

“Cross finger flap,” an effective way of managing volar surface defects in finger

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Abstract

Soft tissue defects in the volar aspect of proximal and middle finger and fingertip following injury or infection always presents with difficulties in management and outcome. Sensible and durable coverage with preservation of flexible length and joint function are essential for a successful outcome. Cross finger flap is valuable and effective in resurfacing acute and long-standing defects in tips and volar surface of finger. Here a patient with a defect in the volar aspect of ring finger over the middle phalanx was managed using cross finger flap. Postoperative outcome was satisfactory.

Key words: cross finger flap, volar defect.

Introduction

Cross finger flap has been introduced in the literature a long years before, since then many authors recognized the procedure as single best reconstructive method for resurfacing fingers with significant loss of soft tissue from the tip and flexor surface of the fingers^{3,4,5,6,8}. Numerous authors have discussed various methods available for these purposes including allowing spontaneous re growth of skin over the defect, with or without the aid of traction on the skin, free skin grafts of various thicknesses, closure of the defect using adjacent soft tissue with or without shortening the digit and, closure with pedicle flap from a far. Each methods has it's advantages as well as it's disadvantages but none achieves complete restoration. Cross finger flap is indicated when bone or joint surfaces are exposed; when flexor tendons and occasionally extensor tendons are exposed, when there is need for soft tissue padding or when secondary reconstructions are indicated⁷.

Case report

Md. Mintu Miah a 26 years old man presented with a defect in the volar aspect of right ring finger over the region of middle phalanx extending up to DIP measuring about 3cmX1.5cm with exposed flexor tendon and part of the DIP joint. He had a history of penetrating injury over the same region, which later became infected and sloughed. Over the time the wound gradually increased in size with exposing tendons and joint, putting the patient in tension of loosing the finger. After admission in Diabetic Association Medical College Hospital, proper examination and evaluation was done and decision was taken to cover the defect with cross finger flap.

Operative procedure

Operation was done under general anaesthesia and tourniquet to control bleeding. The wound margins were excised to make it rectangular, with the long axis parallel to the long axis of the finger. Finger was placed against the donor middle finger to determine where to locate the base of the proposed flap. The flap was raised a little bit larger than the defect and applied to recipient area and sutured with fine thread.

The donor area was covered with split thickness skin graft and a tie-over dressing was applied. Post operatively the hand was secured and immobilized in a short arm volar cast with a collar sling⁹.



Fig: Pre-operative picture

Post operative management

Patient was discharged a day post operatively with medication and after 2 weeks the flap was detached from the donor site and the margins trimmed and sutured. Gradual motion of the finger was encouraged.

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Fig. 1: Two weeks after operation the flap detached

Follow Up

A month after surgery the patient came to me with a good hand function and full satisfaction.



Fig. 2: One month after surgery

Discussion

In spite of the weight of the data, the cross finger flap has still not achieved wide popularity among many hand surgeons. The reasons for these is not well identified, but the limitations relates the procedure is lack of substantial subcutaneous tissue, the limitations of size of the donor tissue, the presence of a disturbing dorsal donor site and sometimes presence of hair in the flap which is unaesthetic in volar surface and is not applicable in children under seven years of age and old people with arthritis or other degenerative conditions^{1,2,10,11}. In properly selected patient and carefully performed procedure provides a superior means of reconstruction for the injured finger with loss of significant soft tissue. Overall, patient satisfaction is quite rewarding.

Conclusion

Cross finger flaps are valuable procedures and have withstood the tests of time and wide experience. With expanding time and experience many variations have been devised by imaginative surgeons to make the technique unique in the management of the challenging defect.

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