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Case Report

Superior nasolabial flap in reconstruction of the tongue: case report

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ABSTRACT

Hemiglossectomy with functional rehabilitation using a rotational superior nasolabial flap as a single stage procedure and its outcome has been described. Nasolabial sulcus and nasofacial was the donor site for the nasolabial flap. This hairless area except for the lower cheek in males, is an important consideration in oral cavity reconstruction. The flap constituted by skin, subcutaneous tissue and the underlying musculature has a subdermal plexus is supplied by feeder vessels from the branches of the facial artery and provides the blood supply to the nasolabial muscle and skin. Usually, the choice of pedicle is based on the site of the defect and any need for rotation or advancement of tissue to the site of the defect. In our patient the superior nasolabial flap based on alar and lateral nasal artery was utilized.

Keywords: Tongue, Nasolabial flap, Carcinoma, Reconstruction, Hemiglossectomy

INTRODUCTION

Malignancy of the tongue involving its lateral border necessitates a wide field surgical resection with a half to one cm tumor free margin. A primary repair preserving the tip of the tongue, facilitates speech but, often leads to a late fixity to the floor. This compromises on speech, as tongue being a prominent articulator needs "bulk and mobility", for production of comprehensive speech. Rotation flaps from the vicinity or free flaps from the less vital regions are harvested and used to resurface the defect so created, after resection.

Soft tissues of the face were utilized to reconstitute nearby defects as early as the 1830s when Dieffenbach reconstructed defects of the ala of the nose with superiorly based nasolabial flaps.[1] In 1917 Esser used inferiorly based nasolabial flaps to repair palatal fistulae. Since then, modifications of the flaps have been described by several surgeons, ranging from the conventional pedicled flap (superiorly or inferiorly based) to subcutaneous pedicled flaps and facial-artery island flaps.[1]

We utilised the superior nasolabial flap for reconstruction, post hemiglossectomy in an individual.

CASE REPORT

40-year-old male presented to the tumor clinic of the oto-rhinolaryngology services of Dayanand Medical College, Ludhiana, with an ulceroproliferative lesion involving right lateral border of tongue for 1 month. There was no history of any pan or tobacco addiction. The patient was a known diabetic and hypertensive for last 5 years. On intra-oral examination, an ulcero-proliferative growth measuring about 3×1 cm was seen on the right side of anterior two-third involving lateral border of the tongue (Figure 1). The growth was extending to the ventral surface and had a mixed white and red colour. The surface was granular, and margins were everted. On palpation, the

growth bled on touch and soft in consistency, base was not indurated and not crossing the midline. Tongue movements and symmetry was maintained. There were no palpable cervical lymph nodes. Biopsy was performed which reported the lesion to be squamous cell carcinoma with moderate differentiation.

Figure 1: Ulceroproliferative growth involving anterior two thirds of right lateral border of tongue.

Provisional diagnosis of squamous cell carcinoma lateral border of tongue was made with clinical staging of the tumour being T2N0M0.

Magnetic resonance imaging reported T 2 hyperintense lesion measuring 1×3.5 cm showing diffusion restriction involving anterior two third of right lateral border of tongue with extension into sublingual fat but no infiltration of genioglossus muscle and mylohyoid sling (Figure 2).

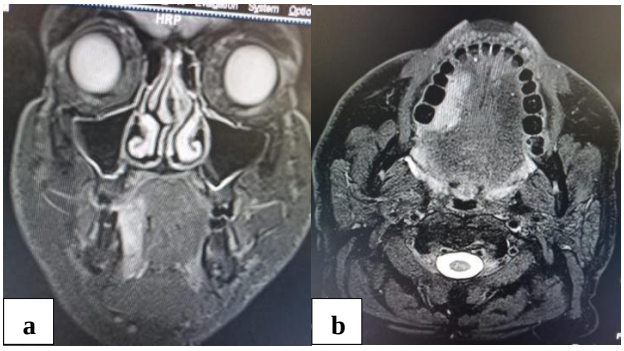

Figure 2: (a) Coronal section of magnetic resonance imaging 1×3.5 cm hypointense lesion not crossing midline involving right lateral border of tongue anterior two thirds; and (b) axial section of magnetic resonance imaging 1×3.5 cm hypointense lesion not crossing midline involving right lateral border of tongue anterior two thirds.

Patient was taken up for hemiglossectomy with supraomohyoid neck dissection and tongue reconstruction with superior nasolabial flap under general anaesthesia.

The lesion was resected in toto with 1 cm margin all around.

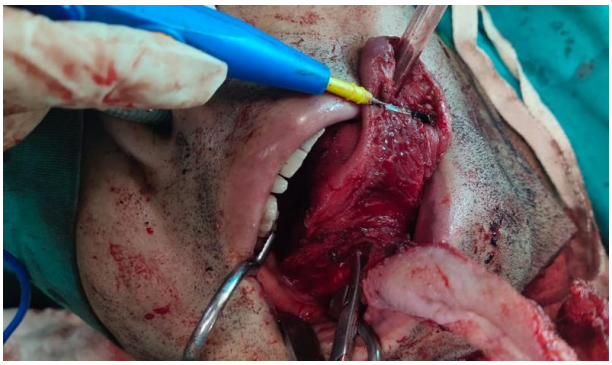

Figure 3: Surgical bed after resection of ulceroproliferative lesion.

The nasolabial flap was superiorly based at alar artery, external nasal artery and elevated as a pedicled cutaneous flap, above the muscular plain (Figure 4).

Figure 4: Superior nasolabial flap raised and schematic diagram of superior nasolabial flap.

The flap was tunnelled into the oral cavity through cheek crossing the superior order of the buccinator at 1 cm infront of the retromolar trigone and sutured to the defect in the tongue. The donor area was closed by wide undermining of the skin and primary approximation (Figure 5).

Figure 5: The naso-labial flap sutured to the tongue defect with primary closure of the donor site.

After three weeks it was planned to divide the flap and reposit the pedicel, but the patient could not come due the

COVID lockdown. Surprisingly after 2 months he showed a good graft uptake and tongue mobility (Figure 5).

Figure 6: Sealed buccal tunnel at 2 months post operatively.

Figure 7: Well healed flap covering the tongue defect after 2 months postoperatively.

Figure 8: Patient with scar of superior naso labial flap merged in the facial skin crease and nasolabial fold.

DISCUSSION

Reconstruction following excision for tongue cancer carries important functional consequences. Restoration of natural tongue bulk, shape, mobility, and sensation, if possible, are the main principles of tongue reconstruction to maintain tongue mobility and restore articulation, speech, mastication, and swallowing.[2] Primary closure, secondary intention, skin graft, and loco-regional pedicled or free flaps have been described in literature for reconstruction of intraoral defects.

Facial artery musculo-mucosal or buccinator flap, submental artery island flap, superior and inferior nasolabial flaps, and the pectoralis major flap are the ideal pedicled flaps. Among free flaps, fasciocutaneous radial forearm free flap (RAFF), anterolateral thigh free flap (ALTFF) and lateral arm free flap (LAFF) are most commonly used.[3-6]

Radial forearm free flap the predominantly employed offers a large surface of thin, pliable skin that allows for complex reconstruction, but has a high donor site morbidity.[4]

Nasolabial sulcus and nasofacial groove define the donor site for the nasolabial flap. This area is relatively hairless except for the lower cheek in males, an important consideration in oral cavity reconstruction. The flap comprises of skin, subcutaneous tissue and the underlying musculature.[7] The subdermal plexus is supplied by feeder vessels from the branches of the facial artery and provides the blood supply to the nasolabial muscle and skin.

The facial artery has four main branches in the face: the inferior labial artery, superior labial artery, alar artery and lateral nasal artery, and terminates as the angular artery. The nasolabial flap may be superiorly or inferiorly based. The choice of pedicle is based on the site of the defect and any need for rotation or advancement of tissue to the site of the defect. In our patient the superior nasolabial flap based on alar and lateral nasal artery was utilized.[8]

The advantages of nasolabial flap are: high survival rate attributing to its good vascular supply and length to breadth ratio of 3:1 can be used.[9]

The main disadvantage is the need for a second-stage procedure in some of the cases, where a buccal tunnel is used for insetting the flap.[9]

The peculiar issue in our patient was that the patient did not come for the follow up after the required three-week period nor did he get a consultation elsewhere due to logistics and the national COVID pandemic lockdown. The pedicle of the flap separated off at the superior fornix of the oral vestibule but lined the resected section of the tongue, with excellent bulk and mobility.

CONCLUSION

Island nasolabial has an excellent reach and can reach any part of the oral cavity, even to the contralateral side and base of the tongue. It has an excellent post-operative tongue function.

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