

Soft tissue reconstruction of the dorsum of the hand

Essay

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By

Mohamed Esam El-Din Mostafa Kamal
M.B.B.CH.

Supervised by

Prof Alaa Abbas Sabry Mostafa

Professor of General Surgery

Faculty of Medicine

Ain Shams University

Prof Amr Reda Mabrouk

Professor of Plastic and reconstructive surgery

Faculty of Medicine

Ain Shams University

Faculty of Medicine

AIN SHAMS UNIVERSITY

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا نك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العليم

صدق الله العظيم

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List of abbreviations

ABPL	: abductor pollicis longus
Br	: brachialis
D I P	: distal interphalangeal joint
ECRB	: extensor carpi radialis brebrevis
ECU	: extensor carpi ulnaris
EDB	: extensor digitorum brevis
EDL	: extensor digitorum longus
EPL	:extensor pollicis longus
FCR	:flexor carpi radialis
FCU	:flexor carpi ulnaris
FDP	: flexor digitorum profundus
FDS	: flexor digitorum superficialis
FPL	: flexor pollicis longus
FTG	: full thickness graft
I P	: interphalangeal joint
MCP	: metacrpo-phalangeal joint

P I P : Proximal intrphalangeal joint
PT : pronator teres
S : supinator
STG : split thickness graft
SEPA Superficial external pudendal artery

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Introduction

Composite dorsal defects of the hand are the most common defects after fingertip defects. **(Raja et al.,2013)**

Management of the acute defects of the dorsum of the hand following complex injuries or surgical procedures, which necessitate flap coverage, still represents a challenge **(Flugel et al., 2005).**

The dorsum of the hand is covered by a thin skin envelope with a thin subcutaneous tissue, which renders the underlying extensor tendons and bone structures vulnerable to trauma. Usually, these injuries are managed by primary soft tissue coverage **(Schaller and Baer, 2003).**

There are various approaches for the management of these difficult defects, including skin grafts, local and regional flaps, pedicled distant flaps and microsurgical free tissue transfers **(Koch et al., 2003).**

Skin grafts including partial and full thickness types are the simplest techniques for coverage of soft tissue defects of the hand, however not every case is amenable to this technique.

Ideally, the flap used for closure should be thin and supple to avoid unnecessary bulk and meanwhile should provide sufficient durability **(Flugel et al., 2005).**

Usually, thinner and pliable fasciocutaneous flaps are preferred in hand defects, and distally based radial forearm flap, reverse posterior interosseous flap and the dorsal ulnar artery flap are the main three local flaps used for coverage of hand defects. However raising a large local flap near the injury site may inflict additional iatrogenic injury on an already traumatized forearm and hand. In addition, the posterior interosseous and dorsoulnar flaps are hirsute and insensate flaps **(Yajima et al., 2004).**

Distant pedicled flaps like groin flap and abdominal flap are a simple, easy and versatile distant flaps that took a great place in the beginning era of reconstructive surgery **(Yilmaz et al., 2005)**.

Free flaps are alternative option to reconstruct soft tissue defects of the hand and forearm. Free flaps offer flexibility in size, shape and positioning and don't add donor site morbidity to the injured hand, however free flap coverage is a time consuming procedure, requiring a more difficult technique and complicated post operative care **(Zhou et al.,2003)**.

A good anatomic knowledge and experience in different reconstructive techniques of soft tissue defects of the dorsum of the hand, we believe, can easily solve this problem. Moreover, various detailed descriptions of the surgical procedures can be found in the literature **(Brunelli et al., 2001)**.