

Modified Wrap-around Flap Incisional Method and Observation of Donor Foot Effects

Sir,

To repair degloving injury of thumb, wrap-around flap is an ideal method. By this method, not only the thumb reconstruction looks good, but also the number of toes does not change. At the same time, it is difficult to dissect the nail body by traditional operation, and it is difficult to care and treat the postoperative wound on the foot, which leads to obvious defects such as secondary injury of the graft body and donor foot, and eventually affects the postoperative walking speed and distance of the patients.

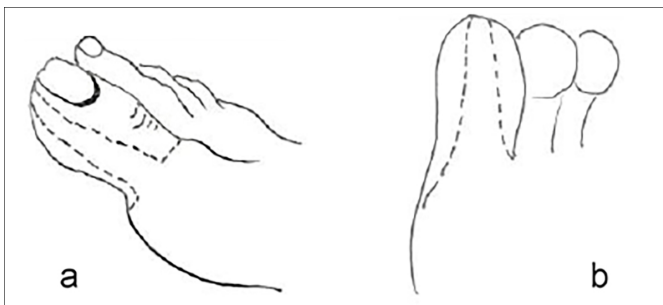


Figure 1: Diagrammatic sketch: (a) Sketch of conventional wrap-around flap foot retaining strip, (b) Sketch of modified wrap-around flap foot retaining strip.



Figure 2: Operative technique: (a) Soft tissue defect of thumb, (b) wrap-around flap dissociation, (c) Immediate hand appearance after wrap-around flap transplantation, (d) Skin grafting on foot, (e) Weight-bearing area skin strip retained on sole of foot.



Figure 3: Postoperative view: (a), (b), (c) Hand shape and function 12 months after flap transplantation; (d), (e) The dorsal and volar conditions of the first toe.

In our hospital, from December 2009 to March 2017, 23 patients with thumb defects underwent wrap-around flap transplantation by modified incision – partial removal of the distal phalanx and preservation of the weight-bearing area of the sole. The follow-up of nail nutrition and donor function was carried out for 12 months to 2 years.

The innovative point of modified wrap-around flap incisional method is that it removes the nail body and the end of the first phalanges completely, and it keeps the middle thong of the palm of the toe (Figure 1). What is special about modified wrap-around flap incisional method is that the nail flap is excised with the distal part of the first toe (about 1/2 of the distal part of the toe) without separating the nail from the toe bone. The distal part of the toe bone, which is cut together, is transplanted into the defect area of the thumb. Preservation of fibular vascular nerve bundles in the flap, is more advantageous for the thumb to grasp and recover the sensory function when the peroneal nerve remains in the radial volar side of the thumb after the skin flap transplantation (Figure 2).^{1,2} Postoperatively the patient's nail body and foot supply remain in good condition (Figure 3).

Using the modified wrap-around flap incisional method for thumb reconstruction is safe and feasible, satisfactory, transplanted nail body can be obtained, and most of the complications of the donor feet can be significantly reduced.³ There are no Statistical significant differences in preoperative and postoperative walking speed and foot distance within 100 meters.

CONFLICT OF INTEREST:

None of the authors of this article have any commercial association that might pose or create a conflict of interest with the information presented in the submitted article.

AUTHORS' CONTRIBUTION:

CH: Substantial contributions to the conception and design of

the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content; and final approval of the version to be published.

YL: Substantial contributions to the conception and design of the work.

SG: Interpretation of data for the work; and drafting the work or revising it critically for important intellectual content.

LZ: Drafting the work and revising it critically for important intellectual content.

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