

ISLAND NASOLABIAL FLAP

(S. BHATTACHARYA, M.S.D. JAISWAL AND N.C. MISRA)

SUMMARY

The island nasolabial flap was used for the reconstruction of buccal and alar defects in 10 patients. Alar defects produced after ablating small basal cell carcinomas were covered by superiorly based island nasolabial flap and buccal defects caused by incising oral submucous fibrosis and defects following excision of verrucous carcinoma were reconstructed by inferiorly based island nasolabial flap. The incorporation of the underlying vessel in the flap and selective defatting of the flap and its pedicle by microdissection greatly aids in increasing its arc of rotation and improving its maneuverability.

Key Words : Flaps, Nasolabial, Island.

The nasolabial cheek fold represents the junction between the upper lip and cheek and is demarcated by the insertion of the levator labii superioris and zygomaticus major and minor muscles into the skin and lip tissues. Gravity working over a long period of time against the elevation of the area by facial animation results in tissue redundancy in this area. It is usually hairless, well vascularised and is rather lax in the elderly individuals and offers an excellent tissue for alar and intra oral reconstruction. The island nasolabial flap has the additional advantage of being a one stage procedure with smaller donor site scar and greater arc of rotation.

Material & Method

Five cases of basal cell carcinoma of the nasal ala and 2 cases of verrucous carcinoma of the oral mucosa were chosen for this mode of reconstruction after an adequate ablative surgery had been performed in each of them by separate resectionists. There were no nodal metastasis in any one of them. Three cases of oral submucous fibrosis were released by a linear incision and the raw area thus created was covered by island nasolabial flaps from either sides.

A careful planning of the flap keeping into consideration the shape, area, and the depth of the defect is the key to proper execution of this

reconstructive procedure. We have used the superiorly based island nasolabial flap for alar defects and the inferiorly based ones for intra oral defects. The designed flap was incised all around and the distal end was deepened to identify the vessel which runs all along the nasolabial fold at a considerable depth. This was now ligated and divided and the flap was elevated at this level upto the proximal end. Thereafter the dissection of the



Fig. No. 1.A Basal cell carcinoma Rt. ala. superiorly based island nasolabial flap harvested.

pedicle was done at two levels subdermal and along the axial vessel for some distance. The flap thus harvested (Fig. 1.A) was considerably thick, incapable of folding on itself and easy manipulation. Gentle microdissection of the flap was then done to remove as much of fatty tissue as possible without disrupting the vascular strands.



1.B The island nasolabial flap used to form the ala.



1.C Donor area primarily closed and the flap in position forming the reconstructed ala.



Fig. No. 2.A Verrucous carcinoma rt. cheek



2.B Inferiorly based island nasolabial flap harvested.



2.C The flap being tunneled into the intra oral defect.



2.D Flap in position stitched to the round margins.

The pedicle was similarly selectively defatted and thinned but the vessel was never skeletonised. For nasal reconstruction the superiorly based flap was transposed medially with the distal end forming the lining of the ala and proximal end forming the cover (Fig. 1.B & C). For reconstructing small intra oral defects of verrucous cancers (Fig. 2A) and oral submucous fibrosis the inferiorly based flap (Fig. 2.B) was tunnelled through the facial musculature upto the proximal end of the intra oral defect (Fig. 2C) into the oral cavity and thereafter the flap was stitched to the defect without tension (Fig. 2D). The donor area was stitched primarily in two layers by subcutaneous and subcuticular sutures.

Observations

All the 13 flaps survived without any infection or necrosis. The alar defects were through and through. The reconstructed ala had the exact colour and texture match and required no cartilagenous framework to maintain the contour. The ala did not collapse in deep inspiration even when the mouth and the normal nostril was closed, thus disproving the need of a cartilagenous support. The intra oral flaps were kept clean by repeated

mouth washes and nasogastric feeding was advised for 5 days post operatively. Thereafter normal oral feeding did not hamper the healing of the flap site.

The 5 cases of basal cell carcinoma had tumour free margins histologically. They have been followed up from 5 months to 3 1/2 years and none of them have shown any recurrence. The 2 cases of verrucous squamous cell carcinoma have been followed up for 11 months and 2 years and are disease free. Two of the three cases of oral submucous fibrosis who preoperatively had a mouth opening of 1.5 cm were able to open their mouth up to 3.5 cm and 4 cm after the surgery. These patients were maintained on our indigenously designed jaw exerciser for 17 and 18 months after surgery. The third patient was lost to follow up. The donor defect in none of our patients is very obvious and we have not encountered any infection, wound dehiscence or scar hypertrophy at this site. There have been no ectropion of the lower eyelid or epiphora or obvious pulling of the angle of mouth due to the primary closure of the donor area.

Discussion

The pedicle of any flap is not concerned with tissue replacement but with the transport to the flap of blood, lymph and peripheral nerves. The skin of the pedicle thus plays no part in the function of the pedicle except that of protection of the vital structures in the pedicle itself. It is therefore quite unnecessary to transport the skin with the pedicle of a flap and it might even be argued that the extra metabolic requirement of this skin is a disadvantage to the system as a whole. Minus the skin, the pedicle thus formed offers greater mobility to a flap. Furthermore as the skin is not being used in the pedicle the donor site has a smaller scar which can be primarily closed without tension as a single staged procedure.

The nasolabial region is richly vascularised by the angular branch of the anterior facial artery which runs all along it. In the elderly patients the area has a fair amount of lax skin which can be

harvested as a flap based on this vessel. Furthermore, because of the rich vascular anastomosis between the anterior facial vessels and the vessels exiting from the intra orbital foramen both superiorly as well as inferiorly based nasolabial island flaps can be harvested. Thus the superiorly based island nasolabial flaps are best for alar reconstruction and the inferiorly based ones are best for small intra oral lining defects.

The key to success of these island flaps is that the longitudinal tension in the pedicle should be avoided and so the distance between the pivot point and the donor site should be longer than the distance between the pivot point and the recipient site. While subcutaneous pedicle flaps can survive even without the inclusion of an axial vessel as their anastomosis depends on adequate subdermal anastomotic network, their dependability is greatly enhanced if such a vessel is available and is included in the flap. Thus island nasolabial flaps are particularly robust and even allow a bulk reduction of the pedicle by removal of the fatty tissue by gentle microdissection leaving intact the neurovascular system. A wide liberation of the skin between the donor and the recipient sites allow the pedicle to be comfortably sited. Complete haemostasis is essential in order to avoid future vascular embarrassment to the flap. Atraumatic tissue handling further enhances the chances of success.

The island nasolabial flap being from an area immediately adjacent to the ala gives the best colour match for the nose and is almost always hairless. Older patients have looser skin in this

area allowing larger flaps to be harvested and yet allowing good primary closure without affecting the position of the lower eyelid or the ala.

The concept of using the nasolabial tissue for full thickness alar defect is not new. Kilner (1937), Climo (1969), McLaren (1863), Cameron et al. (1973), Heybrock (1970), Wesser and Glen (1969) and Pers (1967) have illustrated this with excellent cosmetic results. A secondary trimming has been advocated by Heybrock (1970) whenever the ala is too fat post-operatively. Barron and Emmet (1965) have used subcutaneous pedicled nasolabial flaps in similar situations of alar defects. Gliosci et al. (1960) have in a two staged procedure reconstructed alar defects by transferring a full thickness skin graft lined pedicle flap from upper portion of the nose. Composite ear grafts (Brown and Cannon, 1946) are for smaller defects in the ala and elaborate forehead flaps (Converse, 1959) are for defects which are large. The use of nasolabial flap in submucous fibrosis was described by Kavrana et al. (1987)

The only objection to the use of the island nasolabial flap in skin malignancies of the ala is that a frozen section often shows extension of the malignancy across the ala-face junction, well beyond the visible margins anticipated at the outset.

Conclusions

The island nasolabial flap has been found to be quite useful for reconstructing intra oral and nasal defects as a one stage procedure.

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