THUMB RECONSTRUCTION IN AN ELECTRICALLY INJURED HAND

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SUMMARY

We present a case of severely damaged right hand due to electrical injury in a young boy. There was loss of thumb and index finger with exposed phalanges of middle finger. The hand was salvaged by reconstructing the thumb and preserving the middle finger. An adequate functional and cosmetic recovery was achieved.

Thumb is the most important unseparable functional and aesthetic entity of a hand. Hence partial or total thumb loss results in marked functional, cosmetic and psychological disablement depending upon the occupation and social status of the victim. Thus it was preferred to reconstruct the thumb rather than provide a prosthesis to the patient.

Case Note

A 12 year old boy sustained high tension electrical injury of the right hand resulting in amputation of the thumb from the distal part of the metacarpal bone, total disarticulation of index finger from the M. P. joint and marked flexion contracture of the middle finger with unstable ulcer exposing the dorsoradial aspect of proximal and middle phalanx.

Operative steps

A superiorly based bilobed flap was raised from the left upper quadrant of the abdominal wall. The upper lobe was tubed and perfect primary insetting was done to reconstruct the soft tissue of the thumb. The lower lobe was utilised to provide cover over the exposed proximal and middle phalanges of the middle finger.

After three weeks the flap was divided. The upper lobe tube was sutured. Final insetting of the lower lobe was done to the middle finger (Fig 1.)

Two months later, a supportive bone graft, of adequate size for the thumb, was procured from the adjacent unutilised second metacarpal bone (Fig. 2.).

The patient gained purposeful movement at the first carpo-metacarpal joint and of the middle finger. After few months protective sensation developed and thus he was able to pinch, hold and write and perform other routine activities by his right hand (Figs. 3 & 4).

Discussion

The principles of thumb reconstruction following traumatic loss have been mentioned by Shah and Mahaluxmivala (1984). Although not ideal, many a times the only possible remedy lies in gaining soft tissue length by a tube pedicle followed by supportive bone grafting (Sawhney, 1979).

In substantial loss of thumb or fingers (as in the present case), the abdominal flap is very useful for gaining soft tissue length. The position of the hand is quite comfortable. However similar results can also be achieved by using groin flap (Bhattacharya et al., 1979) and pectoral flap (Shah and Mahaluxmivala, 1984).

In the present day, with the advent of microsurgery free transfer of composite tissue is possible in one stage. Unfortunately such procedure is perhaps not justifiable in electrical injuries as there is possibility of damage to the recipient vessels and the adjacent soft tissues due to the passage of the current.
Fig. 1. X-ray showing the pre-operative loss of thumb and index finger and the flap used in reconstruction.

Fig. 2. Showing use of second metacarpal as bone graft for reconstruction of the thumb.

Fig. 3. Showing the Post-operative result.

Fig. 4. Showing the Pinch.
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REFERENCES


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