



## Scrotal Flap for Finger Reconstruction

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### Summary

Finger injuries with exposed bone, tendon or joint may need skin cover by a distant flap. Scrotal flap has been successfully used as a pedicled distant flap in four patients with finger injuries. This is a preliminary report on alternative use of scrotal skin.

### Introduction

In finger injuries with exposed bone, tendon or joint, a flap becomes necessary to provide soft tissue over. A local flap is ideal, but it can cover only a small defect and may not be available in extensive injuries. Larger defects need coverage by a distant flap. Ideally, the flap should not be very thick, since it may interfere with joint mobility. Scrotal flap is easy to elevate, does not interfere with joint mobility and

the donor area scars are acceptable to the patients.

### Anatomy

The scrotal skin is thin and contains the dartos muscle underneath. It has rich vascularity<sup>1</sup>. The arterial supply comes from branches of internal pudendal, deep pudendal and inferior epigastric arteries. The veins accompany the corresponding arteries. The lymphatics drain to inguinal lymphnodes.

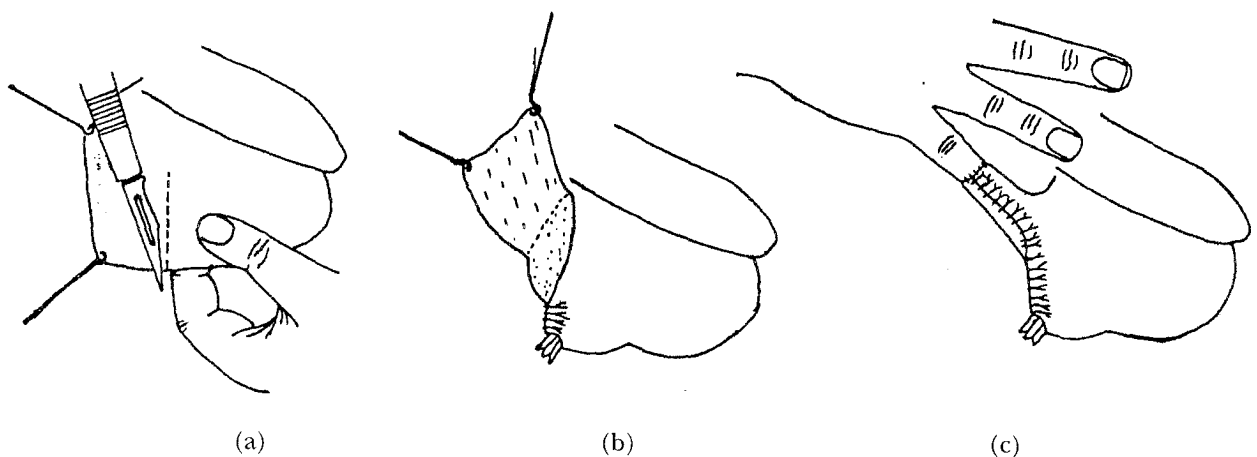


Fig 1a. Diagrammatic representation of method of incising scrotal skin, b. Scrotal flap raised, c. Scrotal flap attached to the finger defect



Fig 2a. Photograph showing defect over little finger



Fig 2b. Scrotal flap attached to the finger defect flap



Fig 2c. Scrotal flap after division and final inset

## Methods

### Flap design and dimension

The flap is superiorly based and is raised from the hemiscrotum on the side of the injured hand. The defect on the finger/fingers is measured. The scrotal skin is stretched, marking is done as per measurements of the defect and incision is made with a No. 11 blade. The incision divides all the layers of the scrotum including the parietal layer of tunica vaginalis (Fig 1a).

The donor defect is closed directly with non-absorbable sutures after placing a small-corrugated drain in the wound (Fig 1b). The flap is sutured to the defect with nonabsorbable sutures (Fig 1c).

Sutures are removed from the scrotum on seventh day and from the flap on tenth day. The pedicle is divided after three weeks. Flap inset is done after another three days.

Over last six months, four flaps, one each for degloving injury of thumb, degloving injury of single finger, soft tissue loss over multiple fingers and electrical burns of single finger, have been raised.

## Results

There were no complications in three of the flaps (Fig 2). In one flap there was wound dehiscence at the site of inset. A split skin grating was required to cover the wound.

All the flaps were thin and did not interfere with the mobility of the finger joints. Poor colour match and hairs over the flap were the obvious disadvantages. But these problems were well accepted by the patients.

The donor side of the scrotum regained its near normal size within four weeks and the scars were acceptable.

## Discussion

Distant flaps from groin, trunk, arm and forearm have been used for providing soft tissue cover to injured fingers. Most of these flaps are too bulky as replacement for finger skin and often are responsible for impaired hand function.

Scrotum has thin and supple skin that closely matches with the skin of the hand as far as function is concerned, especially over the dorsal aspect of the joint. It has been used as local flap<sup>2-4</sup> and microvascular replantation<sup>4</sup>. In the present reports it has been used as a pedicled distant flap for soft tissue reconstruction of fingers.

Scrotal skin has the potential for massive expansion, as seen in large hydroceles. A substantial portion of it can be transferred without any morbidity. In fact, the scrotal size returned back to normal within weeks in all the four patients. Because of its thin and supple nature it drapes well over fingers. It is specifically suitable for the dorsum of finger and hand. Also, scrotum being mobile, allows greater movement of finger joints than most other distant flaps. This minimizes the chance of stiffness of finger joints.

The scrotal wound heals with a minimal morbidity is kept concealed under the garment. Poor colour match and hairs over the flaps are the disadvantages of the flap. Poor colour match with better function was accepted by the patients. Hair

can be removed by either electrolysis or periodic epilation. At present, the patients are managing it with trimming and epilation and are satisfied. Similar to other distant flaps, the scrotal flap is a non-sensory flap.

## Conclusion

A preliminary study of scrotal flap reveals that it is a reliable alternative to distant flap for soft tissue reconstruction of fingers. It provides thin and supple skin. The donor area mobility and scarring are minimal.

## References

1. William P, Warwick R(ed). Grays's anatomy; Reproductive organs of the male: p 1418-1419, Edinburg: Churchill Livingstone 1980.
2. Kaplan I. The scrotal flap repair for ischial Decubitus ulcer. Br J Plast Surg 1976; 29:34.
3. Taube E, Lebandter H and Kaplan I. Decubitus Ulcer in the groin: repair using a testiculo-scrotal flap. Br J Plast Surg 1977;30:86-87.
4. Lanier VC. Scrotal flaps, in: Strauch B, Vasconez LO, Hall-Findlay EJ (eds); Grabb's Encyclopaedia of flaps; p 1496-1499. Boston: Little Brown and company 1990.

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### Preputial flap to hand and forearm

( Sharma D, Tiwari VK. Br J Plast Surg 2000;53:635-636)

Abstract: Preputial flap is based on collaterals between the branches of external pudendal arteries and franular artery. After dorsal preputial slit, inner layer of prepuce is incised circumferentially to unfurl the flap, which can be tubed, if required. Delay is done after 2 weeks and complete division at 17-20 days.

The study comprised of 15 patients varying from 14 year to 50 year of age. It was used for finger injuries(6 patients), web space defects (2 patients), dorsum of hand(2 patients), after release of flexion contracture of fingers(3 patients) and wrist defect(1 patient). In one patient it was used in combination with groin flap to cover combined wrist and dorsum of thumb defect.

Editor