

# Abdominal Pedicle Flaps To The Hand And Forearm



**John C. Kelleher  
M.D., F.A.C.S.**



Global-HELP Publications

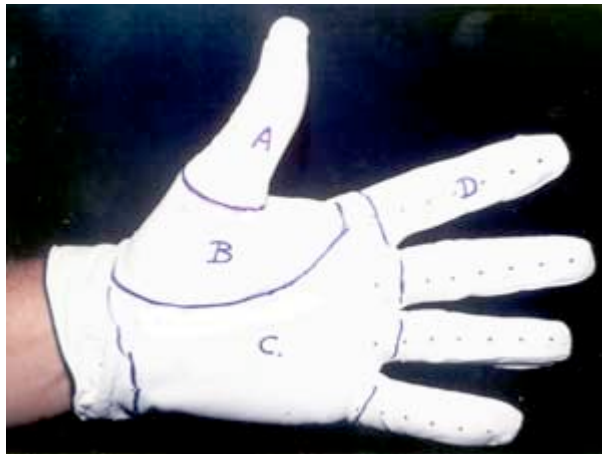
**Chapter Five:  
SKIN REQUIREMENTS AND DONOR SITE SELECTION**

The coverage requirements are determined after careful debridement, wound irrigation, and the creation of "V" darts at the borders, less than 90 degrees and about 1-2 cm. deep. A table of the area of skin requirements for various parts of the hand has been ascertained by cutting out the various parts of a tight fitting golf glove and measuring the areas.

**AREA REQUIREMENTS**

	<b>WIDTH x LENGTH</b>
A. DISTAL THUMB TO M.P. JOINT	9 cm x8 cm
B. DISTAL THUMB TO THENAR CREASE	13 cm x12 cm
C. PALMAR SIDE OF HAND	12 cm x10 cm
D. ENTIRE SURFACE - SINGLE DIGIT	7 cm x10 cm
E. DORSAL SIDE OF HAND	12 cm x10 cm
F. BOTH SIDES HAND AND DIGITS	20 cm x20 cm

This table is demonstrated by [photos A and B](#). The forearm skin requirement can be determined by laying out a plastic sheet about the area of injury.



**Photo 5.A**



**Photo 5.B**

**Skin requirements distal to the metacarpal phalangeal joint of the thumb:** There is a requirement of approximately 9 cm. X 8 cm. This can be accomplished with a thinned tubed flap with "V" inserts at the circumferential proximal border of the thumb and can be obtained from almost any area of the abdomen or groin, keeping a major axial vessel in the tube.

**Skin requirements for the palmar side of the hand:** The above table indicates a need for a flap of approximately 12 cm. X 10 cm. A groin flap or a flap from anywhere on the abdomen is suitable because of the favorable length to width ratio; however, the blood supply can be increased if an axial vessel is incorporated, such as the superficial inferior epigastric system. For palmar wounds, it is desirable to position the hand so that the thumb is held away from the abdominal wall by placing the hand in full supination and holding it in this position with a Kirschner wire across the distal radius and ulna. This pin, preferably a heavy .065, can also be used as one of the points of balanced traction. This positioning of the hand enables the use of

a superiorly based flap making use of the superior epigastric vessels as the axial vessels into the base of the flap.

**Skin for the dorsal side of the hand:** The skin requirements for this coverage are approximately 12 cm. x 10 cm. The skin is best obtained from an inferiorly based flap with the thumb projecting away from the abdominal wall and held in a neutral position with a Kirschner wire across the distal radius to the ulna as noted above. This particular flap incorporates the superficial inferior epigastric vessels as the axial components.

**Skin for both sides of the hand and digits:** This requires a large area of skin and subcutaneous tissue of approximately 20 cm. x 20 cm. This flap is most often taken with an inferior base incorporating one or both of the superficial inferior epigastric vessels.

**Skin for coverage of the volar surface of the forearm:** This requires a broad, superiorly based flap applied to the forearm with the hand in full supination, maintained with a Kirschner wire across the distal radius and ulna. The size of this flap will depend upon the size of the defect. The fact that the usual dimensions result in a very broad based flap results in an extremely reliable flap that can be radically thinned to match the tissue requirements. Because of the broad base of this flap, an axial vessel is really not required.

**Skin for the dorsal surface of the forearm:** The flaps for this purpose are based inferiorly anywhere on the abdomen as dictated by the recipient site on the forearm. These flaps can be radically thinned to meet the tissue requirements.

**Skin for the volar and dorsal surfaces of the forearm:** This coverage requires a very large area of skin, averaging 30 cm. x 30 cm., and must be transferred in stages using the "carry technique" with primary, secondary, and sometimes tertiary delays. (See a following chapter). It is important in this situation to plan from where the future skin requirements must come in the future stages. After the appropriate "delay procedures" to outline the skin requirements for the second side coverage (usually the volar side), the flap is raised, thinned, and applied with the usual "V" darts. These flaps have a very broad base and are very reliable.