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Microsurgical approach to traumatic hand amputation. A case report

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Case Report

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ABSTRACT:
Amputations secondary to trauma have a 45% prevalence. Since 1968 repla have been carried out, improving surgical techniques, with a 90% succe Observational and retrospective study. 61-year-old male, with traumatic amput the distal third of the right forearm, with muscle, bone and neurovascular inju surgical therapeutic plan for traumatology and orthopedics together with pla reconstructive surgery. Surgery duration of 8 hours. Postoperative under surv and use of a heat lamp, achieving capillary refill of 4 seconds and incomplete ra motion. 1 week later, motor functionality and sensitivity recovery. 6 montl functional hand and good esthetics. The most determining factor of recover mechanism of injury, together with comorbidities. In severely crushed or r injuries they will have a poor outcome. In our case, the mechanism and the abs comorbidities favored good recovery, showing functionality and aesthetics 6 later. The variables before a traumatic amputation are the history, immune sta kinematics of the trauma, which determine the functional prognosis of the There are limitations to adequate long-term patient follow-up.

KEYWORDS: Amputation, hand, replantation.

Introduction

The secondary amputations due to trauma have up to 45% prevalence [1]. A hand amputation is not an event that threatens a patient's life, however, it is cause of notorious decrease in functionality and quality of life, therefore, replantation is an indicated procedure to safeguard the integrity of the patient. Since 1968 complete replantations have been performed, improving surgical techniques with the evolution of medicine, resulting in up to 90% success. However, the main objective is the recovery of functionality and not only appearance [2]. Its uncommon to report the results of these procedures and their evolution in the medium-long therm. We present the case of a masculine of 61 years old with amputation due to sharp trauma treated with hand replantation.

Case report

A 61 year-old masculine patient presented to the ER with sharp trauma with polisher in right forearm region during labor hours. He denies the presence of chronic-degenerative diseases. Physical examination revealed a semicircumferential wound at the level of flexor zone 5 and extensor zone 7 with complete section of the flexor and extensor muscles, fracture in the distal third of the radius and ulna, and complete section of the neurovascular bundle (Fig 1 and 2). In the preoperative evaluation, it was decided to place a dorsal splint and external fixators.

The therapeutic plan included surgical management by traumatology and orthopedics in conjunction with plastic and reconstructive surgery and lasted 8 hours (Fig. 3 and 4). After the procedure, close monitoring of the right hand and forearm was maintained with elevation and use of a heat lamp. During the first hours after surgery, capillary refill of 4 seconds and incomplete ranges of motion were observed.

After a week, motor functionality increases and sensitivity recovery begins. At that time, the patient is discharged from the service for presenting a correct evolution without complications. After 6 months, a functional hand and good aesthetic is observed (Fig. 5)

Discussion

Replantation procedures are considered as one with the best results, however, the most determining factor for recovery will be the mechanism of injury, this added to comorbidities that affect vascular

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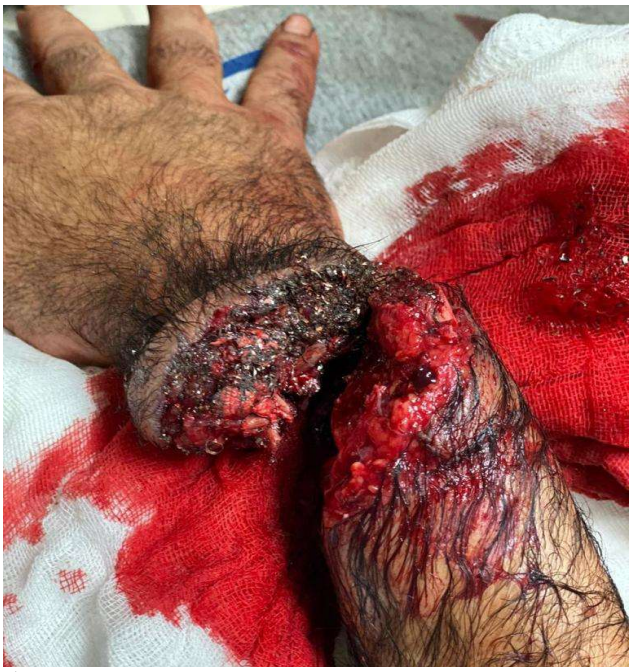

Figure 1. Traumatic cutting injury in right forearm

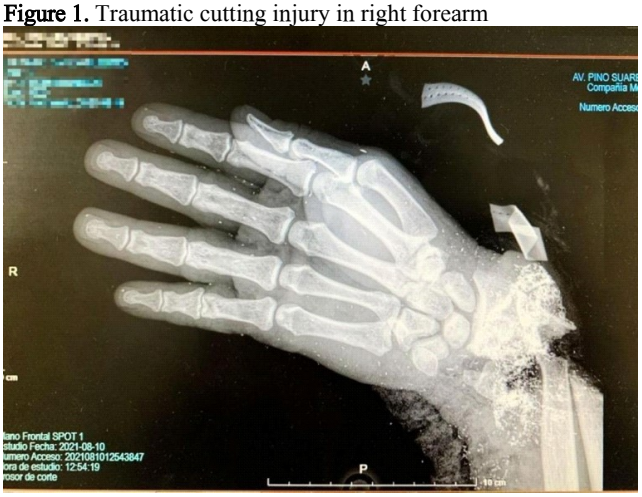

Figure 2. Preoperative radiography in AP projection, where fractures of the distal radius and ulna are shown.

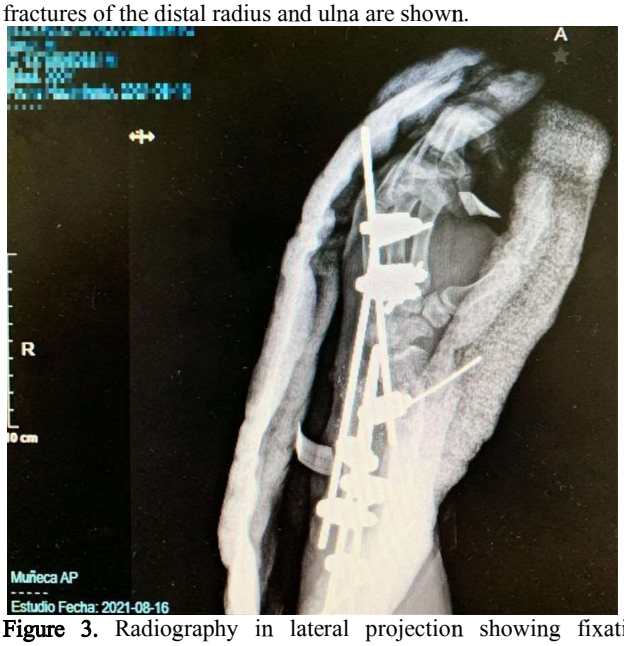

Figure 3. Radiography in lateral projection showing fixation system and limb replantation.

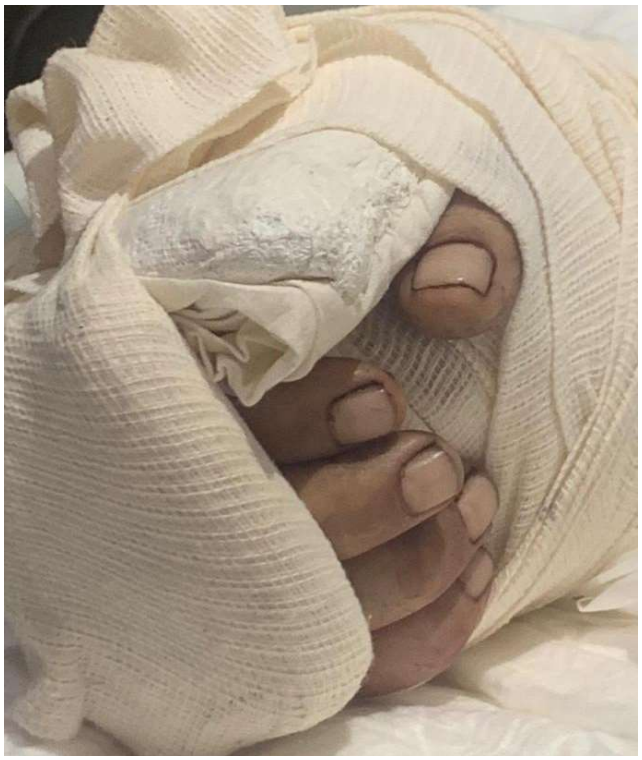

Figure 4. Hand in the first hours after surgery with evident capillary filling in the fingers.

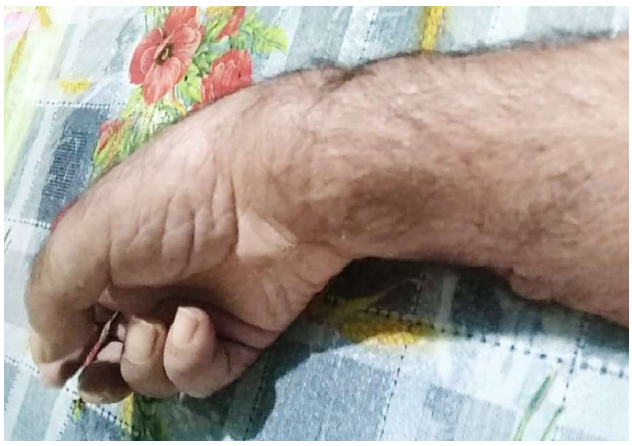

Figure 5. Image of the right arm, 6 months after replantation with good functionality and aesthetics.

integrity, the immune system and wound healing [3,4,5]. Those whose injury are parts severely crushed or mangled will have a poor outcome. In the case of our patient, as it was caused by a cutting mechanism and did not present comorbidities that affect the wound healing process, the prognosis is conducive to a good recovery, showing functionality and good aesthetic 6 months after the surgical intervention.

Conclusions

The variables found in a case of traumatic amputation are several, among them stand out the patient's history, the immune status and the kinematics

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of the injury, all important when it comes to surgical planning and the patient's prognosis for a correct evolution. In our case, a favorable evolution has been observed in the medium term with functionality recovery, however, there are limitations to give adequate follow-up to the patient in the long term.

Conflicts of interests

The authors declare no conflict of interest.

Acknowledgements

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References

1. Ziegler-Graham K, MacKenzie EJ, Ephraim PL, Travison TG, Brookmeyer R. Estimating the prevalence of limb loss in the United States: 2005 to 2050. Arch Phys Med Rehabil [Internet]. 2008;89(3):422–9. Available from: http://dx.doi.org/10.1016/j.apmr.2007.11.005
2. Tark KC, Kim YW, Lee YH, Lew JD. Replantation and revascularization of hands: clinical analysis and functional results of 261 cases. J Hand Surg Am [Internet]. 1989;14(1):17–27. Available from: http://dx.doi.org/10.1016/0363-5023(89)90054-3
3. Pet MA, Ko JH. Indications for replantation and revascularization in the Hand. Hand Clin [Internet]. 2019;35(2):119–30. Available from: http://dx.doi.org/10.1016/j.hcl.2018.12.003
4. Satria O, Abubakar I, Mahendra Karda IW. Replantation at the level of the wrist joint: A case report. J Clin Orthop Trauma [Internet]. 2019;10(5):873–8. Available from: http://dx.doi.org/10.1016/j.jcot.2019.08.006
5. Langer V. Management of major limb injuries. ScientificWorldJournal [Internet]. 2014;2014:640430. Available from: http://dx.doi.org/10.1155/2014/640430

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