**Dr Sharan Hiremath’s Preauricular flag flap for temple and lateral forehead defects**

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**Introduction**

Local flaps have an ideal colour and texture match, so it could be the technique of choice for the reconstruction of small-sized defects on the lateral forehead [1]. These flaps are desirable with minimal donor-site morbidity and inconspicuous donor-site scars.

**Technique**

The planning of the surgery includes identification and palpation of the superficial temporal artery [Figure 1]. The course of the artery is marked with the help of hand held arterial Doppler ultrasound with frequency of 2MHz-3MHZ. After measurement of the size of the defect the flap is planned in the hairless preauricular region.

The procedure is performed under General Anesthesia. Incision is taken in the distal end of the flap. Skin and subcutaneous tissue is incised. STA is identified and ligated. The ligated end is fixed to the subcutaneous tissue of the flap. the flap is incised lateral and medial side on the marking. With careful dissection flap is elevated with incorporating superficial temporal artery. The artery has frontal and temporal branches1. The frontal branch anastomose with the supra-temporal and supraorbital vessels. The vascularity of the flap is dependent on the anastomosis between the frontal branch of STA and supraorbital and supratrochlear vessels [1, 2].

The parietal branch is cut and cauterized while incising the flap superolaterally hence I have never incorporated the parietal branch in the flap. The dissection of the pedicle is advanced cranially when temperoparietal fascia around superficial temporal vessels is undermined, with the help of NMS450 nerve mapping locator, temporal branches of facial nerve [3-5] is identified and confirmed by direct stimulation intraoperatively. The dissection is continued till the flap can be transferred to the defect without tension and torsion. The flap is transferred to the defect by incising the bridge of the defect and then sutured with 4-0 Ethilon (synthetic nonabsorbable nylon suture). The donor site is closed primarily with 3-0 monocryl suture. Drain was not put in any of the cases. Loose circumferential padded dressing was done over the flap with window kept open for monitoring of the flap. Donor site dressing was done separately. The average time taken for the procedure was around 80-90 min.

**Results**

We performed this flap in three cases. On an average the size of the defect was 5X4cm in size. The donor site is closed primarily. The postoperative course was uneventful. Distal tip necrosis was seen in third case measuring approximately 2x2cm. The results were favourable cosmetically and donor site scar was inconspicuous. One of the drawback is dog ear at the base of flap which can be revised after three months under local anesthesia which gives better cosmetic results.

**Case reports**

**Case 1**

The procedure is performed under General Anesthesia. Incision is taken in the distal end of the flap. Skin and subcutaneous tissue is a 23-year-old female met with RTA, and sustained injury to face. On examination there was complete loss of skin and periosteum on the lateral aspect of forehead. Under general anesthesia after debridement, the defect was measuring around 5X4 cm in size with exposed frontal bone around 3X2 cm in size [figure 2a]. Flap is elevated from preauricular region and rotated and covered the frontal bone [figure 2b]. Rest area is covered with FTG. The postoperative course was uneventful and donor area scar was inconspicuous. [Figure 2c and 2d].
Case 2

A 55-year-old lady was having swelling over lateral aspect of forehead since 2 years (figure 3a). Biopsy was taken. It was diagnosed as soft tissue sarcoma. After wide local excision the defect was measuring around 4x5 cm in size. Flap was designed in preauricular region. As lady was old lot of laxity was there so a wider flap than regular size. Flap was elevated with STA till the anastomosis with supratrochlear vessels (figure 3b). Flap is rotated and sutured to the defect.

Case 3

A six-year-old girl, fell down from height, sustaining injury to lateral aspect of forehead on right side. After debridement the defect was measuring approximately 5x3x2 cm in size. Flap was marked over preauricular area, STA artery was ligated and cut. Flap was elevated along with STA and then rotated, covered over the defect and suturing done without tension and torsion.

Donor site was closed. After two days the distal end of the flap was dusky as the flap was taken little longer distal to the artery with 2x2 cm random flap. Later on, it healed by secondary intention.

Discussion

The reverse STA flap from the preauricular region was reported in 1976 by Bostwick et al., [4] and Yamauchi et al [1] in which they treated the case of a forehead skin defect using this flap based on both the frontal and parietal branch of the STA. In our cases the flap was based on frontal branch of superficial temporal artery and the anastomosis between frontal STA and ipsilateral supratrochlear and supraorbital vessels. The vascularity of the flap was good and reliable, in one case the distal part of the flap got necrosed as the distal end of the flap was beyond 2 cm of the ear lobe. and in other two cases result was excellent.

After identifying the superficial temporal vessels, the flap is elevated [4, 5] with the skin and their vessels alone. This is easier to perform and produces a thin flap without the reddish skin colour peculiar to the postauricular region [5]. In addition, this has reliable blood circulation and application as both the pedicled and free flaps. The donor site does not leave a conspicuous scar or ear deformity even if it sutures primarily. The Yamauchi et al study reverse superficial temporal artery flap is used mainly either islanded or free flap, in our study the flap is mainly pedicled, based on anastomosis between frontal branch of superficial temporal artery and supratrochlear and supraorbital branches. These types of defects can also be covered by free radial artery forearm flaps, scapular flaps, lateral arm flap, dorsalis pedis flap and suprafacial anterolateral thigh flaps [6]. These flaps are time consuming, aesthetically less appreciable as some are bulky, hairy and chances of flap failure.

Conclusion

Dr Sharan Hiremath’s preauricular flag is one of the ideal flap for coverage of lateral forehead defects. These defects are commonly due to trauma or malignancy. Small to medium sized are covered by this flap. This flap is harvested from non-hairy area and it will match the colour of forehead. Cosmetically gives better result. Donor area is hidden and scar mark is inconspicuous. We can avoid free flap which are time consuming and tedious. This flap is very reliable because of its rich vascularity.

References