

Secondary Thumb Reconstruction in a Mutilated Hand



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KEYWORDS

• Thumb reconstruction • Osteoplastic reconstruction • Toe transfer • Pollicization

KEY POINTS

- The thumb plays a key role in global hand function.
- The reconstructed thumb requires length, sensation, stability, and the ability to meet the other digits, ideally in a tripod pinch.
- In secondary reconstruction of thumb in a mutilated hand, special consideration must be placed on the function of the remaining digits and allowing for functional pinch between the thumb and finger(s).
- Toe transfer remains the gold standard even in secondary reconstruction; osteoplastic thumb reconstruction and pollicization have a role and can provide useful function.

BACKGROUND

A mutilated hand is a devastating injury and a therapeutic challenge for the treating hand surgeon. A detailed history and examination needs to be performed, focusing on the patient's needs, hand dominance, occupation, hobbies, goals, and psychological state. A detailed assessment of what structures are missing and what are present is essential, including the bones, and soft tissues (muscles, tendons, blood vessels, and nerves). Setting realistic goals is imperative and having the patient participate in decision making may encourage acceptance of the injury. Ideally, the hand should be useful and aesthetically acceptable to the patient.

Most surgeons consider the goal in reconstruction in the multiple digit amputation to be a tripod grip rather than a basic grip, in which at least 2 fingers are in contact with the thumb,

which gives rise to a stronger and more stable grip and pinch.

It is imperative that the hand surgeon considers not only the status of the thumb but also of the remaining digits. Littler¹ commented that "It is not the full length of the thumb, nor its great strength and movement, but rather its strategic position relative to the fingers and the integrity of the specialized terminal pulp tissue which determines prehensile status." Reflecting these comments, the specific reconstruction for an individual may need to be tailored to accommodate their specific injury.

In cases of significant hand trauma resulting in a mutilated hand, the surgeon must plan judiciously the appropriate treatment keeping in mind the overall goals. The reconstructed hand would preferably be pain free, have sensate tips, be stable, allow functional pinch and tripod grips, and be cosmetically acceptable.

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