Table-1

Table I: Age distribution and marital status of the Patients

S. no	Age Group	No. Patients	S. no	Marital Status	No. Patients
1.	< 20 years	03 23.07%	1.	Married	08 61.44%
2.	20—30 years	07 53.84%	2.	Unmarried	05 38.56%
3.	30—40 years	02 15.38%			
4.	Above 50 years	01 7.70%		Total	13 100%
	Total	13 100%			

The marital status was inquired. There were 08(61.44%) married and 05(38.56%) unmarried as shown in Table-1. Intercourse history revealed that 02(15.38%) patients performed normal intercourse at the time of fracture, 06(46.20%) reverse coitus, 02(15.38%) physical manipulation (masturbation), 02 (15.38%) gave history of rolling over in bed and only 01(7.66%) patient gave history of accidental hitting against any hard object as shown in Table- II.

ruptured and only 01(7.69%) patient had bilateral corpora ruptured. No patient had urethral injury as shown in Table -2.

The outcome of surgery and its complications were noted. Normal sexual activity was achieved in 08(61.53%) patients after follow up of 06 months and 10(76.91%) patients had normal sexual activity after 12 month follow up as shown in Table-3. It was further studied that mild penile curvature was noticed in 02

Table II: Frequency Distribution of Associated factors, Hematoma & Rupture site.

A. Associated Factors			B. Site of Hematoma		Site of Rupture	
S. no	Associated Factors	No. Patients	Site of Hematoma	No. Patients	Site of Rupture	No. Patients
1.	Normal sexual Intercourse	02 (15.38%)	Proximal Shaft	01 (7.69%)	Rt. Corpora	10 (76.92%)
2.	Reverse Coitus	06 (46.20%)	Mid-Shaft	11 (84.615%)	Lt. Corpora	02 (15.39%)
3.	Physical manipulation (masturbation)	02 (15.38%)	Distal Shaft	01 (7.69%)	Bilateral Corpora injury	01 (7.69%)
4.	Rolling over in Bed	02 (15.38%)	Total	13 (100%)	Urethral Injury	00 (00%)
5.	Accidentally Hit any Hard Object	01 (7.66%)			Total	13 (100%)
	Total	13 (100%)				

The presenting complaints were asked. All 13(100%) patients were complaining of pain, hematoma, swelling. Penial deviation with cracking sound at the time of fracture was observed in only 10(76.92%) patients while palpable defect was reported in only 8(61.53%) patients. The blood on meatus was not reported by any one as shown in Figure -1.

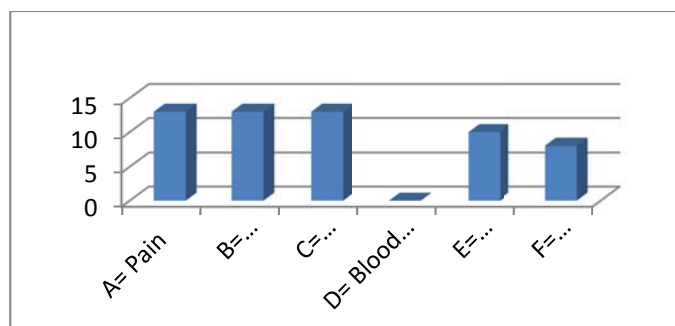


Figure 1: Frequency Distribution of 13 patients according to the presenting complains.

Site of hematoma was studied. It was noted that only 01(7.69%) patient had hematoma near the proximal shaft, 11(84.60%) patient had mid-shaft hematoma and only 01(7.69%) patient had distal penial hematoma as shown in table no. 2.

The nature of injury of corpora and urethra on operating table was noted. It was found that 10(76.92%) patients had right corpora ruptured, 02(15.39%) left corpora

(15.38%) patient at the follow up of 6 months and 01(7.71%) patients after 12 months follow up.

Painful erection was noticed among 02(15.38%) patients at 06 months follow up and 01(7.71%) patient at 12 months follow up. Erectile dysfunction was noticed in 01(7.71%) patient after 06 months and 12 months follow up as shown in Table-3.

Table III: Frequency of Complications and Surgical outcome of 13 Patients.

Complications	At 06 Months Follow-up	At 12 Month follow-up
Normal Sexual Activity with Good Erection	08 (61.53%)	10 (76.91%)
Mild Penial Curvature	02 (15.38%)	01 (7.71%)
Painful Erection	02 (15.38%)	01 (7.71%)
Erectile dysfunction	01 (7.71%)	01 (7.71%)
Total	13 (100%)	13 (100%)

Discussion

Penial fractures are associated with multiple factors. This study was conducted to assess frequency and distribution of different factors and surgical outcome of

their management. It was found that majority of them, 07(53.84%) belong to 20 to 30 years of age which is concordant with findings as discussed by Ozen HA and Erkan I.¹⁸ They reported the age of patients with this injury from 25 to 46 years. This similarity may be due to the married life in this range of age. Other medical researchers El-Sherif AE and Daulah M¹⁹ at Qatar have also supported our findings. However, a study conducted in Peshawar by Nadeem Ali Shah and Mumtaz Khan²⁰ has discussed the mean age of penial fracture which they claimed is to be 32 years. It is very close to our upper limit of age assessment of penial fracture cases.

The sexual associated factors were studied. The frequency of reverse coitus was found to be among 06(46.20%) patients. This associated factor varies widely among different societies. The other medical researchers Zargooshi J¹⁴ has described 58% patients with reverse intercourse factor in western world which is considerably higher than our findings. It is attributed to the sexual independence and freedom in western world as compare to our society. However in Gulf and Arab States,¹⁹ it is among 9.5% patients only which supports our explanation. The commonest cause of penial fracture due to reverse intercourse is denied by Nadeem Ali Shah and Mumtaz Khan²⁰ at Peshawar who described physical manipulation to overcome the erection to be the most common cause of this problem. It may be correlated with social attitudes and traditions about sexual practice in young population at their territory.

Other medical researchers^{20,21,22} have mentioned the usefulness and mostly recommended incision of this emergency to be the Subcoronal circumferential incision. It is very similar to our procedure as we have also adopted the same incision. However opposite to us there were certain studies^{19,23} where it is mentioned that longitudinal incision laterally over the same side may be given if tear is small. It is attribute to the different experiences of the different surgeons all over the world to solve this problem.

The use of sutures has been discussed by different surgeons. The other studies^{18,19,20,23,24} have recommended both absorbable and nonabsorbable sutures. We have adopted use of nonabsorbable prolene 4/0. It was found in our study that nonabsorbable sutures are more useful.

The catheterization helps to avoid the urination and better prognosis. Catheterization was done among all the 13 patients in our study. The benefits of this procedure, have been quoted by earlier researchers in other studies.^{18,20,25} It prevents short term and long term surgical complications. Similarly we have given post operatively analgesics only to our patients and no sedatives were given. Similar management strategy has also been quoted by earlier studies.^{19,24} However the

use of sedatives is beneficial to prevent anxiety and erection as reported by earlier researchers in their studies.^{20,26} which is contrary to our study.

The long term results of surgery in term of function was excellent. It was seen that at the follow up of 6 months, 61.53% patients had good normal erection with normal sexual activity and at the follow up of 12 months, 76.91% patients had good erection with normal sexual activity. Our results were near to many other international studies conducted.^{27,28,29}

Our strategy of early surgical intervention and management is indeed effective for resumption of normal sexual activity among penile fracture cases.

Conclusion

We concluded our hypothesis that early surgical intervention using prolene 4/0 and catheterization is beneficial to restore normal physiological sexual function among penial fracture cases having 12 month, post surgical follow up.

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