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# Degloving Penile Trauma In A 12 Year Old Boy: Case Report

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## Summary

Degloving injury of the penis is rare in children. Management has been controversial and not much literature exists. We present a 12 year old boy who sustained a degloving penile trauma after assault. We managed him by primary suture and local flaps with good cosmetic and functional results.

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## Introduction

Avulsions or degloving injuries of the penile and scrotal skin are rare urology emergencies and occur mainly due to accidents with industrial machines and agricultural machine belts. Such lesions are incapacitating and have a devastating psychological impact. Avulsions may vary from simple lacerations to virtual emasculations. Generally, lesions do not extend beyond the skin, cause minimal bleeding, do not damage the cavernous body, the spongy body or the testes. We present a 12 year old boy with isolated degloving penile injury.

## Case report

A 12 year old boy with degloving penile trauma. He was being brought up by his biological mother and a step father after his mother and father separated. He was allegedly caught by the step father sexually molesting his step sister. The step father grabbed him by the private parts resulting in the injuries described. He was prevented from coming to hospital and therefore reported about 24 hours after the injury. Examination revealed a healthy boy with no other visible injuries or abnormalities. Examination of his reproductive organs showed a degloved penis with skin avulsed starting just distal to the base of the penis. [fig 1] There was gross edema of the skin and surrounding tissues and impending infection. The scrotum was intact. The penile bodies and urethra were also intact, and were covered by bright red tissues with prominent blood vessels. He was passing urine with no obstruction. No attempt had been made to reposition the skin before admission. [fig 2]

He was immediately prepared for operation. Intraoperatively, under a general anesthetic, the skin was avulsed

through the loose areola tissue surrounding Buck's fascia. A temporary catheter was inserted. When the skin was reapposed, it was noted that about an inch of the most proximal flap was non-viable. After surgical toilet and debridement, it we created local flaps using the remaining proximal penile skin and a part of the anterior scrotum. This proved adequate to achieve cover of the denuded penis. [fig 3]

Healing went on well albeit with a minimal dorsal break down that was allowed to heal by secondary intention. The child remained in the hospital until fully healed due to social reasons. He was discharged after 18 days.[fig 4] On discharge, skin cover was complete. Reassessment at 6 months and 1 year showed no cicatrification with minimal scarring and cosmetically good results. Sensitivity to touch was preserved. The patient reported a mild degree of painful erection and curvature that was not bothering him.[fig 5] He remained sexually inactive.

## Discussion

Degloving injury to the male genitalia is a rare condition usually described as a machinery or farm injury. (1,2) The common machines causing this type of injury are the rotary type that can catch on the clothing and result in the so-called power take-off injury. In children, penile trauma is even rarer, the most common being iatrogenic injury at circumcision or animal bites, especially dogs. Penile fractures are even rarer. Most literature on these types of injury relate to adults. (3)

We present a unique case of degloving penile trauma presenting after assault. The unique feature of degloving penile trauma is its ability to interfere with fertility and gonadal function, thus having a direct correlation



Figure 1: Note the skin pulled over the penis with distal non-viable tip.



Figure 2: Note the engorged vessels and edema



Figure 3: Intraoperative. Note edema and bruises around the base



Figure 4: condition on discharge



Figure 5

with quality of life after trauma.(2) Other documented complications include infection, incontinence, erectile dysfunction, Peyronie's disease, and hypersensitivity, or loss of sensation. Thus timely and adequate procedures must be carried out with this in mind. (4, 5)

The penile skin is very mobile, to accommodate the many variations in penile size. Blood supply to penile skin is inadequate from the underlying tissues. The skin is supplied by the superficial penile arterial plexus arising from the two pudendal arteries, up to the prepuce ring, where it penetrates the Buck's fascia and forms an anastomosis with the dorsal penile artery. Proximal to distal avulsion of skin therefore disrupts the most important supply, but the prepuce ring anastomosis can sustain the skin. Early repair is therefore of paramount importance, as is preventing desiccation of avulsed skin by

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Kihiko DK

wrapping the avulsed skin in moist gauze or towels. (6) In children, primary closure is advocated, unlike in the adult population. When no viable skin is available, burial in suprapubic area or scrotum is carried out. Skin grafting in genital areas is difficult to manage and increases the risk of complications, compared to primary closure, and should be limited to cases for which the native genital skin is irreparable. (7) When skin grafting is needed, thick, nonmeshed split-thickness skin grafts of the anterior thigh or buttocks are recommended. (8) Skin graft will have varied complications such as lymphoedema, painful erections and hypo or hypersensitivity. Multiple subsequent operations have been shown to result in psychological stress. (1)

McAninch et al. have shown that early debridement and proper penile and scrotal skin repair can result in acceptable cosmetic and functional results in all cases of major skin loss. (6)

Our patient did not suffer from scrotal degloving, neither was there injury to deep structures. However, it should be noted that in the case of penile degloving, scrotal degloving often occurs and may have significant implications on gonadal function. With the exception of functional impairment of the penis, i.e. erectile dysfunction and Peyronie's disease, fertility and gonadal function should not be affected by penile degloving alone. Primary closure of our patient's penile degloving injury was completed with no evidence of complication and normal urinary and erectile function on medium-term follow-up.

This good result can be attributed to the fact that the injury was not farm related, and was an isolated injury. This therefore did not result in tearing of the skin.

Children also heal relatively well as compared to adults. However, follow up is of prime importance as appropriateness can only be determined after puberty.

## Conclusion

Surgical repair of a degloving injury to the penis should be undertaken as an emergency. A single attempt at penile reconstruction without a graft can be attempted. Local flaps in a child yield good results in degloving trauma.

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