

A Study of the Etiological Factors and Management Options in External Genitalia Injuries

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This study spanned over a period of three years and included forty-three male patients. Age ranged from 14- 60 years. Skin laceration with complete or partial avulsion was the commonest (83.37%) injury. Revolving belt of the machine was responsible for 34 (79.06%), 6(13.95%) cases had penetrating injury and the other had blunt trauma (6.97%). Associated injuries were seen in 18 (41.86%) cases. Seventeen (39.53%) patients were complicated by infection, graft failure, in 12 (27.90%) cases, cosmetically unaccepted result was seen in two patients and no mortality occurred.

Key Words: External genitalia injuries, etiological factors, management options.

Trauma is the leading ailment in the early years of life and the third commonest cause of death¹ although no age group is exempted but the people during their active life are more prone. The number of hospital admissions following trauma is as high as 45% of the total hospital admissions². The direct cost to society in caring for these victims is enormous. It not only involves the hospital costs but also covers the functional losses insurance claims and above all rehabilitation and adjustments of these individuals in the society.

The recent trends in the society in the form of rapid transportation, easy access to the lethal weapons and lack of proper safety measures in the industries has led to an alarmingly high incidence of the trauma. Besides all other injuries the incidence of external genitalia injuries has been noted in the recent past. These injuries may be blunt or penetrating. The explosive increase in the violence is contributory to a number of cases³.

Besides these factors, social rage also plays a very important part in these injuries. In 1970, sudden rise in the incidence of penile amputation was noted⁴. It almost became fashion for an angry Thai wife to wait for the philandering husband to fall asleep whereupon she would cut his penis with a knife.

The management of these injuries is not new, and the literature dates back to 1929, when Enrich reported the first case of a virtually totally amputated penis by reapproximation of the corpora and urinary diversion with a catheter. In 1936 Borgoraz and Frolov mentioned the first total phallic reconstruction with a tubed pedicle flap technique⁵. In 1976 Tamai and associates reported the successful replantation of the amputated penis by utilizing the microscopic assistance.

In our working setup where incidence is on the rise, with very limited facilities and expertise the study was designed to help the victims in a way to deal with the emergency and to get a result which is socially acceptable.

Material and Methods

Data collection and statistical analysis.

All patients were registered for the study and relevant record was taken on the flow sheets. Study spanned over a period of three years.

All the patients presented in the emergency department of the Mayo hospital during the working hours of one surgical unit.

Exclusion criteria.

- Patients below 12 years of age, as they were referred to the pediatric department.
- Patients with factors impairing healing such as diabetes, jaundice, and uremia.

Inclusion criteria

- All the patients presenting with external genitalia injuries. Patients having poly trauma with involvement of the external genitalia injuries were also included.

Pre treatment evaluation

- Complete history and physical examination including vital signs.
- Detailed examination of the patient as a whole to look for associated injuries.
- Local examination to document the size, type, and depth of the wound, and viability of the injured area.
- Relevant investigations for the diagnosis of associated injuries, and preparation for anesthesia
- All the required information was noted on a proscribed Performa so the facts can be reproduced for analysis

Treatment plan.

After initial evaluation all the patients were subjected to the appropriate analgesics and antibiotics. Wounds were dressed to stop hemorrhage in the emergency room.

Depending upon the nature of the injuries, following treatment options were offered to the patients.

- Primary repair.
- Primary skin grafting.
- Primary wound excision followed by delayed or secondary closure.
- Delayed skin grafting.
- Burial of the denuded penis in the subcutaneous

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scrotal tunnel or in the skin of the hypogastrium. Burial of denuded testes in the proximal thigh pouches.

Results of the different options were compared and analyzed during follow up visits and following points were noted, condition of the wound, cosmetic appearance of the area, problems with urinary outflow, Psychological problems, failure to achieve the functional abilities of the genitalia.

Results

The study included 43 male patients, presenting in the emergency with external genitalia injuries. The age ranged from 14 – 60 years. The peak age incidence was between 25 – 35 years. Majority of the patients came from the peripheral areas (80%). The duration of injury varied and only 4 patients presented within 2 hours of injury and majority presented with injury of 9 – 15 hours.

Majority of the patients had injury to the penile shaft 23 (53.48%). Fourteen (32.55) had combined penoscrotal injuries and other six (13.95) had isolated injuries to the scrotum.

Skin laceration with complete or partial avulsion, was the commonest injury. It afflicted 36 (83.37%) of the total patients. Three (6.97%) patients had penetrating penile injury, of these 2 were firearm cases and one had a stab. One patient presented with fracture penis following sexual assault. Amputation of the penis was seen in one case.

Scrotal injuries were seen in 20 (46.51%) cases, of these 14 (32.55%) had skin laceration and avulsion; two patients had skin contusions and hematoma following blunt trauma in roadtraffic accident. Firearm affected four patients with testicular involvement in three cases. A bilateral injury to the testes was seen in one case only.

Revolving belt of a machine was found to be the commonest etiological factor, and was responsible for 34 (79.06%) cases in this series. Other causes included penetrating injury in six (13.95%) patients, five firearms and one stab. Blunt trauma was responsible for three (6.97%) patients and it also included fracture penis.

Associated injuries were seen in 18 (41.86%) patients. Soft tissue injury of the buttock and thigh was common, and was seen in 12 (27.90%) patients. Three patients had skeletal fractures and one had vascular injury in the groin. Intra abdominal injuries were noted in 5 (13.88%) of these patients. Seventeen (39.53%) patients in this series had complications, out of these wound infection was the commonest seen in 12 (27.90%) Graft failure, cosmetic disliking, and urethral stricture was seen in one case each. Three patients also complained growth of hair on the penile shaft.

Passing a Foley catheter through the urethra stump treated one patient with amputation of the penis at the route. The same patient had perineal urethrotomy for the effective drainage of the bladder. One patient with injury to the common femoral artery in the groin was managed by primary repair of the rent with polypropylene 5/0.

The surgical management offered to other patients and its sequel are shown in the table.

Table 1.

Management	n ^o .	%age	Success	Complications
Primary repair	11	25.5	7	Inf-3 Rej-1
Delayed closure	12	27.9	10	Def-2
Primary Grafting	2	04.6	0	Rej-2
Delayed grafting	3	06.9	2	inf-1
Burial in the scrotum	3	06.9	3	0
Burial in the hypogastric skin	4	09.3	3	0
Burial of testes in thigh pouch	9	20.9	9	0
Orchidectomy	4	09.3	2	inf-2

inf (infection), Rej (Rejection), Def (Deformity)

Discussion

The external genitalia injuries are not very common, but the recent increase, noticed in this study is related to a specific injury. The incidence is related to the harvesting season as most of the patients present during this season. It has been noticed that a worker wearing loose dresses like shalwar and dhoti is the typical victim. The high incidence of these injuries correlate with the findings noted by I. U. Khan in his study where these injuries comprise 75% of the patients⁶. In these patients the rotating belts has been the main culprit in the study carried out in the U.S as well. The pattern of injuries in penetrating trauma to the genitalia our findings also match those of Brandes, S.B. and Buchman⁸.

Blunt trauma is also a contributory factor however the scrotum is more commonly involved in these injuries.⁹ Cases of these injuries in sexual affairs is also reported, in this study only one patient presented with fracture shaft of the penis which was treated conservatively. However western literature report more injuries, they usually follow unnatural sexual practices and insertion of foreign bodies in the urethra for sexual gratification¹⁰. The results of primary closure of these injuries are comparable to those of Mcaniach et al.¹¹ and Brandes S.B. et al.⁸ Similarly management of the penile fracture by conservative means is also recommended by Farah R.N.¹² The high rates of infection are due to delay in the presentation and nature of injury. However early wound excision plays an important role to bring about a good outcome.

Awareness of these injuries is the key factor and the idea behind this study was to recommend safety measures so that these injuries can be avoided. People working on these machines should be careful about their dress and loose clothing should be avoided. Moreover working hours should also be fixed as tiredness can lead to sleep and accidents. The rotating belts of the machines should also be covered to minimize the chances of accidents. Social violence and sexual malpractice should also be looked into to avoid these injuries.

The treatment options should be practiced as per nature of the injuries, age of the patient, depth of the wound and

associated injuries. Maximum tissue preservation is the first goal and functional capacity and rehabilitation are also equally important. Primary wound excision and delayed grafting is the best and safe option, however equally good results are also obtained by making subcutaneous tunnel in the scrotum and hypogastrium. However, this option requires a second operation to release the penis.

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