

Management and Treatment of Traumatic Amputation of Phalanges by the Surgeon

Jesús Ricardo Rivera Hernández

General Surgery Department, UMAE Hospital de Especialidades No. 71 CMN Torreón, IMSS,

ABSTRACT

The patient's life and capacity to carry out everyday tasks may be significantly impacted by traumatic phalange amputation. Motor vehicle collisions and occupational exposure are risk factors for traumatic phalange amputation. To maximize the preservation of the severed component and reduce complications, proper care and treatment of traumatic phalange amputation are essential.

The successful reimplantation of the severed component using the PA approach has been demonstrated. Traumatic phalange amputation treatment options include surgical repair and reperfusion therapy. Yet, time is of the importance for a successful course of therapy, therefore prompt medical attention is essential.

For the sake of patient safety and occupational health care, traumatic phalange amputation prevention is crucial. Traumatic injuries can be prevented through the use of personal protective equipment and training in occupational safety. As traumatic phalange amputation can have a significant impact on the function and appearance of the affected limb, which can affect the patient's ability to perform daily activities and self-esteem, it is important to provide a comprehensive approach to the patient's care that includes psychological and emotional support.

In general, traumatic phalange amputation may be effectively managed and treated, which can greatly enhance the patient's quality of life and lessen the effects of the injury.

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INTRODUCTION

Traumatic phalange amputation is a devastating injury that can occur in numerous circumstances, such as work, sports, vehicle accidents, or in everyday life. This injury can significantly lower a patient's quality of life and is defined by the loss of one or more phalanges, the bones that make up the fingers or toes. (1)

Due to the physical and psychological effects of traumatic phalange amputation, more focus has recently been dedicated to its prevention, management, and therapy. The quality of life for those who have been harmed by this injury has considerably improved because to developments in reconstructive surgery and medical technology. (2)

It is crucial to prevent traumatic phalange amputation, and this may be done by spreading awareness and putting safety precautions in place at work and in daily life. Several risk factors, such as exposure to dangerous machinery, a lack of occupational safety training, improper use of hand tools, and contact sports, have been linked to traumatic phalange amputation. (3)

Effective treatment of the injury is essential and should involve patient stabilization, prompt medical examination, and bleeding control. The outcome of therapy may also depend on maintaining the severed portion. To aid in the healing of the damage and avoid problems, doctors may employ tissue regeneration treatments and microsurgical methods. (4)

Surgical therapy of traumatic phalange amputation should be personalized and will rely on the degree of the damage and the patient's general condition. To get the optimum results, phalanx repair or further amputation may be required. Nonetheless, it is important to consider any risks connected to the procedure and the following recuperation. (5)

It is significant to remember that traumatic phalange amputation has an impact on the patient's mental as well as physical health. Depression, anxiety, and post-traumatic stress disorder are examples of psychological impacts. As a result, in addition to providing medical care, treatment should also provide the necessary psychological support. (2)

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THEORY

Traumatic phalange amputation is a frequent injury that happens when one or more phalanges, the bones that make up the fingers and toes, are removed as a result of a traumatic incident. The functioning, appearance, and quality of life of the patient may all suffer as a result of this damage. The management and treatment of this injury is a serious issue for medical specialists, who are continually seeking to enhance therapeutic procedures. (1)

Risk factors

Many traumatic occurrences, including as job accidents, sports injuries, and traffic accidents, can result in traumatic phalange amputation. Lack of training in occupational safety, exposure to hazardous equipment, and incorrect use of hand tools and machinery are possible risk factors for this injury. In addition, practicing contact sports and exposure to leisure activities that require high speed or altitude might increase the risk of traumatic limb injuries. (2)

Handling

The best outcome of traumatic phalange amputation depends on proper care. Early in the course of treatment, immediate medical evaluation and primary care, including bleeding control and patient stabilization, are essential. The outcome of the therapy may depend on the preservation of the severed component. The severed limb has to be wrapped in a fresh, dry towel, put in a plastic bag, and kept in the fridge right away. To retain limb functionality and lessen the psychological effects of the damage, the severed component should, if at all feasible, be reimplanted using microsurgery. (4)

Surgical treatment

The type of surgery needed for traumatic phalange amputation should be determined by the patient's general health and the degree of the damage. Phalanx reconstruction is the aim of surgical therapy in order to maintain limb function and appearance. Another amputation may be required if the injured area is too severe or the severed portion cannot be reimplanted. Microsurgical procedures and tissue regeneration therapies, such as the use of growth factors and stem cells, can be used to repair the pharynx. (6)

Complications

Infection, tissue loss, and graft failure are possible consequences of surgical therapy for traumatic phalange amputation. A multidisciplinary strategy combining surgeons, anesthesiologists, nurses, and physiotherapists can avoid or treat these problems. (7)

Prevention

A crucial component of patient safety and occupational health care is the prevention of traumatic phalange amputation. The risk of traumatic limb injuries can be considerably decreased by workplace safety training and the adoption of preventative measures, such as the use of protective boots and gloves. Also, putting in place workplace safety measures like using

physical barriers and delineating risk zones can help reduce injuries. (8)

DISCUSSION AND CONCLUSION

A frequent accident that can have a substantial impact on a patient's usefulness, appearance, and quality of life is traumatic phalange amputation. Early in a patient's course of therapy, immediate medical examination and primary care are essential. The outcome of the therapy may depend on the preservation of the severed component. (2,3)

In the therapy of traumatic phalange amputation, the amputated portion preservation (PA) approach is crucial. In order to increase the likelihood of a successful reimplantation, PA refers to the procedure of chilling and conveying the severed portion to the surgical site under ideal circumstances. Compared to the conventional method of just laying the severed portion on dry ice, PA has been found to dramatically boost success rates in reimplantation of the amputated component. (9)

Reperfusion treatment for the amputated portion may potentially be used to preserve it. In order to increase blood flow and lessen tissue damage, reperfusion treatment involves giving the severed portion water and oxygen. In amputated parts, reperfusion treatment has been found to be useful in lowering tissue necrosis and enhancing tissue survival. (10)

The type of surgery needed for traumatic phalange amputation should be determined by the patient's general health and the degree of the damage. Microsurgical procedures and tissue regeneration therapies, such as the use of growth factors and stem cells, can be used to repair the pharynx. The choice of surgical procedure will depend on the degree of damage and the site of the amputation. In situations of high-grade amputations, where extensive bone regeneration is required to restore limb function, reconstructive surgery may be essential. (11)

Problems might occur during the management and treatment of traumatic phalange amputation. Wound infection, tissue necrosis, and subpar wound healing are all possible complications. In order to reduce the likelihood of problems, it is crucial to routinely examine the patient during the course of the treatment. (7)

Protecting patients' safety and occupational health require the prevention of traumatic phalange amputation. The risk of traumatic limb injuries can be considerably decreased by workplace safety training and the adoption of preventative measures, such as the use of protective boots and gloves. The frequency of traumatic injuries can also be decreased by introducing workplace safety measures, such as the use of physical barriers and the labelling of risk zones. (2)

A patient's quality of life may be negatively impacted for a long time by traumatic phalangeal amputation, which is significant. The patient's ability to carry out everyday tasks and their self-esteem may be negatively impacted by an amputation due to the function and appearance of the damaged limb. So, it is crucial to offer a whole approach to

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the treatment of traumatic phalange amputation, including the patient's mental and emotional well-being. (3)

As a result of the accident, traumatic phalange amputation, the patient's life and capacity for everyday tasks may be significantly impacted. To optimize the preservation of the severed area and reduce complications, treatment should be quick and sufficient. Although reperfusion treatment and surgical reconstruction are other significant choices, the PA approach has been demonstrated to be beneficial in the successful reimplantation of the severed portion. For the sake of patient safety and occupational health care, traumatic phalange amputation prevention is crucial. It is crucial to offer patients a thorough course of therapy that takes into account their psychological and emotional needs. In general, traumatic phalange amputation may be effectively managed and treated, which can greatly enhance the patient's quality of life and lessen the effects of the injury.

REFERENCES

- I. Reid, D. B., Shah, K. N., Eltorai, A. E., Got, C. C., & Daniels, A. H. (2019). Epidemiology of finger amputations in the United States from 1997 to 2016. *Journal of Hand Surgery Global Online*, 1(2), 45-51.
- II. Skoff, H., & Skoff, H. (2022). The psychological and somatic consequences of digital amputation. *Plastic and Reconstructive Surgery Global Open*, 10(6).
- III. Renfro, K. N., Eckhoff, M. D., Trevizo, G. A. G., & Dunn, J. C. (2022). Traumatic Finger Amputations: Epidemiology and Mechanism of Injury, 2010-2019. *HAND*, 15589447221122826.
- IV. Iorio, M. L. (2019). Hand, wrist, forearm, and arm replantation. *Hand Clinics*, 35(2), 143-154.
- V. Yang, K., Deng, J., Pan, Y., Yuan, Y., Duan, G., & Zhu, J. (2022). Secondary Thumb Reconstruction via Ectopic Banking of Bony Phalanges From a Nonreplantable Amputated Thumb: A Follow-Up Study. *The Journal of Hand Surgery*.
- VI. Dastagir, N., Obed, D., Dastagir, K., & Vogt, P. M. (2023). Personalized Treatment Decisions for Traumatic Proximal Finger Amputations: A Retrospective Cohort Study. *Journal of Personalized Medicine*, 13(2), 215.
- VII. Szapary, H. J., Meulendijks, M. Z., Moura, S. P., Veeramani, A., Gomez-Eslava, B., Hoftiezer, Y. A., ... & Eberlin, K. R. (2022). Phalangeal Fractures Requiring Vascular Reconstruction: Epidemiology and Factors Predictive of Reoperation. *HAND*, 15589447221109635.
- VIII. Kawilarang, B. Finger Replantation Injury: Approach to Diagnosis and Treatment in the Emergency Department.
- IX. Kotha, V. S., Fan, K. L., Schwitzer, J. A., Youn, R., Black, C. K., Attinger, C. E., & Evans, K. K. (2021). Amputation versus free flap: long-term outcomes of microsurgical limb salvage and risk factors for amputation in the diabetic population. *Plastic and Reconstructive Surgery*, 147(3), 742-750.
- X. Masa, I., Casado-Sánchez, C., Crespo-Lora, V., & Ballestín, A. (2021). Effects of ischemic preconditioning and C1 esterase inhibitor administration following ischemia-reperfusion injury in a rat skin flap model. *Journal of Reconstructive Microsurgery*, 37(03), 242-248.
- XI. Yin, Y., Tao, X., Li, Y., Bao, B., Ying, Y., Bao, T., & Wang, J. (2020). Cosmetic and functional results of a newly reconstructed thumb by combining the phalanx of second toe and the great toenail flap transplantation. *Journal of orthopaedic surgery and research*, 15(1), 1-9.
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