

DONOR SITE OF TOE TRANSFER: IS COMBINED SECOND AND THIRD TOE TRANSFER THE BETTER CHOICE? A 31 YEARS OF LONG-TERM FOLLOW-UP

Dear Editor,

When hand function is impaired following a traumatic amputation or congenital absence of fingers or the thumb, a microvascular toe-to-hand transfer can be considered to restore dexterity.¹ The evolution of digital reconstruction with toe transfer has enabled surgeons to reestablish the most important functions in these severely injured hands.² The second toe is an ideal option for single finger reconstruction but what is the best choice when we want to transfer three toes to ensure the tripod pinch function? In the literature, there are many reports about the use of the second toe for thumb reconstruction, and the combined second and third toe transfer for the other two fingers with good aesthetical and functional hand results. In contrast, reports concerning the possible adverse effects of the donor site are less frequent.^{1–4} In long term follow-up donor-site cosmesis and possible functional disturbances play a major role in consideration of various toe transfer.

We report a case of 46-year-old woman who sustained a severe crush injury to her dominant right hand. All the fingers were amputated at the metacarpal head. In January 1983, simultaneous reconstruction of the thumb, fourth and fifth digits was accomplished with a single second toe from the right foot, and a combined second and third toe unit from the left foot. Follow-up at 31 years revealed an acceptable appearance and function of

the reconstructed hand. (Fig. 1) However, the complaint that troubled the patient the most was the donor site on the left foot, where both second and third toes were simultaneously harvested. We observed a migration of the fourth toe toward the great toe (scissoring deformity) at the left foot, which causes discomfort and pain during walking. (Fig. 2a) The right foot was asymptomatic and had good cosmesis. The radiograph images confirmed the deformity (Fig. 2b).

This is an interesting case because a direct comparison between the donor site morbidity can be done on opposite feet of the same patient. It is can appreciate the



Figure 1. The dominant right hand. Twenty nine years after reconstruction of the thumb, fourth and fifth fingers with a single second toe from the right foot and a combined second and third toe unit from the left foot. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

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Figure 2. Appearance of the donor feet (2A) radiograph images confirmed the scissor deformity of the left foot (2B) (L-left; R-right). [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

outcome of the donor site using two different techniques and with a long-term follow-up on the same patient.

In multiple-finger amputations, the goals of the reconstruction are to provide tripod pinch, powerful hook grip, adequate grasping, and lateral stability. All four toe transfer techniques have been described elsewhere.³ The combined transfer of second and third toes is reserved for adjacent finger amputation. The limited use of this procedure may relate to functional and cosmetic concerns

regarding both the donor and recipient sites.² Various donor-foot complications have been reported in this technique. Bone graft is used to restore metatarsal length and maintain the metatarsal arch to prevent this type of complications.² However, this imposes potential problems such as bone fracture, reabsorption, and swiveling of the pulp.³

On the basis of this case and the experience of the senior author we propose as best solution of two adjacent missing digits can be accomplished with either two single-toe or combined second and fourth toe transfer reducing the complication of the donor site and the need for later surgical steps.

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