

The occasional V–Y flap

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For those of us practising in the rural areas of Canada, it is fairly common to see patients with hand injuries in the emergency department. Many physicians are reluctant to deal with these injuries because they understand the huge importance of preserving hand function and are concerned that they may not provide optimal treatment for that patient. The following paper describes a useful procedure for treatment of fingertip-loss injuries, which can reasonably be done by rural physicians.

Which injuries lend themselves to V–Y flap repair?

Transverse amputations of the distal phalanx (Fig. 1A)

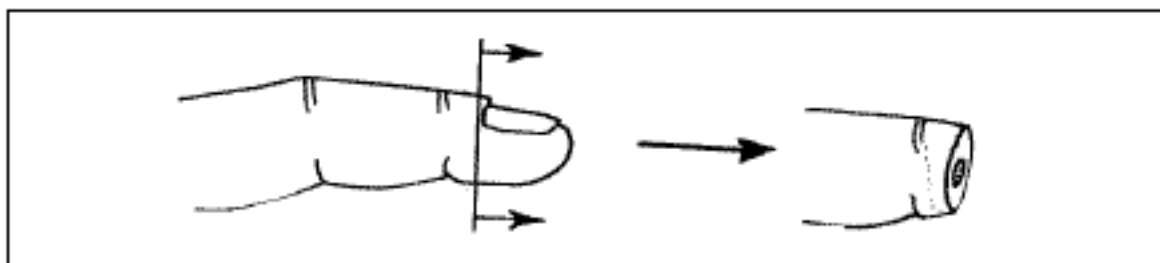


Fig. 1A

Oblique amputations that have preserved the palmar skin (Fig. 1B)

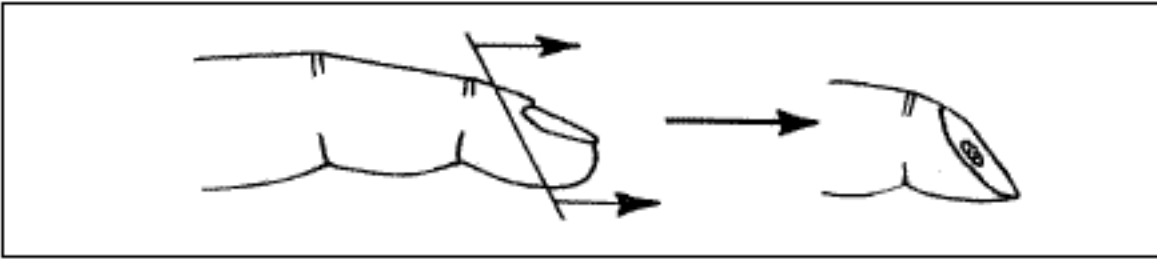


Fig. 1B

Technique

Step 1

Digital block, tourniquet (with a penrose drain or glove finger); wash and clean carefully with generous volumes of normal saline.

Step 2

With the palmar surface up, mark the 'V' extending from the flexion crease to the edges of the amputated stump (Fig. 2).

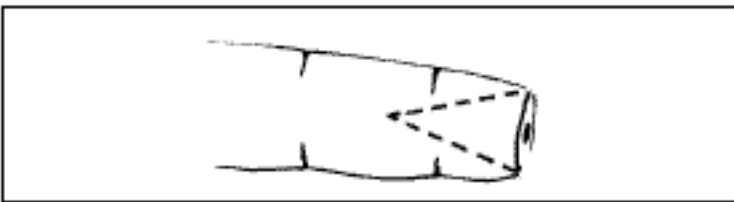


Fig. 2

Step 3

Cut down vertically 3–4 mm into the 'V' to free the triangle of tissue (skin). This will allow it to advance distally and up over the bone tip (Fig. 3).

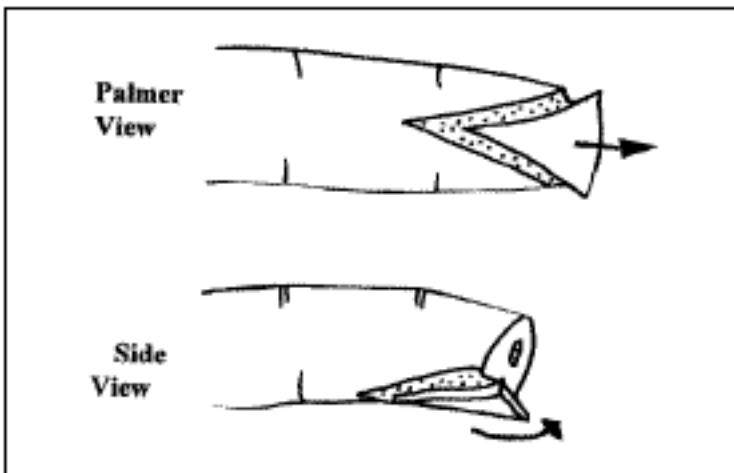


Fig. 3

Step 4

Start suturing by anchoring the flap at its leading edge and pulling it forward into its new position (Fig. 4).

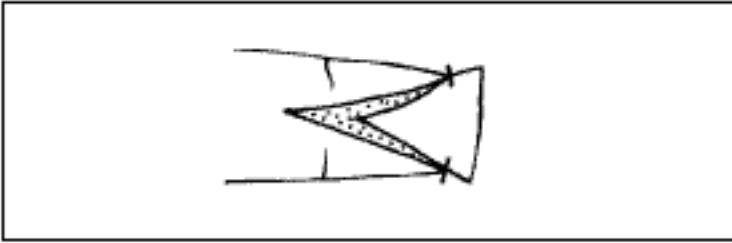


Fig. 4

Step 5

Suture the sides of the flap to the adjoining palmar tissue (Fig. 5A); then close the base of the 'Y' (Fig. 5B). (Hence, the "V-Y flap.")

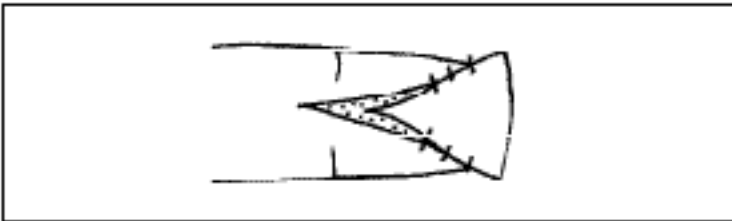


Fig. 5A

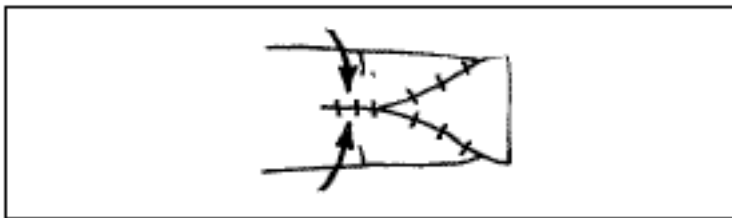


Fig. 5B

Points

1. You may find you can only advance the flap 4–6 mm, but this is often all that is needed to get skin closure over the bone tip.
2. If the bone sticks out too far to allow closure, trim it back a little using rongeurs until the flap covers it satisfactorily.
3. It isn't necessary to bring the flap up to the nail level; as long as the bone is covered the rest will granulate and epithelialise on its own.
4. When suturing the flap in place use a 4-0 nylon suture, leaving the threads approximately 1 cm long so that the sutures do not become buried and difficult to find.
5. A gentle Sofratulle or equivalent dressing with minimal pressure works well. Adding ibuprofen 400 mg t.i.d. is helpful if the blood supply appears tenuous.

6. I usually cover the repair with Keflex, 250 mg t.i.d., p.o. for 7 to 10 days to minimize the possibility of losing the flap to infection.
7. After leaving the initial dressing in place for 3 to 4 days, daily or every second day dressing changes are adequate. Remove sutures at day 10.
8. Follow up your patient on a regular basis to minimize complications in the initial stages of recovery.

Complications that may occur

- Infection: Cover with antibiotics.
- Avascular flap: Don't cut too deeply when mobilizing the 'V'. Use ibuprofen.
- Neuroma formation: If the digital nerves are evident, pull them down, cut and cauterize the ends and allow them to fall back.
- Buried sutures: Leave threads long, to avoid this.
- Pain: Elevate the affected hand for the first 2 days. Use adequate analgesia.
- Fingertip tenderness following healing: Use occupational therapy or physiotherapy to assist with desensitization exercises. (This will take months.)
- Abnormal nail growth: Ablation of the nail matrix may be necessary at a later date.

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