

NASOLABIAL ISLAND FLAP: AN EASY ALTERNATE TO MICROVASCULAR TISSUE TRANSFER FOR RECONSTRUCTION OF TONGUE AND FLOOR OF MOUTH

Abhishek Sharma¹, Deepti Chhikara², Umesh Yadav³, Kuldeep Singh⁴

¹Assistant Professor, Department of Plastic Surgery, PGIMS, Rohtak, Haryana, India

²Junior resident, Department of Oral and Maxillofacial Surgery, PGIMS, Rohtak, Haryana, India

³Associate Professor, Department of Orthopaedics, PGIMS, Rohtak, Haryana, India

⁴Senior Professor, Department of Plastic Surgery, PGIMS, Rohtak, Haryana, India

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Corresponding Author:

Dr. Umesh Yadav,
Email: drumeshyadav@gmail.com

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Abstract

Background: Defects after surgical excision of tongue tumors still remains a challenge to the surgeons across the globe. While options after defect closure varies from primary closure for smaller defects to free flaps for larger defects. Here we share our experience of nasolabial island flap following resection of carcinoma tongue. **Materials and Methods:** 8 patients, 6 male and 2 female, with primary pathology of tongue were operated at PGIMS, Rohtak. The excision of primary pathology with safe margins was done. Incision is made starting from 1 cm below the medial canthal area extending along the axis of nasolabial fold; dimensions of the flap as per the recipient site need with maximum width of 4 cm. After the flap is delivered, perfusion of the flap is checked and inset is done with vicryl sutures. **Result:** All patients were satisfactorily discharged on 7th to 10th postoperative day. Minimal marginal slough and discoloration was seen in 2 of the cases involving reconstruction of tip of the tongue that was debrided at 4 th post-operative day followed by uneventful healing. **Conclusion:** Island nasolabial flap pedicled on facial vessels can be a good option after glossectomy. It provides a reliable pedicle over which flap can be extended to reach at a significant distance without risking the vascularity.

INTRODUCTION

Reconstruction following wide excision of carcinoma tongue and tumours of tongue remains one of the most challenging procedure in head and neck oncology. The principles of reconstruction traditionally follow a reconstructive ladder; small glossectomy defects may be closed by primary closure, healing by secondary intention, or skin grafts while greater resections necessitate reconstructions with local flaps, pedicled flaps, or free flaps.^[1-3] substantial reconstruction not only involves good post-operative healing and flap survival but also constitutes of functional rehabilitation.^[4] Various reconstructive options for tongue defects range from simple to complex procedures such as primary closure, loco regional flaps, and microvascular flaps. Despite the significant advances in head and neck microvascular reconstruction, we are still not able to replicate a dynamic tongue.^[5,6] Instead, we overcome this lack of movement by incorporating extra volume into the reconstructed tongue. In today's scenario, free flaps such as radial forearm flap and antero-lateral thigh

flap are choice of reconstruction especially for larger tongue defects. Reconstruction by free flaps may pose a challenge and shall not be the ideal choice of reconstruction sometimes because of increased operative and anaesthesia time, availability of microvascular setup, donor sight morbidity, high-volume centre, cost, etc.^[7]

Because of these constraints of free flap, loco regional flaps are being considered as other methods of tongue reconstruction. Among these mentioned in the literature are nasolabial flap, submental flap, infrahyoid flap, and pectoralis major myocutaneous flap.^[8] The nasolabial flap has been previously described and used for facial soft tissue reconstruction extensively. For most applications on the face, random pattern harvest is favourable and allows a thinner, more pliable flap to match the recipient site soft tissue.^[9] Axial islanded nasolabial flap based on facial artery serves as a good alternative to free flaps considering its proximity to tongue and floor of mouth region, minimal donor site morbidity robust blood supply, long vascular pedicle and just adequate tissue bulk. In the current article the author shares their experience with

nasolabial island flap for reconstruction of tongue defects and describes the surgical considerations during the procedure.

MATERIALS AND METHODS

A total of 8 patients, 6 male and 2 female patients with primary pathology of tongue were operated at Post Graduate institute of medical sciences, UHS Rohtak with demographic and diagnostic details described in [Table 1]. After due informed, written consent and pre anaesthetic workup patients were operated under general anaesthesia with nasotracheal intubation. The excision of primary pathology with safe margin was done. Frozen sections were sent to confirm margins for cases of squamous cell carcinoma. Selective neck dissection on ipsilateral side for carcinoma of lateral border and bilateral selective neck dissection for midline involvement was performed in all cases of squamous cell carcinoma of tongue and floor of mouth. The dimension of surgical defect was as mentioned in [Table 1].

Surgical Technique

During neck dissection the facial artery and vein are carefully dissected and spared. The markings for an axial pattern flap based on facial artery are done according to the size of the defect at the recipient site. Incision is made starting from 1 cm below the medial canthal area extending along the axis of nasolabial fold; dimensions of the flap as per the recipient site need with maximum width of 4 cm. the flap is dissected along the markings up to the muscle layer superiorly sparing the buccal pad of fat and preserving the feeding vessels along its length i.e. facial vein, facial artery, superior labial artery. The angular vessels are superiorly ligated at the cut.

Care is taken to identify the stenson's duct and protect it from injury. At the inferior part of the flap a cuff of musculature from buccinator is included in the flap and care is taken that the dissection is extended subperiosteally up to the lower maximum width of 4 cm. the pedicle is carefully dissected along its entire length and delivered to the recipient bed through the incision for neck dissection after tunnelling it along the inferior border and lingual cortex of mandible through the mylohyoid muscle in the floor of mouth. [Figure 1] By this manoeuvre the flap is delivered to the recipient site with care taken to not cause torsion of the pedicle. After the flap is delivered, perfusion of the flap is checked and inset is done with vicryl sutures. Donor site is closed primarily in layers. Post-operative flap monitoring is done.

RESULTS

All the patients post operatively had uneventful healing and were discharged at 7th -10th post-operative day. No incidence of infection, post-operative wound dehiscence, stagnation or necrosis was seen. Satisfactory outcome in view of pain, taste, speech, deglutition and appearance was reported from patient's perspective at the time of discharge. However minimal marginal slough and discoloration was seen in 2 of the cases involving reconstruction of tip of the tongue that was debrided at 4th post-operative day followed by uneventful healing. Factors such as sensory perception was assessed at 1-month follow-up with satisfactory perception of temperature by all the patients. At the 6th month follow-up donor site scar was acceptable and inconspicuous to all of the patients.

Table 1: Patient details and the Diagnosis

S. No	Age	Gender	Site	Neck Dissection performed
1.	47 years	Male	Carcinoma-Left Lateral Border	No
2.	53 years	Male	Carcinoma-Floor of mouth right side	Yes
3.	44 years	Male	Carcinoma-Midline (FOM) and Left Ventral tongue	Yes
4.	38 years	Female	A-V malformation tongue	No
5.	53 years	Male	Carcinoma- left lateral border and posterior 1/3rd	Yes
6.	39 years	Male	Carcinoma floor of mouth and anterior 1/3rd of tongue	Yes
7.	68 years	Male	Carcinoma -right lateral border of tongue	Yes
8.	55 years	Male	Carcinoma-Right lateral border of tongue	Yes

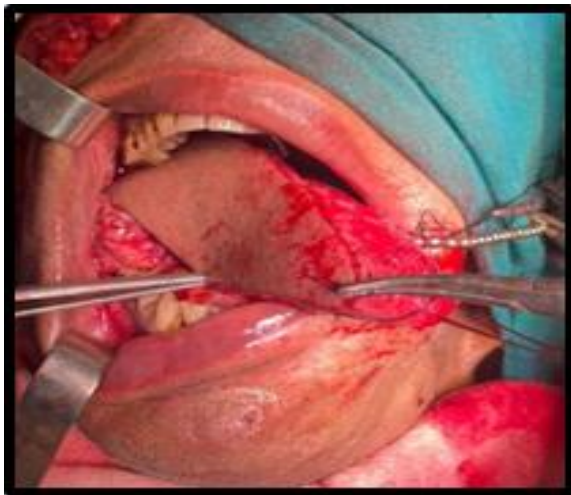


Figure 1: The islanded nasolabial flap of right side is delivered intraorally.

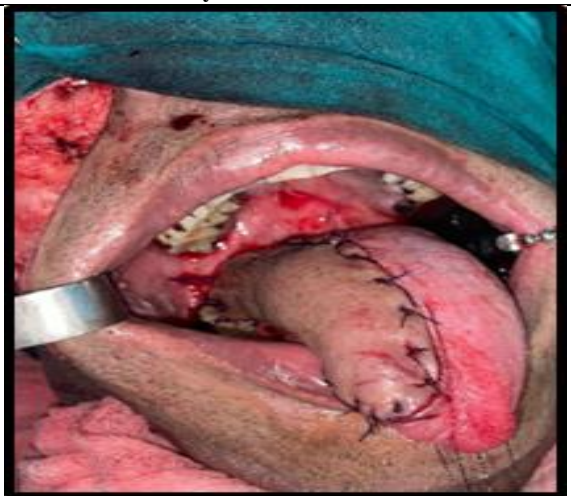


Figure 2: The flap is inset and sutured to reconstruct the tongue.



Figure 3: The Donor site after harvesting the flap.'



Figure 4: The donor site and the flap on 10th post-operative day.

DISCUSSION

Reconstruction following glossectomy and floor of mouth defects requires meticulous planning and approach. Tissues chosen to replace the tongue should match in colour and pliability, and should have a predictable vasculature, be easy to harvest, and result in minimal donor site morbidity.^[9] Free flaps being the most common choice of tissue for reconstruction also have certain drawbacks such as donor site morbidity, bulkiness of the donor tissue, microvascular reconstruction, higher rate of post op complications.

Of the various local flaps, nasolabial flap has been used since long for reconstruction of tongue defects especially in edentulous patients. But reach has always been a problem, more so in dentate patients. In the two-stage procedure, pedicle is divided at later stage. which contributes to difficulty in feeding and burden of another surgery for division of pedicle. The reach of the flap is also compromised owing to shorter pedicle. Hence, modifications over traditional techniques needs to be considered for good aesthetic and functional results. Island nasolabial flap pedicled on facial vessels can be a good option. It provides a reliable pedicle over which flap can be extended to reach at a significant distance without risking the vascularity. The authors agree to the observations made by Lazaridou et al in their retrospective cohort comparing nasolabial pedicled vs island with a conclusion that ; relatively low morbidity and adequate functional and aesthetic results make the pedicled nasolabial flap a viable technique.^[10] Once dissected until the origin, it has a sufficiently long pedicle to be transferred easily to the tongue through the floor of the mouth without any tension, distortion hence resulting in proper tongue movement post-operatively. Another

advantage is the elimination of risk of fistula formation or infection at the donor site since the mucosa at the donor site is left intact. The need to consider extraction for dentate patients is also eliminated. McConnel et al. mentioned that speech and swallowing function was better in cases partial glossectomy following primary closure as compared with microvascular reconstruction.^[11] Although The post-operative scar at the donor site is of concern in younger patients but is inconspicuous for most of the patients after a year of surgery since it lies in the natural crease of nasolabial region. A disadvantage of the island flap is that the pedicle is buried under the mucosa, which results in elimination of the labial or lingual sulcus, or both. It is therefore impossible for the patient to wear a conventional denture without some type of preprosthetic surgery.^[12]

CONCLUSION

Therefore, it is the author's perspective that nasolabial island flaps serve as an excellent loco regional flap for reconstruction of tongue and floor of mouth defects amongst all other aspects since the advantages of the flap reflect its greater success as a substitute for distant flaps. The flap being economically feasible and less technique sensitive in comparison to distant flaps is another aspect to be considered in its favour. It is therefore the author's sincere belief that prospective and comparative studies in this regard should be emphasised and encouraged to outline detailed implications and evidence.

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