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Tissue forceps for stabilizing amputated parts in a finger replantation

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ABSTRACT

Tremor of the assistant while holding the amputated finger during preparation for replantation is a problem. Few methods are found in literature to stabilize the amputated part. Reported here is the usage of tissue forceps for stabilizing the amputated part while the surgeon is tagging the nerves and vessels under a microscope.

Key words: *Finger amputation, preparation, stabilization, tagging, tissue forceps*

Introduction

Debridement and tagging the neurovascular structures is an important step in finger replantation surgery. Usually, an assistant holds and stabilizes the amputated finger during this phase. Tremor, or unwanted movement of the assistant while holding the amputated part, during preparation is a problem. Stabilizing the amputated portion is important under high magnifications. Here, tissue forceps are utilized to fix the amputated part to overcome this problem during preparation and tagging the vessels under a microscope.

Technic

The amputated part of the finger is located between the arms of the tissue forceps (Figure 1). Stabilization is obtained by the force of those arms. Different types of forceps can be used according to the size of the amputated finger. The extent to which the forceps are squeezed can be adjusted by placing the finger distally or more proximally within the arms of forceps.

Discussion

An assistant usually holds the amputated finger during preparation and tagging under a microscope. Tremor, or unwanted movements of the assistant, causes difficulty when preparation and tagging the vessels. Few techniques have been defined to overcome this problem in the literature. Currently known methods in the literature for stabilizing the amputated segment include: using hypodermic needles and a cork board, stay sutures attached to the operating table [1], employing a silicone finger mat of the microsurgical instrument tray [2] and suturing the amputated portion to a suture pack [3].

The technique put forth possesses numerous advantages. For one, the surgeon does not need an assis-

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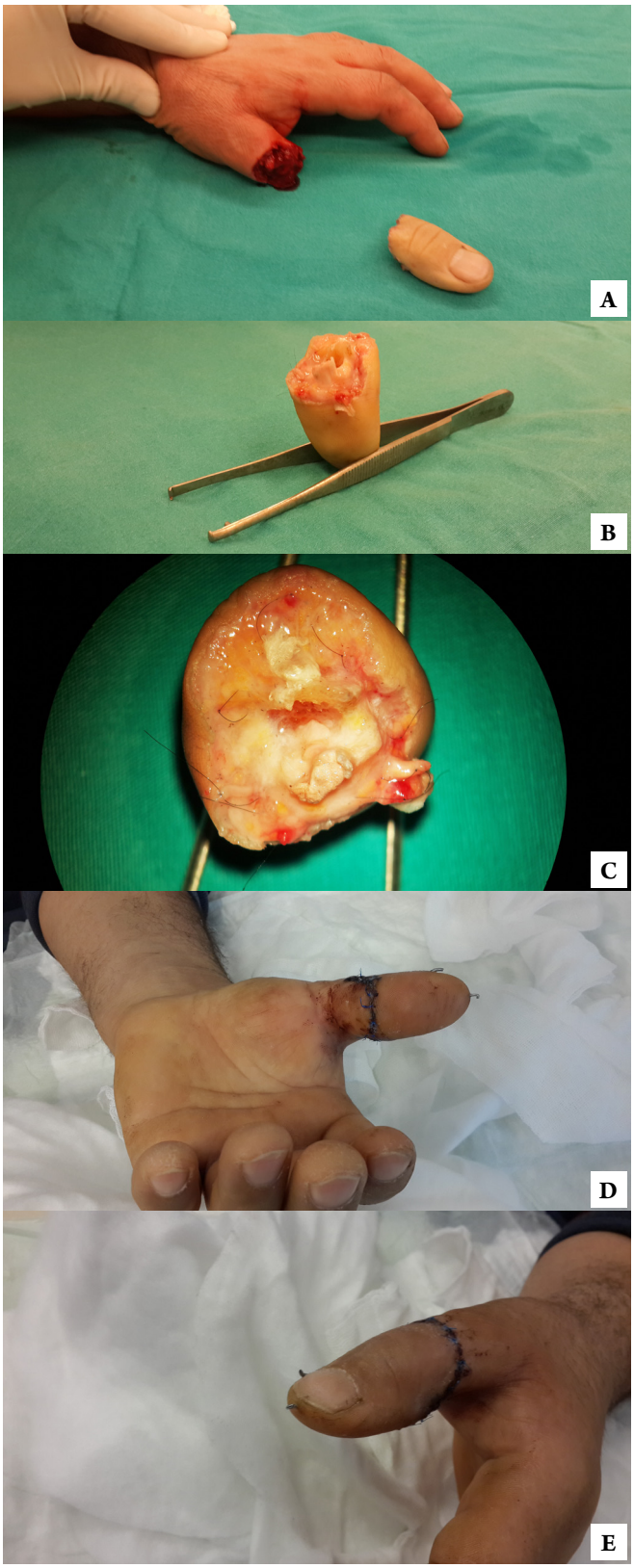

Figure 1. (A) Thumb amputation at proximal phalanx level. **(B)** Stabilizing the amputated part with tissue forceps without the need for an assistant. **(C)** The whole cross-section of the amputed part is visualized under microscope. The volar and dorsal veins, arteries and nerves are tagged with sutures. Note the accumulation of blood at the vessel ends. **(D)** View of thumb amputation at second postoperative week. **(E)** Note that no skin incisions are performed to explore the vessels.

tant to hold the amputated part so tremor or unwanted movement is avoided. Moreover, it can be used for all levels of finger amputation. Additionally, tissue forceps are already available with all kinds of surgery sets, though not all sets have a cork board [1] or silicon finger mat [2]. There is also no need to pass sutures from the amputated part to a suture pack or operating table [1, 3]. Passing sutures not only damage the amputated finger but implementing them also takes time and it is difficult to change position if needed. Debridement and stabilization for manipulation of neurovascular structures is easier than with a silicone finger mat technique as the segment is better fixed within the arms of the forceps compared to a silicone finger mat that is commonly weak [2].

Exploring the amputated finger's whole cross-section provides a surgeon with a better look in order to find and compare the available vessels and tag them. Based on the fact that the cross-section is visualized, there is less of a need to incise the skin and have an assistant retract it with skin hooks to find the vessels. With this, the surgeon does not need to incise the skin to see the structures under the skin (Figure 1d), so additional trauma and time loss is avoided. As well, constant squeezing of the pulp of the amputated part by the forceps causes accumulation of the remaining blood to the cut ends of arteries and veins so they are easily found (Figure 1c).

These advantages make this simple technique a helpful tool in preparing an amputated finger optimally.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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