

Tips to Orient Pedicled Groin Flap for Hand Defects

*Babu Bajantri, MS, MCh, Latheesh Latheef, MS, DNB,
and Shanmuganathan Raja Sabapathy, MS, MCh, DNB, FRCS, MAMS*

Abstract: A groin flap is an axial-patterned cutaneous flap based on the superficial circumflex iliac arteriovenous system, which can provide soft-tissue coverage to defects on any aspect of the hand and the distal two thirds of the forearm. One of the presumed disadvantages of the pedicled groin flap is the discomfort experienced by the patient during the time required before flap division. These disadvantages can be greatly reduced by proper planning to orient the flap toward the defect, avoid any kinking at the base, and increasing the inset. We present our technique of orienting the flap to fit to the defect to be covered with ease. This technique avoids a lengthy flap and tubing, increases the patients comfort, and also makes the division and inset of the flap easier. As described, we have found this method simple and easy to duplicate.

Key Words: pedicled, groin flap, key stitch, upper limb defect

(*Tech Hand Surg* 2013;17: 68–71)

HISTORICAL REVIEW

Introduction

The development of the groin flap was an important advance made through our attempts at reconstruction of traumatic soft-tissue defects.¹ This flap based on the superficial circumflex iliac artery was described in 1972 by McGregor and Jackson. Later, McGregor and Jackson did extensive studies on groin flap and described the origin of the vessel, its orientation within the flap, and its variations.^{1,2} Chuang put forth a simplified guideline based on the transverse diameter of the patient's index and middle finger at the distal interphalangeal joint level, which he termed as the rule of "2-finger widths."³ The rule guides in locating the origin of superficial circumflex iliac artery vascular pedicle from the femoral vessels 2-finger width below the inguinal ligament and a safe zone of flap borders as 2-finger width above the inguinal ligament as the upper border, as well as 2-finger width below the vascular origin as the lower border. It helped in predicting the vascular pedicle position in children and adults with primary closure of the defect if the dimensions were within the prescribed boundaries. Many authors advise tubing of the flap up to the anterior superior iliac spine in order to avoid kinking of the vessels, reducing the raw area on the pedicle, and facilitating rehabilitation.⁴⁻⁷ However, tubing makes contouring of the flap difficult, and, in addition, robust vascular territory can be lost in tubing. To avoid these shortcomings, Mathes et al⁸

described a standard flap that could be transposed to the defect with or without tubing and noted that a long back cut along the inferior transverse incision over the inferior aspect of the femoral triangle increased the flap's arc of rotation.

Although free flaps have now become the standard of care in many institutions, the pedicled groin flap continues to be used extensively in many parts of the world. The pedicled groin flap is also used as primary soft-tissue coverage before a microsurgical procedure or as the salvage procedure if the free flaps should fail. We present our experience whereby suitably modifying the groin flap's surgical technique, the flap orientation can be changed so that the dorsal-sided, palmar-sided, radial-sided, or ulnar-sided defects of the hand and forearm can be comfortably covered and the morbidity can be greatly reduced. We have also found that it helps in improving the esthetic outcome.

TECHNIQUE

The defect dimensions are traced first using a lint piece. The flap is planned on the groin with the base at the medial border of the sartorius. An additional 2 to 3 cm is added to the total length of the defect in order to allow mobility during the postoperative period. We extend the incision of one of the margins of the flap beyond the base on the basis of the location of defect(s) of the hand to be covered, and the key stitch is taken to orient the flap toward the defects.

For example, to cover the dorsal defect of the hand the defect is traced (Fig. 1A) and the flap is marked (Fig. 1B). To orient the flap superiorly, the superior incision is extended for a distance of B to C, which is equal to the width at the base of the flap A to B. Therefore, $BC = AB$ and a key stitch (Fig. 1C) is then taken from the edge of the inferior incision point A and is stitched to the point B, thereby changing the orientation of the flap superiorly (Fig. 1D). In this manner, the dorsal defect can be easily covered (Fig. 1E).

If the flap is to cover the volar-sided defect of the hand (Fig. 2A), the flap is marked (Fig. 2B) and the inferior incision is extended for a distance of B to C, which is equal to the width at the base of the flap from A to B. Therefore, $BC = AB$ and a key stitch (Fig. 2C) is then taken from the edge of the superior incision point A and is stitched to a point B, thereby changing the orientation of the flap inferiorly (Fig. 2D) to cover the volar defects (Fig. 2E).

For the flap to cover the radial-sided defect(s) (Fig. 3A), the inferior incision is extended for a distance of B to C, which equals half the width at the base of the flap from point A to B (Fig. 3B). So $BC = 1/2 AB$ and a key stitch (Fig. 3C) is then taken from the edge of the point A and is stitched to a point B, thereby changing the orientation of the flap obliquely downward (Fig. 3D).

For the ulnar defect(s), the superior incision is extended for a distance of B to C, which equals half the width at the base of the flap from point A to B. Therefore, $BC = 1/2 AB$ (Fig. 4A), and a key stitch (Fig. 4B) is then taken from the edge

From the Department of Plastic Surgery, Hand, Reconstructive Microsurgery and Burns, Ganga Hospital, Coimbatore, Tamilnadu, India.

Conflicts of Interest and Source of Funding: The authors report no conflicts of interest and no source of funding.

Address correspondence and reprint requests to Shanmuganathan Raja Sabapathy, MS, MCh, DNB, FRCS, MAMS, Department of Plastic Surgery, Hand, Reconstructive Microsurgery and Burns, Ganga Hospital, 313, Mettupalayam Road, Coimbatore 641043, Tamilnadu, India. E-mail: rajahand@vsnl.com.

Copyright © 2013 by Lippincott Williams & Wilkins