



Successful Finger Transplant Surgery and Nursing Care in A 25-Year-Old Young Man

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ABSTRACT

Background: The loss of body parts can make life miserable for the individual and his/her family in the future. So, if surgery can restore the original function of the damaged organ.

Case Presentation: The patient was a 25-year-old young man who had his three fingers amputated during a traumatic event involving a bread baking machine. He successfully underwent finger transplant surgery, resulting in desirable outcomes, leading to the discharge of the traumatized person. The rehabilitation process after the operation took three months, and physiotherapy and occupational therapy were performed.

Conclusion: Timely finger transplant surgery increases the chance of success and the person's possible return to normal life.

KEYWORDS: Finger transplant; Surgery; Trauma

INTRODUCTION

Grafting amputated limbs has been one of the ancient human's ambitions being fulfilled by scientific achievements [1, 2]. The history of finger transplant dates back to 1960, in parallel with the application of microscopes and microsurgical techniques [3]. Epidemiologically, finger transplants account for about 10% of other body transplants, and this occurs among young and working people, and has an adverse effect on the individual's life function [4]. In addition to its destructive impact on a person's body, finger amputation causes damage to the person's psyche and soul, as well as a decrease in self-confidence, decreased performance, and a

reduction in the motivation to perform other daily tasks. Studies have shown that the rate of finger transplantation is declining [3, 4], necessitating the need to inform these individuals. Perhaps one of the reasons for this is the high cost, which requires further examination and attention from the health system governing society.

One of the factors causing finger transplant failure in teaching hospitals could be the large number of patients. To address this issue and reduce failures in this type of transplant, surgical residents should undergo comprehensive training under the supervision of relevant professors, with a mandatory course unit defined for them. The benefits of this include the acquisition of skills by residents and an increase in the success rate of finger transplant surgery [5].

The loss of body parts can make life miserable for the individual and his/her family in

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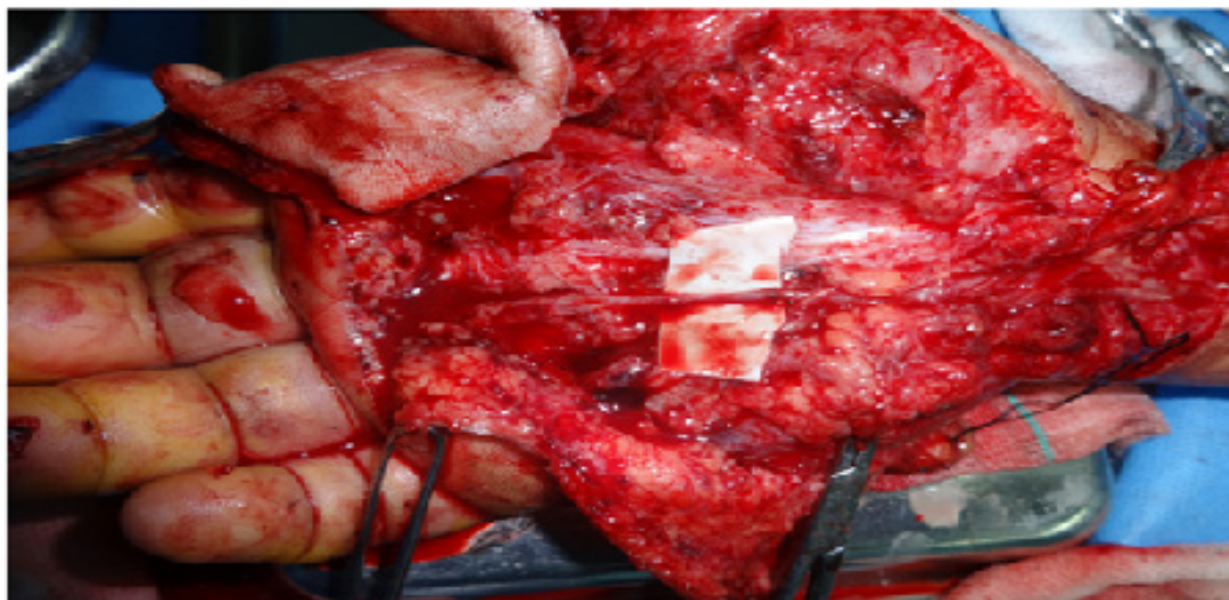


Figure 1: Successful finger transplant surgery in a 25-year-old young man.

the future. So, if surgery can restore the original function of the damaged organ, it will be a great help to the individual and his/her family. This goal can be achieved today by tissue grafting and transplantation.

CASE PRESENTATION

The trauma inflicted on this 25-year-old young man was acute. Given the sensitivity of the patient's job, the prosthesis was practically useless. The finger transplant team was immediately gathered after the patient's admission. The skeleton and finger bones were initially fixed. Then, the extensor tendons were repaired and venous and arterial vessels were characterized. The arterioles were initially grafted, followed by the veins. Flexor tendons and skin were finally repaired, and the patient was admitted to the recovery unit with good general health. The post-surgery follow-up showed a successful transplantation, and the patient was discharged after one week (Fig. 1). The surgery lasted 5 hours. In patients not immediately admitted after limb cut, the intervention would be extending the amputated limb to preserve its function and beauty. For this, the limb-extending instrument should be implemented on the patient's finger.

Vascular anastomosis technique: First, the veins were grafted separately. But a suture was placed at the end. Then the artery was grafted separately with 0.8 PROLENE thread. The characteristics of PROLENE sutures include: Non-absorbable (even in the presence of infection), this suture provides permanent tensile strength in the tissue Extremely smooth and polished surface (for easy passage of the suture through the tissue) Monofilament (the smooth and polished surface of these sutures limits the possibility of bacterial growth) Synthetic (minimum tissue reaction) Flexible (for easy and convenient knotting).

The patient was hospitalized for a week after the operation and received intravenous antibiotics and heparin. The rehabilitation process after the operation lasted three months, and physiotherapy and occupational therapy were performed. Signs of finger viability were evident immediately after the operation. The return of finger sensation began 3 months later. Finally, after 6 months of surgery, the function of the three fingers on the ulnar side was excellent.

Nursing care in finger transplantation includes caring for the transplant site, controlling bleeding, caring for the wound dressing, teaching hand movements and how to use

the transplanted organ. Compliance with the above items is of great help in providing organ transplantation [6, 7].

DISCUSSION

Finger transplantation is not always successful. However, despite occasional failures, the composite tissue all-transplantation (CTA) technology has opened a new era in regenerative surgery. Although CTA is not a brand new technique, regenerative microsurgery and transplant surgery aim to achieve the complete reconstruction of the tissue lesion and its replacement with an anatomically and physiologically identical tissue while obviating donor-or auto-graft-related complications. Nevertheless, the application of this technique to improve the quality of life in non-life-threatening conditions has raised new ethical considerations [8]. Despite the advantages of CTA, there are ongoing arguments questioning whether the potential improvement in the patient's quality of life outweighs the possible risks of elective organ transplantation [8-10]. The main risk of hand transplantation is the prolonged suppression of the immune system, which considerably weakens the host's immunity, making recipients vulnerable to infections, malignancies, and other post-transplant complications [9]. In addition, immunosuppressant drugs have been associated with side effects, such as diabetes, Cushing's syndrome, and renal toxicity and reported to shorten survival after transplantation [10].

Hand transplantation as a reconstructive surgery has been accepted as a functional surgery over time by injured individuals, their families, surgeons, and medical staff, and they have a favourable view of this type of surgery. In most of these surgeries, the preoperative treatment is performed based on previous experiences with organ transplant patients, and then nerve regeneration is performed when activity increases [11].

The goal of the rehabilitation phase is to prepare the patient for independent living through neuromuscular and sensory retrain-

ing, improving upper extremity strength/flexibility, teaching basic activities of daily living, and providing a home exercise program. After the rehabilitation phase, the goal of the outpatient phase is to help the patient maximize their range of motion and independence in performing daily activities [12].

In conclusion, timely finger transplant surgery increases the chance of success and the person's possible return to normal life. Therefore, it is recommended that young people first follow safety precautions when using their work equipment to avoid such problems.

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