

## Groin Flap for Ring Avulsion Injury of Little Finger

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**ABSTRACT**

**Background:** Ring avulsion injuries occur when a sudden force pulls a ring from a finger, causing trauma that ranges from soft tissue laceration to complete amputation.<sup>1</sup>

**Aim:** To describe the management of a ring avulsion injury using a groin flap technique.

**Objectives:** To prevent amputation, maintain finger function, and minimize morbidity.

**Material:** A 17-year-old male presented with a ring avulsion injury to the right little finger, resulting in complete amputation at the distal interphalangeal joint and exposed tendon up to the proximal mid-phalanx.

**Result:** The groin flap healed well, preserving finger function.

**Conclusion:** Regional flaps play a critical role in managing ring avulsion injuries, especially in cases where microvascular replantation is unfeasible.<sup>2</sup>

**KEYWORDS**

• Ring avulsion injury • Groin flap • Soft tissue coverage

**INTRODUCTION**

Ring avulsion injuries present a significant challenge to hand surgeons due to their wide spectrum of severity, ranging from minor soft tissue damage to complete amputation.<sup>1,3</sup>

The advent of microvascular surgery has introduced guidelines for classifying and managing these injuries, as proposed by Urbaniak *et al.*<sup>3</sup> However, the debate continues regarding when to opt for replantation versus amputation.

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This case report highlights a Grade 3 ring avulsion injury managed with a regional flap to avoid amputation and maintain functionality.

### CASE SUMMARY

This prospective case study was conducted at a tertiary care hospital following approval by the departmental scientific and ethical committee. Informed consent was obtained

from the patient.

A 17-year-old male sustained a ring avulsion injury to the right little finger, resulting in total amputation of the distal phalanx at the distal interphalangeal (DIP) joint, with exposed bone and tendon extending to the proximal interphalangeal (PIP) joint. The amputated tissue was too severely damaged for replantation (*Figure 1*).



**Figure 1:** Preoperative amputated stump of little finger

To preserve the remaining stump and avoid revision amputation, a groin flap was used to provide full circumferential coverage of the finger. The proximal portion of the flap was deepithelialized to promote good vascularity

from the recipient area, and a surgical delay technique was employed. This involved partial detachment after three weeks and complete separation four days later (*Figure 2*).



**Figure 2:** Groin flap planning and inset

Post-operatively, the flap healed well, maintaining contour and functionality due to

the intact flexor digitorum superficialis tendon and extensor band (*Figure 3*).



Figure 3: Follow up of the case after 4 weeks of division

**RESULTS**

The patient exhibited good compliance. The flap healed effectively, although minor wound dehiscence at the distal margin required revision. No significant complications were observed.

**DISCUSSION**

Ring avulsion injuries occur when a sudden pulling force causes trauma to the finger.<sup>1,4</sup> These injuries often involve complex damage, including neurovascular bundle avulsion, tendon injury, and bone exposure.<sup>1,3,4</sup> Accurate assessment of the damage is critical, with the Urbaniak classification guiding management decisions:<sup>3</sup>

Class	Circulation	Management
1	Adequate	Treat bone and soft tissue injury
2	Inadequate	Repair vessels
3	Complete degloving or amputation	Revascularization considered; may affect function

In this case, the injury was classified as Type 3. Given the severely damaged amputated portion, microvascular replantation would have led to functional limitations and higher morbidity.<sup>2,4,5</sup> Thus, a pedicled groin flap was selected to preserve the proximal stump and maintain PIP joint function. Delaying flap division minimized the risk of failure.<sup>6</sup>

**CONCLUSION**

Proper assessment and the use of regional flaps, such as pedicled groin flaps, remain

viable solutions for managing ring avulsion injuries.<sup>1,4</sup> These techniques are especially beneficial in settings where microsurgical expertise or equipment is unavailable. Groin flaps provide reliable soft tissue coverage and maintain functionality, offering a cost-effective alternative to more complex procedures.

**Conflict of Interest:** None

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**Consent for Publication:** Not applicable

**Ethics Declaration:** Approved by the ethical committee.

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