

Total deglovement of the fourth digit due to ring avulsion injury

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DESCRIPTION

A 59-year-old man presented to the emergency department after injuring the fourth digit of his right hand in an attempt to pick up a key on the other side of a steel rod fence. While leaning over the fence, he lost his balance, leading to a fall while his wedding ring got stuck on one of the rods of the fence. The ring subsequently degloved the skin and subcutis from the finger.

Physical examination showed a total deglovement injury up to the base of the proximal phalanx (figure 1). The flexor and extensor tendons were totally exposed but remained functional (Kay grade IV).¹ The degloved skin was brought along with the patient, but was completely avital (figure 2). The plastic surgeon on call was consulted, but saw no reconstructive options. The degloved finger was amputated at metacarpal level.

Ring avulsion injury is a rare injury, which often leads to amputation of the involved finger.^{1 2} In most cases it involves the fourth digit of the hand, also known as 'the ringfinger'. The mechanism inflicts both longitudinal traction and crush/degloving injury to the finger. The longitudinal traction causes occult injury to blood vessels beyond those injuries that are visible with the operating microscope.²

In specialised centres with microscopic surgery experience, an attempt to replantation and revascularisation of the degloved skin is possible with varying success (ie, secondary necrosis, cellulitis,



Figure 2 Avital skin defect and the 'corpus delicti'.

oedema, rigid finger, and hypoesthesia).^{2 3} Other treatment modalities are free flap transplantations (in case of more involved fingers), venous flow-through flap transpositions or in case of segmental injuries (Kay grades I–III) skin transplantations.²



Figure 1 Total deglovement injury of the fourth digit, reaching to the base of the proximal phalanx after a ring avulsion.

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Learning points

- ▶ Wearing a ring may lead to serious deglovement injuries and subsequent amputation of the involved finger.
- ▶ Reconstructive options are possible in experienced centres but have varying success rates.
- ▶ The mechanism inflicts both longitudinal traction and crush/degloving injury to the finger.

Contributors WMB was involved in primary survey, drafting article, literature search, overall responsible. FJP was involved in performed operation, review of article. EDR was involved in performed operation, review of article.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Kay S, Wertz J, Wolff TW. Ring avulsion injuries: classification and prognosis. *YJHSU* 1989;14(2 Pt 1):204–13.
- 2 Brooks D, Buntic RF, Kind GM, *et al.* Ring avulsion: injury pattern, treatment, and outcome. *Clin Plas Surg* 2007;34:187–95.
- 3 Adani R, Marcoccio I, Castagnetti C, *et al.* Long-term results of replantation for complete ring avulsion amputations. *Ann Plast Surg* 2003;51:564–8.

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