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TOTAL PENILE DEGLOVING INJURY RESURFACED WITH A SPLIT SKIN GRAFT – A CASE REPORT

Plastic Surgery

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ABSTRACT

Degloving injuries of the penis are a rare occurrence often requiring reconstruction. They are usually caused by industrial or agricultural machinery and tend to involve both the penile shaft and the scrotal skin with young adults being the usual victims. A penile degloving usually begins just proximal of the coronal line and progress down to the base of the shaft. Deep erectile tissue and the spermatic cord are usually undamaged and the endogenous skin of glans usually survives. The management requires thorough debridement and resurfacing the raw area by either using the degloved skin as a flap or a free skin graft, or by using a split skin or a full thickness skin graft. Here, we report a case of a total penile skin degloving managed with a split skin graft with satisfactory cosmetic result.

KEYWORDS

Degloving, Penis, Shaft, Debridement, Skin graft, Complications

INTRODUCTION

Degloving injuries of the penile and scrotal skin are rare presentations in plastic and urological emergencies and occur mainly due to accidents with industrial machines and agricultural machine belts which are incapacitating and have a devastating psychological impact.[1,2-7] Degloving describes a potentially serious injury in which an extensive area of skin is torn from its underlying attachments consequently depriving it of its blood supply.[8] Generally, lesions reach only the skin, causing minimal bleeding without producing damage to the cavernous body, the spongy body or the testes as the genitalia are mobile and testicles are protected by tunica albuginea and cremasteric reflex.[1,9,10] Isolated degloving injury of the penile skin is a rare emergency in the pediatric age group.[3] However, the reconstruction is a real challenge as there are underlying risks of entering the pelvic hematoma, unstable tamponade, and even uncontrolled bleeding.[11]

CASE REPORT

26 year old male presented with loss of skin over the penis while working with a cement mixer 1 day ago. The patient was brought to the emergency where primary resuscitation was done and then referred to us for skin cover. Urology consultation was obtained for any urethral injury and was ruled out following which urethral catheterisation was done with a 16Fr Foley's catheter. There was no history of any co-morbid illnesses. On examination, there was total loss of penile skin with a 1cm ventral strip of skin remaining. There was no corpora cavernosal or urethral injury. The scrotum was intact. **(Fig. 1a & b)** We planned for debridement with split skin graft cover. Under spinal anaesthesia, thorough debridement was done. Split skin graft was harvested from right thigh, meshed and anchored to the raw area with 3-0 polyglactin sutures and fixed with a tie-over bolster dressing. The post-operative period was uneventful with first look done on 5th post-operative day and graft take was 100%. **(Fig. 2 & 3)** The sutures were removed and the excess graft was trimmed and the Foley's catheter removed. The patient was having normal micturition and erection.

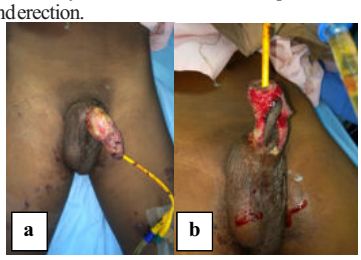

Fig. 1 – Photograph showing the degloved penis (a) with intact ventral strip of skin (b)

Fig. 2 – Early post-operative picture

Fig. 3 – Late post-operative picture

DISCUSSION

The penis is particularly susceptible to traumatic injuries, although rare due to the relative isolation and mobility of genitals. [12] Among those that are described, few of them are degloving injuries involving agricultural machinery such as pulleys, chains and rotary discs which are responsible for genital injury, when they snag the operators' clothes and pull out the skin of the penis. Mechanised farming is involved in a majority of these injuries and Kubacek in 1958, presented the first case report of this type of injury.[13] The skin of the penis is loose, elastic and highly mobile to accommodate both the rigid and flaccid state of the penis and this loose base predisposes the skin to be avulsed off easily from the penis. Although not life threatening, such lesions are incapacitating and psychologically devastating and injuries can vary from simple lacerations to virtual emasculations[1,9] This results in increased risk for infection causing cellulitis, abscesses, or tissue necrosis; and can further worsen the postoperative prognosis. The anatomy of the penis and scrotum accounts for the reproducible nature of this injury. The skin of the penile shaft is loosed up to an area just behind the coronal sulcus whereas the glans penis is essentially fixed in position. There is a natural cleavage plane along the shaft of the penis is between the Buck's fascia and the loose areolar tissue that surrounds it. The avulsed segment of the skin from the penis includes the loose areolar tissue with its subcutaneous veins, the dartos fascia, and the skin as a unit. As the Buck's fascia is preserved, the corpora cavernosa and corpus spongiosum, including the urethra, the deep dorsal vein and dorsal artery and nerve are spared. The avulsion injury travels along the level of the areolar tissue on the underside of the penis, because the Colles' fascia is included in the scrotum, and this most probably pulls the anterior half of the scrotal skin, sparing the

testes probably due to the cremasteric reflex.[14] The skin of the shaft of the penis has a robust blood supply in the superficial fascia and glans has additional supply from deep dorsal artery and corporal vessels and this abundant vascularisation aids in the take of a split skin graft.[15,16] On the contrary, skin graft could cause contracture restricting the mobility of scrotum and function of penis, hence the penis was immobilized under erectile condition, which could effectively reduce contracture formation. Negative pressure wound therapy can be used for avoiding contracture of graft because of retraction of penis, as it has been proved to be effective for conforming the shape of various anatomical areas.[17] It also reduces the risk of infection and hematoma, facilitate generation of granulation tissue, and promote skin graft take.[17,18] Initial debridement and repair of soft tissue loss to the penis should be undertaken rapidly as prolonged exposure of the denuded penis increases the risk of secondary infection as well as significantly compromise the vascularity. When there is no available skin, the penis is buried in the scrotum or in the suprapubic region. Finical and Arnold used the posterior scrotal skin for primary closure of the scrotum as the posterior scrotal skin can be stretched to cover the as much of the defect and the rest skin grafted.[1] When scrotal remnants are available, the results are suboptimal.[9] The most frequent complication of avulsion injuries is postoperative infection. If the graft does not take in patients who undergo split-thickness skin grafting, the consequences can be devastating and complications such as erectile dysfunction, curvature, and fistula are associated risks. All these factors help in the sexual function and aesthetic appearance of the penis and thereby contribute to the satisfaction of the patient.

CONCLUSION

Degloving injuries of the penis are uncommon, especially associated with farm equipment which are improperly handled. These injuries are attended to as an emergency by a thorough debridement and replacing the lost skin as s split skin graft as early as possible. This results in a faster healing with fewer complications of infections and contractures with a satisfactory outcome for the patient.

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