

Anastomosis To The Common And Proper Digital Vessels In Free Flap Soft-Tissue Reconstruction Of The Hand

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Abstract

Background: Free flap coverage for soft tissue defects of the hand has become increasingly common with microvascular anastomosis usually performed to the snuff-box or to the volar vessels at the distal forearm. Anastomosis at these locations has some drawbacks. The purpose of this study is to determine the viability and safety of anastomosing to proper or common digital vessels adjacent to the zone of the defect for free flap reconstruction of the hand.

Methods: Retrospective review of all patients undergoing soft tissue free flap reconstruction of the hand with microvascular anastomosis to either the proper or common digital vessels was performed at two microvascular surgery centers.

Results: Twenty-nine free flaps were performed in 28 patients. All free flaps were performed for traumatic digital or palm defects. Free flaps included: 7 ALT/ALT fascial flaps, 9 great toe pulp/wrap-around flaps, 6 second toe pulp flaps, 4 radial artery perforator flaps, 2 partial muscle flaps, and 1 lateral arm flap. Anastomosis was performed to proper or common digital arteries in all cases and venous anastomosis was performed to dorsal digital veins in 19 cases and volar veins in 10 cases. All free flaps survived. Five flaps were performed on a day surgery basis.

Conclusions: Microvascular anastomosis to the common or proper digital vessels adjacent to the site of injury represents a safe alternative to the volar wrist or dorsal snuff box with numerous advantages: short pedicle dissection therefore decreased donor site morbidity, decreased recipient site morbidity, decreased risk of pedicle kinking; quicker procedural times, and potential for outpatient procedures. Furthermore, size match between flap pedicle vessels and recipient vessels are close if a short pedicle is harvested and potential decrease in blood flow to the hand is avoided by not using the radial or ulnar artery.

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