

One Case of Abandoned Little Finger to Reconstruct Thumb and Repair Soft Tissue Defect

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Abstract: To explore the feasibility of reconstructing thumb and repairing soft tissue defects with little finger, select the cases in which the thumb and little finger were completely disconnected without thumb replantation, and reluilding thumb with a little finger. Reconstructed thumb survived with satisgjaotry function. Reconstructing the thumb with the little finger can meet the curative effect of the patient, and this method can also be used to reconstruct the thumb for suitable patients.

1. Objective

To investigate the feasibility of reconstructing the thumb and repairing soft tisuedefects with abandoned little finger.

2. Methods



Figure 1: Before the operation, it was found that the fingers were polluted by cement without replantation conditions.

The patient was treated with a stirrer and the left thumb was broken for 2 hours Admission examination: the right thumb was compelely disconnected from the root, the proximal dorsal soft tissue defect. The little finger was disconnected, only the flexor tendon was connected. The soft tissue of the thumb was damaged by a lot of concrete, and the pollution is heavy, thes little finger is

mutilation but still intact. After thorough debridement, it was found that the fingertips were severely polluted, and the fingers needed to be shortened after debridement, which would affect the function of replanting the thumb. The patient's fingers were thick, and the small finger vessels and soft tissues were in good condition, as shown in Figure 1, Figure 2 and Figure 3.



Figure 2: Soft tissue state of the proximal thumb before operation



Figure 3: Preoperative X-ray

The small finger blood vessels were close to the proximal blood vessels of the thumb. The bilateral median incision on both sides of the little finger was taken, the skin was cut until the bone, the proximal phalanx of the little finger and the proximal joint surface of the middle phalanx was removed. The little finger and the proximal part of the thumb and the Kirschner wire were fixed, and the skin of the back of the little finger covers the skin of the back of the thumb. Pius 3/0 tendon line was used to repair long flexor tendon, long extensor tendon of the thumb, 9/0 non-invasive suture was used to repair bilateral intrinsic nerves, the original artery of the thumb sacrum was anastomosed with 10/0 atraumatic suture, and there were three venous hemorrhages on the back of the little finger. It was anastomosed with a 10/0 atraumatic suture with the proximal subcutaneous vein. The fingers were rosy. After the blood passed, the fingers were swollen and the dorsal veins were exposed. The local metastasis flap of the thumb was used to cover the dorsal vein of the finger the skin of the thumb was taken away, and the exposed wound of the thumb was covered freely. The operation lasted 6 hours, as shown in Figure 4 and Figure 5.



Figure 4: Photos of affected hands after suture removal 2 weeks after operation



Figure 5: Hand function after removing Kirschner wire in 2 months after operation

3. Results

The blood flow of the thumb is good and there was no vascular crisis. The patient got out of bed 7 days after operation, the finger and free skin graft survived. The wound healed in the first stage, and the blood oxygen analyzer detected 99% of the blood oxygen of the thumb. At present, there is a small amount of adduction and outreach activities in the reconstruction of the thumb.

4. Conclusions

(1) Reconstruction of the thumb with abandoned fingers can cause small damage to the patient. The fingers can be reconstructed and the wound can be repaired at one time. The patient is willing to accept it^[1]; (2) Created conditions for future orthopedics, maximally retaining limb function^[2]; (3) In this case, the condition of abandoned little finger is much better than the thumb, which increases the success rate of the operation^{[3][4][5][6][7]}; (4) The necessity of thumb reconstruction and the current progress, the function of the thumb accounts for 40% of the full-hand function. For the defect of the thumb, microsurgery has been making unremitting efforts to repair the shape of the thumb and

reconstruct the function of the thumb.(5)For severe thumb and finger injury, the injured finger's blood vessels, nerves, tendons, skin and soft tissues are accompanied by severe tearing, severe contusion, and great difficulty in replantation. The stump repair will result in the loss of all hand functions for the patient. The injured limb function will be restored to the maximum extent through primary transfer and thumb replantation, secondary flap repair and reconstruction, and later standardized and systematic rapid rehabilitation techniques (braces, passive motion equipment, wax therapy, low-frequency stimulation equipment, hand traction, physical therapy exercise equipment, hand function fine motion operation equipment, and sensory function training equipment, etc.), ultimately allowing the patient to return to society, Take care of oneself. And avoid second-stage thumb reconstruction, reduce patients' economic pressure, and reduce hospital stay.(6)Ensure that the "carpet" debridement and the wound are clean; (7) Ectopic replantation of the thumb ensures that the thumb is fixed in the palm position, and the broken end of the fracture can be firmly fixed with a cross Kirschner wire; (8) Extensor and flexor tendons should be repaired in one stage as far as possible. Tendon transplantation can be used for tendon defects; (9) The digital nerve can be repaired in one stage, and the nerve defect can be repaired by nerve transplantation of the residual finger, which is conducive to the early recovery of finger function. In conclusion, the goal of severe and complex replantation is not only the survival of the finger, but also the perfect success of replantation of severed fingers. At the same time, the replantation doctors should not easily give up the spirit of disused fingers in order to slow down the functional disability of the injured limb; It is also very important to pay attention to rehabilitation training. The recovery of injured limb function is closely related to postoperative rehabilitation training; At present, the development of rehabilitation concept and technology is very beneficial for hand surgery. The concept of rapid rehabilitation can help patients achieve more than expected results. Paying attention to rehabilitation training can get twice the result with half the effort for ectopic thumb reconstruction.

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