



Tongue Reconstruction by Nasolabial Flap

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Background: The nasolabial flap is an easy, however untrained, modest tissue reconstruction process with an honest delivery of blood that may be utilized to restore minor tissue defects within the hollow mouth region. The study's intention turned into to peer how a success inferiorly primarily based completely nasolabial flaps had been for restore in sufferers with early mouth maximal cancer.

Methods: A total of twenty-eight sufferers with T- or T2 malignant mass of the tongue which had reconstructions, the use of the inferiorly primarily based nasolabial flap was investigated retrospectively. All of the sufferers blanketed with inside the studies had their flap viability, wound issues, infections, function, scar, and recurrence mentioned post-operatively. After the manner, all sufferers had been monitored for at least six months.

Results: The nasolabial flap is used to restore abnormalities withinside the buccal mucosa, oral commissure, decreased lip, lateral border of the tongue, demanding palate, and mouth floor. The flap becomes a success in all sufferers without a recurrence. The beauty and purposeful results have been each satisfactory. Minor complications include postoperative trismus, immoderate wound contracture, ectropion, infection, and wound dehiscence passed off in a few sufferers. One of the maximum not unusual place issues in most male sufferers becomes intraoral hair boom over the flap employed.

Conclusions: The NLF is a feasible and adaptable choice for restoring small to intermediate deficits of the oral hole area due to ablation of early tumors of the oral hole area if proper interest is paid to flap design, operational approach, and postoperative treatment.

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1. INTRODUCTION

Tongue carcinoma is one of the most common oral cancers in India. Its management relies heavily on early detection and management. The majority of our patients arrive at a late stage. Surgery is crucial in its treatment, whereas reconstruction determines the patient's quality of life after surgery.

When tongue cancer is obliterated, the patient is left with a deformity that requires flap restoration. The majority of people in the higher center want free flaps. On the other hand, locoregional flaps play a significant role in places where the free flap isn't possible or where there's a lot of traffic.

The nasolabial flap was routinely employed in most centers for tongue defect reconstruction. However, reconstruction becomes more complicated when left with a more significant or posterior tongue defect, mainly when the mandible is free [1]. Free flaps are still the best option for such reconstructions, but they require additional training, operational and anesthetic time, and financial investment.

Even though it provides superb functionality and aesthetics.

In the Indian scenario, costs must be evaluated against the advantages to the patient, and time is a critical element in high-volume centers.

As a result, modifications to typical operations must be explored to achieve a satisfying functional and cosmetic result.

In this case series, we look at how a nasolabial island flap, i.e., a nasolabial flap tunneled beneath the jaw, can be used to restore tongue defects up to 6cm in length and how it works.

2. SURGICAL ANATOMY

2.1 Blood Supply

[2] the subdermal plexus, which is nourished by feeder arteries from the branches of the facial artery, supplies blood to the nasolabial muscle and skin. This assures excellent viability and allows for aggressive thinning and shaping. The four principal branches of the facial artery, which

terminate in the angular artery, are the lower labial artery, superior labial artery, alar artery, and lateral nasal artery. The facial artery takes a medial rather than a lateral course in most dissections. The artery begins in the oral commissure's dense fibrous tissue and runs along the top lip's superior border to the nasal ala. It proceeds medially along the nasofacial groove toward the eye's medial canthus. The inferior two-thirds of the nasolabial groove are densely packed with artery perforators.

The lower one-third of the nasolabial groove must be included when raising a laterally-pedicled flap, as is typically the case in single-stage oral cavity defect restorations, to establish a robust vascular musculocutaneous base.

2.2 Muscle

[2] the easiest way to understand the musculature that surrounds the facial artery is to look at it. The platysma, risorius, zygomaticus major and minor, levatorlabii superioris, and levatorlabii superioris alaeque nasi muscles are located deep to the facial artery. The mandible, buccinators, and levatorangulioris muscles are superficial to the artery. Because the artery is located deep within the mass of facial mimetic muscles, the nasolabial flap can penetrate this muscle layer and become an actual musculocutaneous flap.

3. TECHNIQUE

3.1 Flap Design

[2] A fusiform flap is marked, making sure the flap's medial boundary is on the nasofacial groove. A pencil Doppler probe may effectively find and delineate the artery course. The average flap width and length are 2.5 centimeters and six centimeters, respectively. If the facial skin is highly redundant, the size maybe 5 cm. The flap's superior border is lower than the medial canthus along the nasofacial intersection. The type of defect determines the placement of the inferior boundary. For the floor of mouth reconstruction, the inferior border of the flap should be at the superior border of the mandible; however, for palatal abnormalities, the inferior border must be at the level of the oral commissure.

3.2 Flap Harvest

[2] The pores and skin reduction is carried to the extent of the helping musculature, passing via the epidermis and subcutaneous fat. The artery is located under the facial mimetic muscle; however, in a medial function alongside the nasolabial groove, as visible within the anatomic dissections in the front and behind. The flap is advanced to inferior on a line right down to the facial muscle, artery, and vein, with the artery, cautiously positioned through blunt dissection. The parotid duct's web page has been mounted and maintained. In insure circumstances, the advanced labial artery will be ligated.

3.3 Flap Insert

[2] As a result, a musculocutaneous flap is formed, which links to the facial artery. The flap is then dug down into the buccal area and, sometimes in situations, underneath to correct the intraoral defect. The dug-down part of the flap must be de-epithelialized if single-stage restoration is necessary. It is possible to do staged reconstruction with delayed pedicle division, with the necessary time delay to enable proper neovascularization.

4. PROCEDURE

[3] the use of a low-level nasolabial flap is preferable in oral reconstruction. In three heights, the focus line directly follows the nasofacial fold, and in less than a third, 3 to 4 mm between the NL fold. After flap transfer, this will produce modest disturbance and allow for advanced arc rotation. The tip should have a 1.5 to 2.5 cm wide base. It is difficult to spin successfully in an extensive diameter base, whereas hitting with a tiny base can work with lower blood pressure and offer a restricted number of transfer tissues. The internal organs of the incision and the internal organs touch about 0.5 to 0.75 cm in front of the inner canthus. [3] Oral practice has a low flap limit. It can be used when a single-stage nasolabial flap is necessary to address the subsequent oral deformity (lower lip with retromolar trigone). With a no. 15 scalpel, make a 2 to 2.5 cm deep flap. Sun paralysis, increased alveolus &retromolar trigone, Metzenbaum scissors-made transbuccal tunnel in the posterior part of the gingivobuccal sulcus. In the posterior

part of the lower gingivobuccal sulcus, a transbuccal tunnel is formed for mistakes in the lateral 1/3th of the lower lip and alveolus. A nasolabial flap will be necessary on stage 2 if the impairment is between one-third of the oral hole (middle mouth, bottom mouth, top, and bottom alveolus) or the internal tongue, and the necessity for a two-story harvest will be significantly praised.

As a result, only around 1 to 1.5 cm of the flap is highly exposed. For convenient transmission, a transbuccal dug down was constructed at the plane of the backbiting back.

[4] when the editing is finished, cutting scissors lift the flap from the top to the bottom of the submuscular plane. The upper section of the separation is frequently related to the angular branch of the facial vein. [5] as previously indicated, the transbuccal tunnel is generated adjacent to the feature site on the oral cavity. One or two fingers should be able to pass through the tube quickly. The flap was then sutured in place with a series of 3-0 suction sutures after being non-invasively moved to the mouth cavity. The donor site is generously undervalued as skin elevates the drum underground. Sponsor disability restrictions have now been implemented. When the operation is completed, the skin next to the incision's nasofacial region is worked on to generate a flat scar. However, she has a slightly stressed scar around the nasolabial fold (thus, mild disturbances during closure), which gives her a more natural aspect.

The separation and placement of the flap are typically done three weeks following the initial treatment in circumstances when a second phase is required. Many patients appreciate that they can eat soft meals during this period. It is critical to eliminate anything during period flap separation.

[6] the microvascular flap and the transbuccal component offer repair of other parts of the oral cavity other than the tongue. In this case, a subset of oromandibular reconstructive patients could keep their bodies in shape by eating soft meals. Surprisingly, every one of these patients had a significant oral joint deformity. There are no signs of neurosis in any of the patients.



Fig. 1. Presurgical marking of flap



Fig. 2. Dissected right side flap



Fig. 3. The transfer of the flap through the mylohyoid tunnel behind the mandible



Fig. 4. Islanded nasolabial flap insert into tongue defect

5. RESULTS

[7] 24 men and two women were among the 26 patients. The tongue was the site of the primary tumor, In the clinical examination and computed tomography, all patients had T2 or T3 disease with N0 / N1 status, and neither of them had been given neoadjuvant radiation. In 26 cases, neck dissection was connected with removing the primary tumor. He operated on and maintained facial veins in 26 people. In 12 cases, this was accomplished through internal cutting; otherwise, it was accomplished through lip separation. Only seven individuals were given radiotherapy after surgery. Tracking for the last six years and no one of the patients lost to follow up.

6. DISCUSSION

[8] Nasolabial flap's adaptability and use are widely known. Because a solid vascular supply is present to flap, it has a great chance of survival. Because there is so much blood, a maximum length and width ratio of three: one is possible. The flap is ideal for small and medium interior disabilities (T1 to T3). The facial vein supplies the majority of the blood to the nasolabial flap. However, this vein was present in some of our cases and was linked to the neck muscles without impairing brain function, indicating that it

may not be the facial nerve but rather a richer lower plexus that supplies skin and tip. This feather's resistance to radiotherapy indicates that its circulatory system is in good working order.

[3] the downsides of this form of reconstruction include the requirement for the second phase in some situations, where the buccal tunnel is used to implant the flap or the need for modification for the second phase of the surgery.

These are minor procedures that can be done under local anesthetic.

Other issues, such as biting the cheeks or a flap foundation that is stronger than the alveolus, might cause denture wearers, especially if a flap does alveolar abnormalities.

[9] dental implants could be a possible solution to this problem. Flap reconstruction necessitates different surgery because of bleeding, infection, or incompatibility in the suture line. A person may suffer ulcer problems and partial or complete reconstructive failure due to vascular anomalies or drainage. Flap survival depends on early detection of flap congestion, such as ischemia necrosis. Smoking is a fact, and it's associated with a higher risk of flap failure because it increases hypoxia and vasoconstriction, both of which are detrimental to flap survival.

Hematomas can be produced by poor hemostasis or drug-induced coagulopathy, which is why coagulopathy-causing medicines, such as acetylsalicylic acid, NSAIDs, and VIT E, must not be given for at least two weeks, neither before nor after surgery. Hematoma production can limit tissue formation and contribute to ischemia necrosis by reducing vasospasm and enlarging the subdermal plexus. Reduce vasospasm, lengthen the subcutaneous plexus, or detach the flap from its recipient bed. [3] one of the most common side effects of having layers on your face is congestion. Venous congestion can cause blood clots and flap necrosis. Flap recovery might also be hampered by infection. The average wound infection rate after face surgery is 2.8 percent, with high degrees of facial expressions being recreated using local layers. Hearing and the use of rebuilt pumps can harm sensory-related controls that offer hearing guidance using and swallowing. Furthermore, if the flap is taken from the skin that contains the hair to reconstruct the surgical error, that patch of tissue will continue to produce hair, especially in men. By designating the tip, this can be avoided. It can also be noted that post-surgery radiation can inhibit hair development, which finally leads to flap musicalization. There may also be a file for the effect of twisting around the nasolabial folds, which can be avoided by using rhomboid forms. The ipsilateral nasolabial flap can accept up to 2 cm of deformity, but if a more significant portion of 5 cm or more needs to be fixed, the ipsilateral nasolabial flap must be used. The nasolabial flap can be employed well. Another significant benefit of this flap is that, due to the excellent length of the pedicle, it can reach anywhere inside the oral cavity, including the opposite side. This is particularly important in tongue defects, as it provides adequate coverage even for the posterior 1/3rd of the tongue defect. It also provides enough volume to cover a hemiglossectomy deformity. Unlike other traditional NLFs, this flap will not cause vascular pedicle compression, will not cause a complication such as an inclusion cyst of the percutaneous fistula, and will not require a phased treatment. The speech was intelligent, the tongue mobility was superb, and there were no additional postoperative issues like a traditional nasolabial flap. Even though we do not routinely perform tracheostomies in situations of tongue excision, this flap did not necessitate tracheostomy. Oncological principles are observed during malignancy resection; the facial artery and vein are kept, and there is no oncological compromise, especially when

compared to the submental flap, which compromises the preglangular area of level Ib clearance.

[10] the main downside of a flap is leaving a scar after surgery. However, this will fade over time. This reconstruction may not be acceptable to younger people. The facial nerve buccal branch, which supplies top lip, was sacrificed during the treatment, which may have a little cosmetic effect on smiling. The proximal end of the flap will have modest hair growth, but it is significantly superior to the submental flap. This flap cannot be harvested when a big level Ib node is present, compromising oncological clearance. To prevent hair growth, reepithelialization of the proximal skin may be tried.

[5] other locoregional flaps or skin grafts won't supply enough volume for the tongue and have their morbidity. A submental flap is another option. However it is not recommended because it is not oncologically safe. As a result, the free flap is the recommended method of tongue repair. However, the amount of effort and knowledge required must be considered. This flap is an excellent alternative to the free flap in terms of cosmesis.

[11] When weighing the advantages and disadvantages of this flap, it's worth noting that it has the potential to become a significant flap for the restoration of orofacial abnormalities, necessitating a more considerable prospective study and further examination [12-15].

7. CONCLUSION

In some cases, the nasolabial flap is used to cover or reconstruct a mild or moderate paralysis of the mouth opening. However, where teeth and bites are present in the area to be restored, this reconstruction method is not very suitable.

The pedicle might potentially cause skin injury. Because a minor handicap necessitates rebuilding, the nasolabial flap has shown to be a suitable and trustworthy treatment that does not cause clients undue illness.

CONSENT

It is not applicable.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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