Experience with Groin Flap As A Cover for Hand and Fore-Arm

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SAFETY and saving time are very significant considerations in the resurfacing of tissue defects with flaps. Groin flap is now established for its clinical uses. Although conventional direct flaps and tube-pedicle have stood the test of the time, yet are time consuming methods as compared to flaps which can be labelled as flaps with self contained vascular system e.g. Groin flap, Bakamjian’s deltopectoral flap.

Groin flap was first designed by McGregor and Jackson in 1972. A closed arteriovenous system provided by superficial circumflex iliac artery and its accompanying vein forms the basis of this flap. This flap has been used for providing a cover for hand and fore-arm and as a substitute for a tube pedicle to cover defects elsewhere. Purpose of this paper is to share our experience in the use of this flap in resurfacing the hand and fore-arm. We found this flap very useful in the reconstruction of the first web.

Material and methods

Five cases having post traumatic or post burn deformities of the hands were treated with groin flaps. Two cases needed cover for the dorsum (Fig. 1-4) two required cover on the distal fore-arm and side of the proximal part of the hand and in one case the first web and palm dorsum of the hand (Fig. 5-6) were resurfaced. Operative technique and execution of stages of transfer in all the cases was similar and as follows.

1. Marking (Fig. 2)

Thigh was kept in abducted and slightly laterally rotated position. Point A indicated the beginning of the superficial circumflex iliac vessels was marked one inch below and lateral to the public tubercle. Point B was marked one inch below the anterior superior iliac spine. Line AB determined the axis of the superficial circumflex iliac vessels. Lines CD and EF were marked 2 inches on either side and parallel to AB and determined the margins of the flap. Lateral limit of the flap varied as per need in each case and ranged from 9 to 11 inches.

2. Raising of the flap

Raising of the flap was one stage procedure and it started from lateral to the medial side. Lateral half included only skin and subcutaneous tissue whereas i. the medial half the deep fascia was

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**Fig. 1**—Severe post burn deformity of the right hand.

**Fig. 2**—Markings for a right groin flap. 4" x 5".

**Fig. 3**—10 days after the initial inset.

**Fig. 4**—Flap detached and inset completed (Intervening Delay stage is not shown).

**Fig. 5**—Reconstructed first web and the palm.

**Fig. 6**—Good grip after reconstruction.
included with the flap.

3. Initial inset (Fig. 3)

Except in web plasty where initial inset could be only 60-70%, in rest of the cases the initial inset was as much as 70-90%.

4. Delaying of the medial end

Medial end was delayed 10-15 days after the first operation.

5. Final inset

Transfer of the flap in each case was completed by the close of third week.

Observations

1. In all the five cases healing was uneventful.

2. Groin flap provided a very comfortable position of the hand and the upper limb during approximation of donor and the recipient sites.

3. Provided a good play for the pedicle and therefore allowed movements of the uninvolved parts of the hand during the stages of transfer.

4. This flap provides fairly accurate bulk and texture of the tissue for resurfacing the hand. In the web plasty significant thinning of the flap in its lateral part could be carried out without untoward effects on the vascularity.

5. A length : Breadth ratio of 2.5:1 is absolutely safe for the groin flap and needs no prior delay.

6. 10-11 inches long groin flap based on 4 inches is fairly adequate for resurfacing the hand and the lower one third of the fore-arm.

7. The donor areas are cosmetically quite acceptable and completely concealable with the underwears.

Discussion

Groin flap is a single pedicle flap with closed arteriovenous system and is a corollary of Bakamjian’s Deltoplectoral flap. This flap has been used as a good substitute for a tube pedicle for providing a flap cover to various sites. Limited experience has been reported about the use of groin flap for resurfacing hand and fore-arm. In our experience groin flap as a cover for hand and fore-arm has provided an extremely safe and time saving procedure as compared to alternatives like direct flaps or tube-pedicle.

Though like the groin flap deltopectoral flaps also does not need any preliminary delay yet superiority of the former lies in availability of more tissue and a long pedicle. Therefore comparatively groin flap provides a much easier way for cases requiring cover for both palmar and the dorsal aspects of the hand. This flap in our opinion is very useful for the reconstruction of the first web and skin cover for thumb reconstruction (Thind & Singh). Adequate length, long pedicle, a very comfortable approximation of the donor and the recipient areas i.e. the glaring advantages of this flap. Texture and bulk wise groin flap provides a very suitable tissue after a careful thinning of its lateral part for web plasty.
Tube pedicle, direct flaps compared to groin flap are suffering from inherent need of preliminary delays and thus are more time-consuming procedures. Needless to emphasize that donor areas defect in groin flap is the most concealable with underwears. This may be a very significant consideration in female patients.

**Summary**

This paper described our experience with groin flap as a full thickness cover for hand and lower forearm and in the reconstruction of first web. Advantages of groin flap in comparison to direct flaps, tube pedicle and the delto-pectoral flap have been discussed. Steps of the operative technique and the stages of transfer have been described.

**REFERENCES**

