

The Ideal Upper Extremity Flap for Soft Tissue Defects, Radial Artery Perforator Adipofascial Flap

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Abstract

Purpose: The ideal requirements for soft tissue coverage of the upper extremity are a thin, pliable, durable flap with minimal donor site morbidity that allows early functional rehabilitation and protection. Drawbacks of common flaps used for dorsal hand coverage include sacrifice of the radial or ulnar artery, donor site morbidity, bulky flaps requiring secondary thinning, non-aesthetic donor sites, and inability to provide sensate coverage. We report our series of five adipofascial radial artery perforator flaps for the upper extremity. A modification to the proximal forearm fascial flap allows the flap to be harvested as a neurosensory flap.

Methods: We present our experience of 5 cases with the adipofascial forearm flap for upper extremity soft tissue defects including dorsal hand or proximally based wounds of the elbow. The proximally based flaps were based 4cm distally to the antecubital fossa while the distally based flap was based 2 cm from the radial styloid. The adipofascial flaps were raised in a retrograde fashion from the pivot point. The flaps were subsequently skin grafted and the donor sites closed primarily.

Experience: Two patients had traumatic defects of the elbow which represent the first description of the neurosensory proximally based radial artery perforator adipofascial flap and three patients were treated for dorsal hand coverage. None of the patients needed secondary thinning or flap revisions.



Figure 1. Pre-operative dorsal hand injury on the day of presentation.

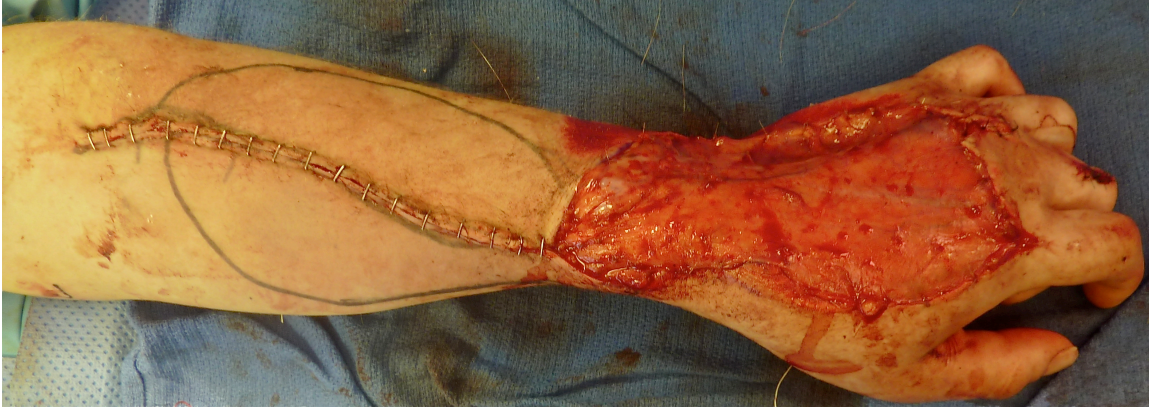


Figure 2. Intra-operative image of adipofascial turnover flap prior to skin graft placement.

Conclusion: The forearm fascial flap provides coverage of the upper extremity without sacrificing any major arteries to the hand. Donor site morbidity is minimal as the adipofascial nature of the flap allows primary closure of the donor site. Further benefits include a shorter operative time, no microsurgery requirements, aesthetically pleasing contour for the hand with out the need for secondary procedures and early range of motion for patients. It has become our flap of choice for upper extremity reconstruction.