

Use of Retroauricular Temporal Flap for Large Post Oncosurgical Glabellar and Forehead Defects

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ABSTRACT

Introduction: Reconstruction of large defect in glabellar and forehead areas poses a perplexing problem for a reconstructive surgeon. Although coverage of small defect can be straight forward, few options are available for the coverage of large area.

Materials and methods: Two patients were operated for recurrent basal cell carcinoma and dermatofibrosarcoma respectively. Excision left very large defect which was reconstructed by retroauricular temporal flap.

Results: Both flaps survived completely. Flap cutting and final inseting was done on 21st day. The postoperative result was very satisfactory.

Conclusions: Retroauricular temporal (Washio) flap is a robust and reliable flap. It satisfactorily caters the need of the recipient area. The scars are oncologically and esthetically acceptable. We believe that this technique is a simple and effective solution to a difficult problem.

Keywords: Retroauricular temporal flap, Washio flap, Glabella, Forehead, Oncosurgery, Reconstruction, Basal cell carcinoma Dermatofibrosarcoma protuberance.

INTRODUCTION

Reconstruction of glabellar and lateral forehead areas are very challenging. It often necessitates sizeable quantity of nonhair bearing skin. None of the local flap is capable enough to cover large defect adequately, particularly when the bone is exposed. Local flaps are fraught with inadequate skin supply, flap necrosis and long scars when coverage of large area is required. They may also end up with unacceptable positional changes of eyebrows and interference with upper lid function. Microvascular free flaps are technically difficult, particularly for this area. On top of it, the color match is not good.

The retroauricular temporal flap was first described by Hiroshi Washio in 1969.¹⁻³ It is based on superficial temporal and retroauricular arteries and anastomosis between their branches. The nonhair bearing skin behind the ear is included in the flap and is mainly being used to resurface nasal defect.^{4,5}

Procedure

The flap is marked as indicated in Figure 1.

Marking of the Flap

A: Point at upper end of ear attachment just behind superficial temporal artery

AE: Indicates course of superficial temporal vessel

B: Point near hairline

AB: Base of the flap—approximately 8 cm

C: Is marked in such a way that AC is half of the distance between point 'A' and the defect. The line is 15° posterior to 'AE'.

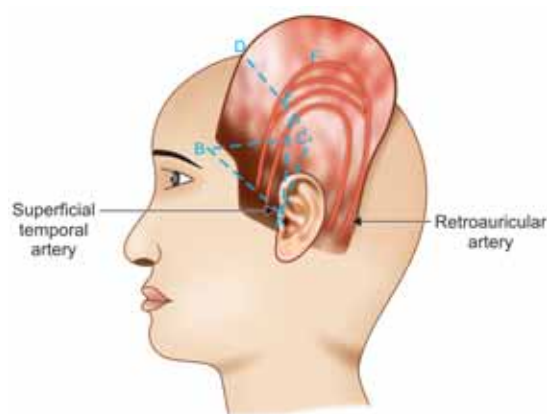


Fig. 1: Marking of the flap

D: It is marked in such a way that two triangles ABC and DBC become equal.

$$ABC = BCD = 50^{\circ}-60^{\circ}$$

F: About 8 cm above point 'A' indicating site of anastomosis.

Surgery is done under general anesthesia. It is essential to include galea aponeurotica in the flap. The central cut 'AC' is made last under direct vision. Oblique incision 'AC' above ear allows the flap to be folded on itself in such a way as to bring the skin from behind the ear into the anterior area of face with the raw side facing posteromedially. If the viability of the flap seems questionable, the flap is returned back to its original site. This serves as a delay procedure. Raw surface of the donor site and flap is covered with split thickness skin graft. Elevation and transfer of the flap is

carried out in one stage. Division of flap and return of pedicle is done 2 to 3 weeks after the first stage.

CASE REPORTS

Case 1 (Figs 2 to 7)

A 70-year-old woman presented with recurrent basal cell carcinoma involving left forehead and left upper lid. The tumor had recurred after five years. The tumor was excised with 1 cm margin all around. The periosteum was also removed. Retroauricular temporal (Washio) flap was planned and was transferred in a single stage. Resultant raw area was covered with split thickness skin graft. Flap survived completely. The flap was divided after 21 days and rest of the flap was put back.



Fig. 4: Raised flap



Fig. 2: Basal cell carcinoma on left forehead and upper eyelid



Fig. 5: Appearance of flap before final inset



Fig. 3: Postexcisional large defect



Fig. 6: Postoperative result with open eye



Fig. 7: Postoperative result with closed eye



Fig. 9: Dermatofibrosarcoma glabellar area (lateral view)

Case 2 (Figs 8 to 13)

A 37-year-old woman presented with dermatofibrosarcoma protuberance of glabellar area. The tumor was excised with a safe margin. Retroauricular temporal (Washio) flap was planned and was transferred in a single stage. Resultant raw area was covered with split thickness skin graft. Flap survived completely. The flap was divided after 21 days and the rest of the flap was returned back.

DISCUSSION

Forehead is one of the most visible areas of the face. The skin defect on forehead calls for thin, pliable, nonhairy skin with good color match. Stable coverage and adequate contour without disturbing anatomical landmarks are other desirable goals in forehead reconstruction.

Full thickness skin graft or split thickness skin grafts do not provide satisfactory donor material because of the color



Fig. 10: Excision planning



Fig. 8: Dermatofibrosarcoma glabellar area (apical view)



Fig. 11: Appearance of flap before final inset



Fig. 12: Postoperative result (apical view)



Fig. 13: Postoperative result (lateral view)

and texture of forehead skin. Split thickness skin graft is an easy option but is not useful when the bone is deprived of periosteum. The color match is never good. The radiotherapy is difficult to give on the grafted area. Rhomboid, multiple transposition or rotation flaps are reserved for small defects.^{6,7} Scalp flap^{8,9} brings undesirable hairy skin into the forehead area. Microvascular free flaps¹⁰⁻¹² are a good option but are difficult to execute particularly in this area. The superficial temporal vessels for anastomosis are small, especially veins. The facility and expertise in microvascular surgery is also required. Tissue expansion^{13,14} is a good option but is time-consuming. It is not desirable to wait in cases of malignancy.

Though Washio flap has been extensively used for nasal reconstructions, it provides a sufficient amount of thin, pliable and nonhairy skin appropriately required for forehead area. The flap is very dependable. The thickness of flap is more or less appropriate to forehead skin. There are practically no visible scars. The donor site morbidity is minimal. The color match is very good. If large amount of skin is required, two flaps, one from each side of the head can be elevated at the same time. This flap can be combined with other local flaps to supply either lining or cover. It causes no alteration of anatomical landmarks. The disadvantages of Washio flap is the requirement of two stages of surgery. Good pulsations of superficial temporal vessels obviously are necessary and sometimes a delay is also required. It requires 3 to 4 weeks of hospitalization.

Meticulous planning and execution is required for optimal outcome. We recommend preoperative Doppler mapping of superficial temporal vessels to find out its presence, course and any atherosclerotic changes. It is advisable to avoid this flap if there is deep scarring of skin and subcutaneous tissues along the course of the flap.

Washio flap has a useful role to play for coverage of glabellar or forehead areas when large amount of skin is required and available reconstructive options are limited, ineffective or exhausted.

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