PRIMARY POLLICISATION OF AN INJURED MIDDLE FINGER

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A man aged fifty mangled his non-dominant left hand in a spinning machine (Fig. 1). At the time of primary operation the condition of the hand was as follows.

The thumb had been severed through the base of the proximal phalanx.

The index finger had been severed through the proximal part of the shaft of the metacarpal; the palmar skin remained but was not viable.

The middle finger had a compound fracture-dislocation of the proximal phalanx and metacarpal head with avulsion of the dorsal skin overlying the proximal phalanx and part of the metacarpal. The metacarpo-phalangeal joint was completely disrupted with comminution of the proximal phalanx. The extensor digitorum communis tendon was severed and contused at the site of injury. The distal and middle phalanges, distal to the compound fracture-dislocation, were uninjured with both the neurovascular bundles intact and with skin of normal colour and sensation. The flexor mechanism on the volar aspect of the finger was contused.

The ring finger had a traumatic amputation through the distal part of the proximal phalanx with an adequate volar flap of skin to effect direct closure.

The little finger had been amputated through the middle phalanx.

Operation—The patient was taken to the theatre six hours after the injury. The hand was cleaned using Cetavlon, ether and saline.

The non-viable palmar skin was trimmed; the amputation stumps of the ring and little fingers were closed, using the available palmar skin. The metacarpal stump of the index finger was resected just distal to its base and the palmar skin used to close the stump.

Both the neurovascular bundles of the middle finger were dissected back into the palm. The base of the middle phalanx of the middle finger was cut across. The metacarpal head, proximal phalanx and interphalangeal joint were resected. The viable middle and distal phalanges of the middle finger were passed through a tunnel, deep to the palmar fascia, and were brought out at the site of the amputation of the thumb. This middle finger remnant was fixed to the base of the proximal phalanx of the thumb by a Kirschner wire (Fig. 2). At all times the circulation of the pollicised middle finger was adequate except when attempting to obtain the best position of rotation; this resulted in circulatory embarrassment. The flexor tendon had been cut during the transfer and no tendon repair was done.

Dry, voluminous dressings were applied and the hand and arm were immobilised in a below-elbow volar plaster-of-Paris slab.

Progress after operation—The hand was kept elevated; antibiotic therapy was continued and Chymar was prescribed for five days.

Five hours after operation the circulation of the pollicised middle finger showed signs of embarrassment, and became grey in colour but still blanched to pressure. Over the next twelve hours the circulation became worse with no blanching on pressure and, because of this, a stellate ganglion block was done about eighteen hours after operation. There was an immediate improvement in the colour of the "thumb," with blanching. This improvement was maintained. A small eschar formed at the top of the pollicised finger which separated spontaneously with complete epithelialisation.

The amputation stumps healed without incident. Two weeks later the pollicised finger looked excellent and on removing the sutures the wound had healed.

After four weeks active movements and exercises were started, and later the patient was sent for re-education and rehabilitation. Over the next few months the bone united (Fig. 3).

FIG. 1

FIG. 2

FIG. 3

Figure 1—The hand at the time of injury. Figure 2—The Kirschner wire in position, after transferring the middle finger to the thumb. Figure 3—The remaining part of the proximal phalanx of the thumb and part of the middle phalanx of the middle finger have united.

FIG. 4

The end result.

Function gradually improved; the pollicised "thumb" could be brought into opposition to meet the stumps of the little and ring fingers (Fig. 4). Power and grip of the hand were good. Sensation was normal but the patient occasionally felt the "thumb" as his middle finger. He was eminently satisfied with the result and returned to manual labour using a spade; but he could not return to his previous employment in charge of a spinning machine.

DISCUSSION

The finger most commonly used for pollicisation is the index finger. The little finger has been used. Littler (1953) advised using the index finger as the first choice. Most authors, however, agree that any injured digit should be used if pollicisation is indicated in the severely injured hand. Pollicisation of the injured middle finger has been described by Guermonprez (1887), Jepson (1925), Tanzer and Littler (1948) and Hilgenfeldt (1950).

Stellate ganglion block seemed at the time to be an essential step in the preservation of the blood supply of the transferred finger.

The result obtained with this patient is satisfactory functionally although it could be enhanced by flexor and extensor tendon grafting and rotation osteotomy through the proximal phalanx to improve opposition. Resection of more of the shaft of the third metacarpal would also increase the cleft between the thumb and opposing stumps. However, the patient is satisfied with the result and does not want further operations.

SUMMARY

1. Primary pollicisation of an injured middle finger is described.
2. The value of stellate ganglion block in preserving the blood supply is emphasised.

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