

Functional Outcomes after Post-Traumatic Chase Amputation: A Case Report

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Abstract

Case Report

Every year thousands of people are victims of hand trauma, with serious injuries for half of them. Hand injuries occur twice as often in accidents in everyday life than in accidents at work. They are the cause of several amputations (hand or fingers). The nature of the trauma does not only affect the survival rate, but also the functional outcome. Sometimes it is better to have an amputated finger than a non-functional and sometimes even embarrassing, painful and insensitive leftover finger. Traumatic digit amputation generates functional, aesthetic and psychological disabilities. Such post-traumatic consequences call for a rigorous therapeutic approach, aiming at an early secondary surgical procedure which is ideally to be performed before the patients psychologically recover from their initial trauma. Through this technical point, we describe a technique for additional amputation of the index finger by transforming the middle finger into an index finger while maintaining a free and functional first commissure.

Keywords: Amputation, chase operation, index, hand, reconstruction.

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INTRODUCTION

Single or multi-digital traumatic amputation generates a functional, aesthetic, and psychological disability for the patient. Such post-traumatic effects require the reconstructive surgeon to a rigorous therapeutic approach with a view to early secondary surgery, ideally performed before the patient "mourning" his initial trauma, at the secondary stage, to treat the sequelae of traumatic digital amputations, the therapeutic principle consists first of all in improving the global function of the hand. The basic objective is to establish quality pollicidigital forceps, ideally thin, stable, sensitive, strong, and mobile, and at the same time, if possible, to improve the aesthetic appearance of the hand, particularly in women [4, 5].

To define the best therapeutic solution for the patient, a large number of factors must be taken into consideration (age, sex, occupation, dominant hand, local condition of the mutilated hand, physical and psychic condition, the desire of the patient, doing so of each clinical situation a unique case.

We report the case of a 52-year-old patient, following a work accident, the amputation was performed according to the intervention of Chase. The aesthetic and functional results were very satisfied after six months of the intervention

OBSERVATION

It is a 52-year-old patient, a right-handed, butcher, initially admitted to the emergency following a work accident (the index of the right hand was taken by a chopper).



Figure 1: Local state of the right index finger at 48h post-op

The clinical objective examination of two circumferential wounds, oblique with bruted edges regarding p2 and p3 of the index, with anesthesia of both edges of the index, weak capillary pulse, deficit in flexion and extension of the index, the radiography of the hand objective a comminuted fracture of p2 and p3 of the right index. The patient initially benefited from a repair of the two pedicles after surgical exploration, the evolution was marked by necrosis of the index,

subsequently, an amputation according to the chase technique is realized, which consists of an amputation at the base of the second metacarpal which allows the indexalization of the medius. The patient benefited from early rehabilitation. the control after 6 months objective of good aesthetic and functional results of the hand with a good opening of the thumb-medius commissure, indexalization of the medius with patient satisfaction with the aesthetic and functional aspect of his hand.

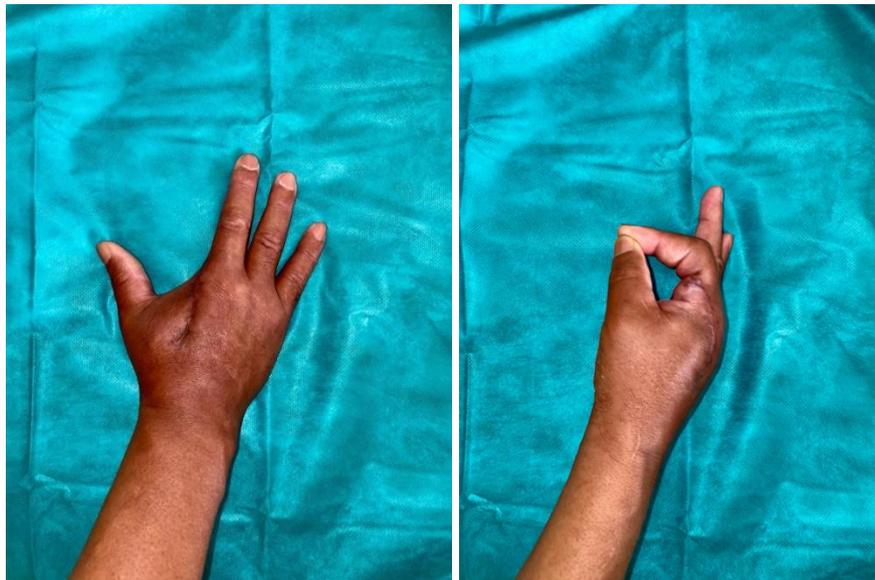


Figure 2: Six months postoperative local state of the right hand

RESULTS

Removal of an unesthetic first phalanx stump of a long finger by proximal amputation at the metacarpal level or associated with a translocation of a neighboring finger can considerably improve the aesthetic appearance of the mutilated hand at the price of a reduction of the width of the palm, source of a decrease in the grip strength of the hand. The advantages and disadvantages of these processes must be discussed with the patient before retaining the

indication. If the indication for proximal amputation or digital translocation is often retained in a young woman, above all concerned with the aesthetic aspect of the hand, it must be proposed with caution to other patients. In a manual worker, maintaining the width of the palm is a strong argument against performing a proximal amputation, especially if there exists preoperatively a non-painful and mobile-first phalanx stump, especially at the index level and little.



Figure 3: Postoperative functional results

DISCUSSION

Transposition of the second or fifth ray following amputation of the middle or ring finger is an uncommon hand reconstructive procedure, the importance of which often is overlooked. Following amputation of either central digit, the grip usually is weakened, especially when the middle finger is involved because the three-point chuck pinch is compromised. Small objects tend to fall from the grasp through the space left by the missing digit. With time, the adjacent fingers may scissor further interfering with prehension and distorting the symmetry of the hand. Transposition of either the second or fifth ray is necessary to close the gap created by the missing digit to restore function and improve appearance [7, 11].

The proximal amputation of the index, called “chase amputation”, has been known since 1946. It can be performed by the dorsal way (technically simpler) or by the palm way (better aesthetic result with a little visible palm scar). The second metacarpal osteotomy with a lateral and radial oblique bevel is performed in the proximal third of the diaphysis after having disinserted the flesh body of the intrinsic muscles. After excision of the osteoarticular structures, the own extension tendon of the index is reinserted onto the common extension tendon of the middle girl (operation can be performed only through the dorsal way), and the index flexor tendons are cut proximally. The two palm collateral arteries are ligatured and sectioned. The two palm collateral nerves are dissected proximally far enough to be sectioned in a healthy area and buried in the interosseous muscles to avoid possible neuromas of pain. The skin resection is customized and must be calculated in a position of the maximum commissural opening. The reinsertion of the first dorsal interosseous on the back of the entrances of the medius will be performed just before skin closure [1, 3].

CONCLUSION

Treatment of the sequel of traumatic digital amputation must be undertaken early in secondary

surgery before the patient "mourning" his initial trauma aesthetic appearance of the mutilated hand

The functional and aesthetic results remain more satisfactory than a simple amputation of damaged segments.

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