

Reverse Radial Forearm Flap to Provide Arterial Inflow to a Toe Transfer

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INTRODUCTION: Toe-to-thumb transfer has become the gold standard for thumb reconstruction, but in badly mutilated hands a suitable recipient artery may not be available and additional soft tissue coverage may be required. There are just four case reports describing the use of the reverse radial forearm flap for simultaneous coverage of a soft tissue defect around the thumb and provision of a recipient artery for a toe transfer. The aim of this study is to explore the outcomes and complications of using a reverse radial forearm flap to provide arterial inflow for a toe-to-hand transfer.

MATERIALS AND METHODS: A single surgeon's experience of all toe-to-hand transfers in conjunction with a reverse radial forearm flap between 1995 and 2014 were reviewed. In addition to patient baseline characteristics, the initial injury type, immediate or delayed toe transfer, follow-up period, and complications were analyzed.

RESULTS: Eight toe-to-hand transfers in 7 patients met the inclusion criteria. Three patients were children (age range 3 to 15 years) and 4 patients were adults (age range 29 to 39 years). Three patients underwent primary toe-to-thumb transfer simultaneously with reverse radial forearm flap reconstruction and 5 patients underwent secondary toe-to-hand transfer after an initial reverse radial forearm flap reconstruction. There was 1 re-exploration, but all toe transfers survived completely. The average follow up period was 6.4 years. All patients were satisfied with the function and appearance of their reconstructed thumb.

CONCLUSION: The reverse radial forearm flap is a reliable procedure to provide arterial inflow to a toe-to-hand transfer in difficult situations associated with a lack of a recipient artery and a significant associated soft tissue defect.