

## Case Report

# Palatal Reconstruction with Nasolabial Flap- A Case Report and Review of Literature

Lal SS, Vishwani A, Mathew NE and Iype EM\*

Department of Surgical Services, Division of Head and Neck Surgery, Regional Cancer Centre, India

## Abstract

The case report describes the treatment of a 40 year old female patient having squamous cell carcinoma of the right upper alveolus involving hard palate. The patient was taken up for right inferior partial maxillectomy and the defect reconstructed using an inferiorly based nasolabial flap. Postoperative outcome was excellent with immediate speech, swallowing, cosmetic results and the flap integration with no complications. Considering the combined approach for treatment, adjuvant radiation therapy was recommended for the patient.

## Introduction

Maxillectomy defect reconstruction poses a significant surgical challenge due to the complex three dimensional architecture of the midface [1]. Surgical defects of maxilla can results in functional morbidity [2]. Such defects can have profound effects on a patient's function, quality of life and psychological well-being. In this case report, a female patient with a biopsy-proven squamous cell carcinoma of the right upper alveolus underwent inferior partial maxillectomy and adjuvant radiotherapy. Further we will be discussing the utility of local flaps for reconstructing maxillectomy defects. Locoregional flaps are considered useful for addressing small, medium and large-sized palatal defects, providing a potential solution for reconstructive surgery in this challenging context.

## Case Presentation

It is a case description that the 40-year-old female patient with a history of hypothyroidism, hypertension and presented with an ulceroproliferative growth (2.5 cm × 2.5 cm) on the right upper alveolus involves hard palate. Biopsy confirmed it as squamous cell carcinoma, and a CT scan revealed the extent of the soft tissue mass. Following counselling and consent, a wide excision was performed, resulting in an inferior partial maxillectomy (Figure 1). The defect was successfully reconstructed using an inferiorly based nasolabial flap harvested from the right side (Figure 2 and 3). The postoperative outcomes were positive, with excellent immediate speech, swallowing, and cosmetic results and the flap integration showed no complications (Figure 4).

On follow-ups, the flap uptake was 100%, and the surgical site healed well. Considering the combined approach for treatment, adjuvant radiation therapy was recommended for the patient. The

multidisciplinary approach of primary surgical management with Inferior partial maxillectomy and local flap reconstruction followed by adjuvant radiotherapy showed promising results.

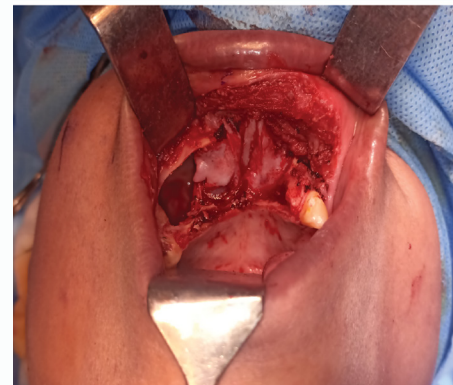


Figure 1: Intraoral appearance after inferior partial maxillectomy.



Figure 2: Outline of flap for reconstruction.

## Discussion

Maxillectomy defect reconstruction remains a constantly evolving aspect of surgical art compared to mandible reconstruction. The challenge for the reconstructive surgeon lies in achieving safety margins for ablative oncologic defects while addressing function, aesthetics, and the psychological well-being of the patient. The existing literature offers a wide array of reconstructive methods for maxillectomy defects, including obturator prosthesis with or without

**Citation:** Lal SS, Vishwani A, Mathew NE, Iype EM. Palatal Reconstruction with Nasolabial Flap- A Case Report and Review of Literature. Am J Surg Case Rep. 2023;4(11):1103.

**Copyright:** © 2023 Lal SS

**Publisher Name:** Medtext Publications LLC

**Manuscript compiled:** Nov 08<sup>th</sup>, 2023

**\*Corresponding author:** Iype Elizabeth Mathew, Department of Surgical Services, Division of Head and Neck Surgery, Regional Cancer Centre, Thiruvananthapuram, Kerala, India



**Figure 3:** Location of inferiorly based nasolabial flap.



**Figure 4:** Postoperative appearance after defect reconstruction.

**Table 1:** Local flap vs. Obturator.

Local flaps	Obturator
Minimal donor site morbidity	No donor site morbidity
Excellent cutaneous colour and texture, thickness match and pliability	Skin grafting and obturator needed.
Requires surgery	Requires no additional surgery
Almost inconspicuous scar	No additional scar
Intelligible speech	Needs prosthodontics consultation
Normal swallowing function	Occasional need of reconstructing new prosthesis
No need of further surgeries	Frequent care of the defect

**Table 2:** Local flap vs. Free flaps.

Local flaps	Free flaps
Good blood circulation	More chances of failure
Short operative time	Long operative time
Less donor site morbidity	High donor site morbidity
Short distance to the recipient site	Need micro vascular surgery
Low cost	High cost

implants, various local flaps such as palatal and modified cheek flaps, as well as pedicled flaps like the sternocleidomastoid flap, deltopectoral flap, temporalis flap, and vascularized cranial bone. Additionally, free flaps are utilized in certain cases [3]. Selecting the appropriate reconstruction method depends on factors such as the size of the defect, its anatomical location, the number of remaining teeth, the quality and quantity of soft tissue available, and specific needs of the patient. Each case may require a tailored approach to achieve the best functional and cosmetic outcomes for the individual.

As advancements in surgical techniques and technology continue, the options for maxillectomy defect reconstruction are likely to

expand further, providing improved outcomes and enhancing the overall quality of life for patients facing these challenges.

The studies conducted by Moreno and Hansano, as well as Okay et al. [4,5] have highlighted the impact of obturator use on speech and swallowing outcomes in cases where the horizontal defect in maxilla is large. They found a statistically significant reduction in speech and swallowing function and overall quality of life with the use of obturators, particularly when the defect size increased, leading to compromised prosthesis stability [4-6]. On the other hand, Genden et al. [7] reported the superiority of free flaps in improving the quality of life, even for small and medium defects of maxilla.

The nasolabial musculocutaneous flap, first described by Hagan and Walker in 1988, has been widely utilised for intraoral reconstruction [8]. Garatea also introduced a modification of this flap in 1991 [9]. Nasolabial flaps can be classified based on their design and composition, such as interpolation flap (2-stage lifted over normal skin), superiorly based nasolabial flap, inferiorly based nasolabial flap, and nasolabial island flaps, including V-Y advancement flap, freestyle perforator-based nasolabial flap, and nasolabial propeller flap [10].

Furthermore, nasolabial flaps can be categorised based on their composition, including buried (skinless), defatted (dermis+epidermis), ordinary (dermis+epidermis+subcutaneous fat), musculocutaneous or myocutaneous (skin+expression muscles), and full-thickness (skin+expression muscles+buccal mucosa) [11]. These various types of nasolabial flaps offer reconstructive surgeons diverse options to address maxillectomy defects based on specific patient needs and the nature of the defect. As research and surgical techniques continue to advance, these approaches will likely play a crucial role in improving outcomes and enhancing the lives of patients undergoing maxillectomy defect reconstruction.

Both superiorly and inferiorly based nasolabial flaps have shown significant improvements in mastication, clarity of speech, and overall quality of life for patients. These flaps have proven to be effective in maxillary reconstruction, and the extended variants of superiorly based nasolabial flap, as well as the inferiorly based nasolabial flap, have been utilized with positive outcomes [12]. The variant of superiorly based NLF is called extended NLF [12]. In the superiorly based NLF, the base of the flap is near the ala and the apex is in line with the oral commissure [13]. In the inferiorly based nasolabial flap, apex of the flap 5 mm-7 mm lateral to the medial canthus [14].

One advantage of using nasolabial flaps is the minimal scarring associated with the procedure. Additionally, since the flap's vascularity is generally not compromised, it remains viable outside of radiation therapy, making it a suitable choice for patients who may require or have undergone radiation treatment. The versatility and positive outcomes observed with nasolabial flaps in maxillary reconstruction make them a valuable option in the reconstructive surgeon's toolkit, and they continue to contribute to improved patient outcomes and satisfaction.

## Conclusion

Maxillary reconstruction is a complex and challenging procedure and standardization becomes difficult due to various factors. The experience of the surgeon, the age and medical history of the patient, the patient's expectations, the number of remaining teeth, and the cost of treatment are all critical considerations in determining the best approach for reconstruction. Immediate reconstruction is often necessary to avoid potential morphological and functional issues

that may arise if the defect is left untreated. Selecting the appropriate timing for closure and choosing the right flap are crucial decisions in the reconstructive process. Local regional flaps are often preferred due to their proximity to the defect site, providing a viable and reliable option for maxillary defect reconstruction. Additionally, it is essential to consider the patient's needs, financial status, and expectations when discussing the treatment plan. Open communication and thorough discussions with the patient about the various options, potential outcomes, and potential financial implications are crucial to ensure the patient's satisfaction and understanding throughout the entire process. Ultimately, personalized treatment plans, taking into account the unique circumstances and preferences of each patient, are necessary for successful maxillary reconstruction and optimal patient outcomes.

## References

1. Steenfos H, Tarnow P, Blomqvist G. Experience with the modified defatted nasolabial transposition flap in nasal reconstruction. *Scand J Plast Reconstr Surg Hand Surg*. 1995;29(1):51-2.
2. Jategaonkar AA, Kaul VF, Lee E, Genden EM. Surgery of the palatomaxillary structure. *Semin Plast Surg*. 2020;34(2):71-6.
3. He Y, Guang Zhu H, Yuan Zhang Z, He J, Sader R. Three-dimensional model simulation and reconstruction of composite total maxillectomy defects with fibula osteomyocutaneous flap flow-through from radial forearm flap. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2009;108(6):e6-12.
4. Moreno MA, Skoracki RJ, Hanna EY, Hanasono MM. Microvascular free flap reconstruction versus palatal obturator for maxillectomy defects. *Head Neck*. 2010;32(7):860-8.
5. Ducic Y, Burye M. Nasolabial flap reconstruction of oral cavity defects: a report of 18 cases. *J Oral Maxillofac Surg*. 2000;58(10):1104-8; discussion 1108-9.
6. Iyer S, Thankappan K. Maxillary reconstruction: Current concepts and controversies. *Indian J Plast Surg*. 2014;47(1):8-19.
7. Genden EM, Wallace DI, Okay D, Urken ML. Reconstruction of the hard palate using the radial forearm free flap: Indications and outcomes. *Head Neck*. 2004;26(9):808-14.
8. Hagan WE, Walker LB. The nasolabial musculocutaneous flap: clinical and anatomical correlations. *Laryngoscope*. 1988;98(3):341-6.
9. Ariyan S. The pectoralis major myocutaneous flap. A versatile flap for reconstruction in the head and neck. *Plast Reconstr Surg*. 1979;63(1):73-81.
10. Abdelmofeed AM, Salama RS. Different modalities of nasolabial flaps in nasal-defect reconstruction: clinical experience in 40 cases and review of literature. *Egyptian J Surg*. 2021;40(4):1192-1204.
11. Rahpeyma A, Khajehahmadi S. The place of nasolabial flap in orofacial reconstruction: A review. *Ann Med Surg (Lond)*. 2016;12:79-87.
12. Borle RM, Nimmonkar PV, Rajan R. Extended nasolabial flaps in the management of oral submucous fibrosis. *Br J Oral Maxillofac Surg*. 2009;47(5):382-5.
13. Field LM. Design concepts for the nasolabial flap. *Plast Reconstr Surg*. 1983;71(2):283-5.
14. Ducic Y, Burye M. Nasolabial flap reconstruction of oral cavity defects: a report of 18 cases. *J Oral Maxillofac Surg*. 2000;58(10):1104-8; discussion 1108-9.