

LENGTHENING FINGER STUMPS AMPUTATED THROUGH THE MIDDLE PHALANX WITH LOCAL FLAPS AND BONE GRAFTS

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The following technique has been evolved for fingers amputated through the middle phalanx and with full function at the proximal interphalangeal joint. Patients with such amputations suffer a marked functional and cosmetic handicap. The stumps may of course be lengthened by tubed pedicles from other parts of the body but, as will be shown, this may be carried out more simply by local finger flaps, free skin grafts and free bone grafts. Although several stages are required, all may be carried out on an out-patient basis under local anaesthesia, apart from the occasion when the bone graft must be taken from the iliac crest; general anaesthesia and in-patient care are then needed.

Basically the technique consists of delaying a flap on the dorsum of the stump until it will reliably survive on its distal attachment to the palmar skin. It is then wrapped over a suitably shaped free bone graft and the secondary defect is free skin grafted. This provides length but the flap is often bulky and unsightly. By using the excess tissue as small local flaps, further lengthening is obtained.

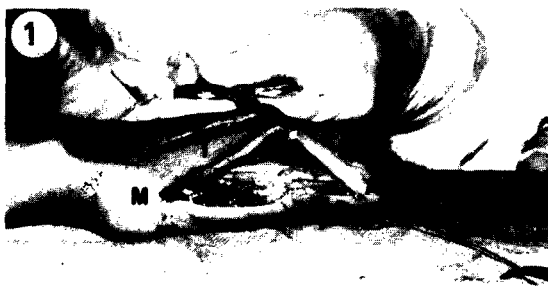


FIG. 1. The first delay of the dorsal flap. The flap involves the whole of the dorsal skin between the midlateral lines, extends distally to the palmar tip of the stump and proximally as far as required for lengthening. The proximal pedicle MM must contain at least 1 major dorsal vein.



FIG. 2. The third delay of the flap. One month previously and about 1 month after the initial delay, the proximal pedicle had been divided and the dorsal vein ligated. The flaps have been raised up to their palmar skin attachment at the tip and then sutured back into place.

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FIG. 3. The flaps have been turned back ready for insertion of the bone grafts.

FIG. 4. The bone grafts are held in place with Kirschner wires.



FIG. 5. The flaps are turned over the bone grafts without tension.

FIG. 6. The donor sites are resurfaced with free skin grafts.

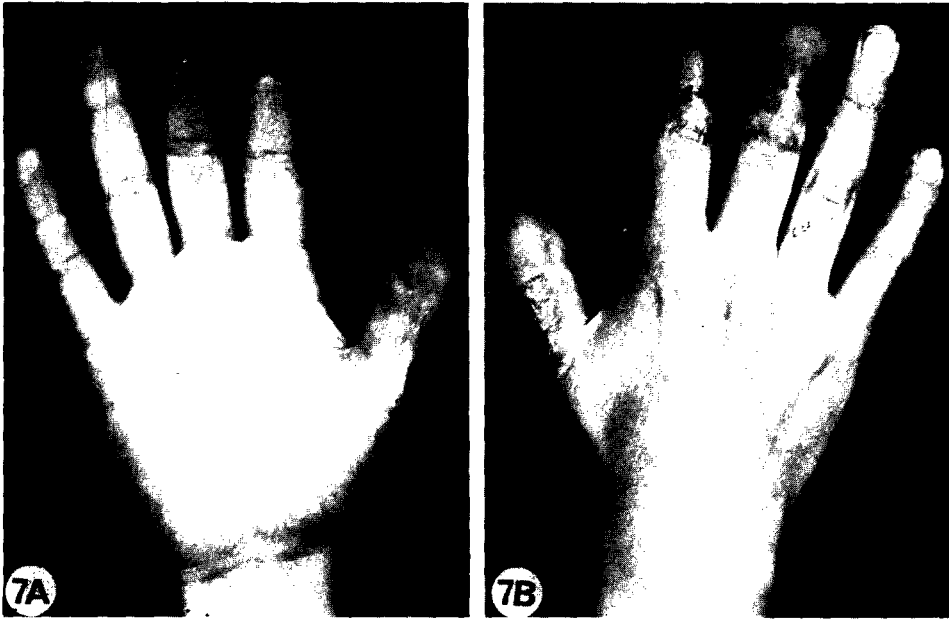


FIG. 7. A and B. The initial results tend to have a bulky unsightly appearance.



FIG. 8. The bone grafts are well consolidated.

DELAYING THE DORSAL FLAP

Since the main arterial supply to the finger runs along the palmar aspect and the venous drainage along the dorsal, the object of the delay is to persuade the palmar arteries to take over the supply of the dorsal skin and to reverse the direction of the venous drainage so that it passes along the palmar veins.

Stage I. The flap is raised from midlateral line to midlateral line as shown in Figure 1. It extends distally to the junction with palmar skin and proximally as far as

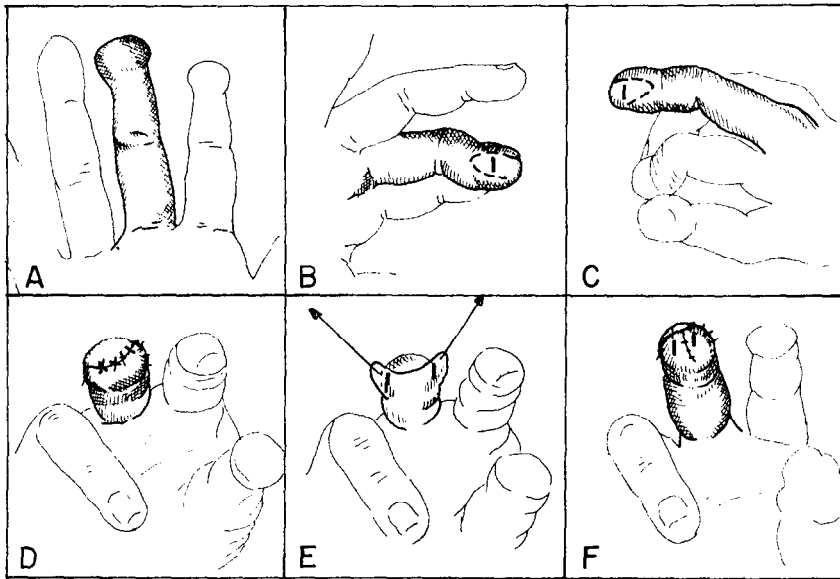


FIG. 9. Technique for using the excess bulk by raising 2 lateral distally based flaps which when rotated into the midline lengthen the stump further. They must first be delayed.



FIG. 10. The delayed flaps ready to be raised.

FIG. 11. The flaps rotated into the midline. The secondary defect is not completely closed to avoid tension.

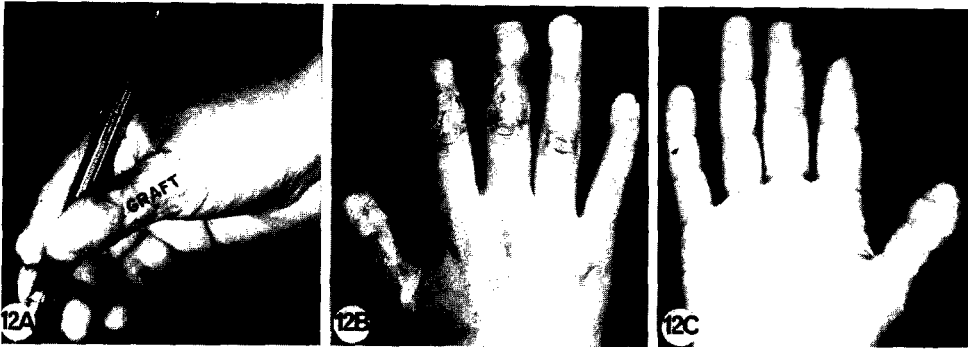


FIG. 12. A, B and C. The final result.

required to provide the lengthening desired. The proximal pedicle must contain at least 1 major dorsal vein.

Stage 2. The proximal pedicle is divided 3 to 4 weeks later and the dorsal vein ligated.

Stage 3. One month later the flap is raised completely up to the palmar skin of the stump and then sutured back in place (Fig. 2).

INSERTING THE BONE GRAFTS

If only small amounts of bone are required these may be obtained from the upper end of the ulna or the lower end of the radius. Otherwise the iliac crest is used. After turning over the flap (Fig. 3), the graft is carved and held in position with Kirschner wires (Fig. 4). The flap is then folded over the bone graft without tension (Fig. 5) and the secondary defect covered with a split skin graft from the volar surface of the forearm.

REDUCING THE BULK OF THE TIPS WITH EXTRA LENGTHENING

At first the tips may be too large (Fig. 7). When healing is complete and the bone grafts united (Fig. 8) they may be made more shapely and a further lengthening of the stump by 5 to 6 mm achieved. The technique is shown in Figures 9 and 10. Two lateral flaps on the reconstructed tip each with distal pedicles are delayed and, when healing is complete, raised and rotated together into the midline. The donor sites are partly sutured and partly left to heal by secondary intention so as not to put too much tension on the flaps (Fig. 11).

The final results (Fig. 12) are functionally and aesthetically pleasing.