



USE OF NASOLABIAL FLAP FOR RECONSTRUCTION OF THE FLOOR OF THE MOUTH DEFECTS

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Summary

After an extensive tumor resection, a defect of the floor of the mouth is a significant reconstructive challenge. The main goal is to preserve the mobility of the tongue, which allows the restoration of mastication, deglutition, and articulation. Today, a standard method for reconstruction of floor of the mouth defects is free microvascular flaps, especially radial forearm free flap. Despite that, a potential problem is the high perioperative risk and high complication rate associated with the patient's age and comorbidities. Current literature suggests that a local nasolabial flap is a reliable treatment option for reconstruction of this type of defect, with a low complication rate and excellent functional and aesthetic results. The aim of this case presentation is to show the use of a local nasolabial flap for reconstruction of the floor of the mouth and to determine the criteria for this type of reconstruction. We present a patient who underwent resection of a floor of the mouth tumor. Due to the patient's age, medical condition, and comorbidities, the defect was reconstructed with a local nasolabial flap. There were no postoperative complications. Articulation, mastication, and deglutition were satisfactorily rehabilitated. Follow-up showed no signs of recurrent disease twelve months postoperatively. To conclude, a local nasolabial flap is still an important reconstructive choice for oral cavity defects, especially for elderly patients with multiple comorbidities who have a higher risk of perioperative complications.

KEYWORDS: *local flap; nasolabial flap; tumor; floor of the mouth; reconstruction*

INTRODUCTION

Treatment of malignant intraoral tumors often requires extensive resection. A defect in the floor of the mouth represents a significant reconstructive challenge. The main goals are to avoid communication with the neck and to preserve the mobility of the tongue, which allows the restoration of mastication, deglutition, and articulation. In addition, efforts are made to enable postoperative prosthetic care and a good aesthetic result(1).

These intentions frequently require the introduction of extra-oral tissue. There have been described various reconstructive options, including the use of skin grafts, local (tongue mucosal flap or nasolabial flap(1,2)), and regional flaps (pectoralis major muscle flap, trapezius flap, or platysma flap(3)). Nowadays, the standard reconstructive method for defects of the floor of the mouth is the radial forearm free flap. Soutar et al.(4) was the first to describe this type of reconstruction of the oral cavity in 1983. Defects of different shapes, sizes, and localizations can be covered with minimal donor site morbidity(4). It also offers the possibility of prosthetic rehabilitation and excellent aesthetic results. Despite that, a potential problem is the length of the surgical procedure and anesthesia,

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which cause a higher perioperative risk. Some patients have a high complication rate associated with their age and comorbidities.

The use of the nasolabial flap for nasal reconstruction dates back 2,500 years to Sushruta, while Tiersch in 1868 first described its use for oral cavity defects(5). The dual blood supply from both facial and ophthalmic arteries facilitates two types of flap design: superiorly or inferiorly based(5). The procedure can be done in one stage with deepithelization of the base of the flap or in two stages with transection of the pedicle three weeks after the primary procedure(6). According to current literature, there are not many complications associated with the use of a nasolabial flap for oral cavity defect reconstruction(7). It offers a reliable treatment option, especially for elderly patients with comorbidities who therefore have a higher surgical risk(1,6). The aim of this case presentation is to show the use of a nasolabial flap for reconstruction of the floor of the mouth in our patient and to determine the criteria for this type of reconstruction.

CASE REPORT

A 81-year-old male was referred to our institution with dysphagia for solid food and weight loss that lasted for three months. Clinical examination revealed an exophytic tumor on the floor of the mouth (Fig. 1). A head and neck CT scan revealed a left-side floor of the mouth mass, sized 30x29x20 mm, adjacent to the mandible but without mandibular involvement (Fig. 2). The chest CT and neck ultrasound were within normal limits. A tumor biopsy confirmed squamous cell carcinoma. The patient had multiple comorbidities: chronic obstructive pulmonary disease with pulmonary emphysema, gastritis, anemia, and he had tuberculosis twenty years ago. He was also malnourished (body mass index 18,5) and smoked twenty cigarettes a day. The patient was treated with tracheotomy, transoral tumor resection, marginal mandibulectomy, right level I–IV, and left level I–III selective neck dissections. A surgical defect, sized 4x3 cm, was reconstructed with a left inferiorly pedicled nasolabial flap as a one-stage procedure (Fig. 3). The flap was designed lateral to the left nasolabial fold and sized 6,5x4,5 cm. A facial artery was identified and preserved at the



Figure 1. Exophytic tumor on the right-side floor of the mouth.

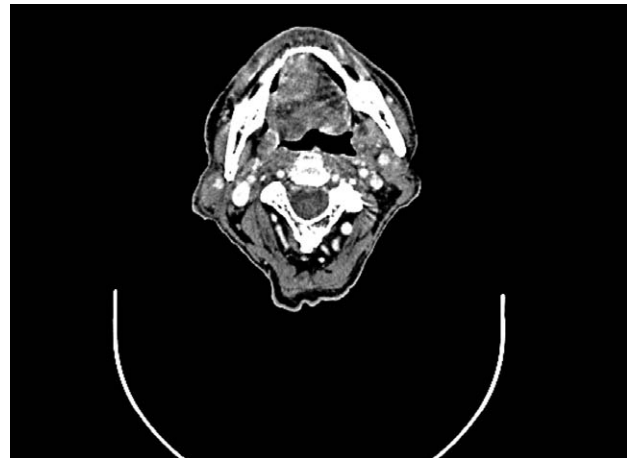


Figure 2. Head CT scan in axial plane. Tumor is adjacent to the mandible but there are no signs of bone involvement.

base of the flap. The goal was to do a one-stage procedure, so the base of the flap had to be deepithelialized. The flap was then tunneled through the buccal space, and sutured into the defect with Vicryl 3-0. The donor site was closed in layers. There were no postoperative complications. Based on clinical examination, tongue mobility was excellent (Fig. 4). The patient had some difficulties with the restoration of swallowing, mainly because of his lack of compliance. He was discharged



Figure 3. Reconstruction of the surgical defect with inferiorly based right nasolabial flap.

from the hospital on the twentieth postoperative day with a nasogastric feeding tube. He successfully continued with swallowing rehabilitation, and the tube was removed. The speech was not altered, and his quality of life improved. Histopathologic analysis showed T3N2a-grade II squamous cell carcinoma of the floor of the mouth. The multidisciplinary team decided not to administer any adjuvant treatment because of the patient's multiple comorbidities and poor medical condition. After twelve months of follow-up, the patient had no signs of recurrent disease and was satisfied with his speech, mastication, swallowing, and aesthetic appearance. His overall medical condition has not changed.

DISCUSSION

After an extensive resection of a tumor of the floor of the mouth, the size of the defect often requires the introduction of extraoral tissue. The main goals are to avoid communication with the neck and to preserve the mobility of the tongue. A local nasolabial flap is a simple reconstructive option that does not prolong operative time. According to previous studies, it is a reliable flap with very few complications. A retrospective analysis of 224 cases of oral reconstruction using a nasolabial flap by Varghese et al. showed only fifteen total and thirteen partial flap necrosis(7). Sparing the facial artery had a significant effect on flap survival. Complications were more frequent in post-irradiated patients and in patients with diabetes.



Figure 4. Excellent postoperative tongue mobility

Superiorly based flaps showed a higher rate of partial flap loss than inferiorly based flaps. None of the complications required further surgical intervention(7). Another study by Hofra et al. assessed oral function outcomes after intraoral reconstruction with nasolabial flaps. Out of sixteen patients, thirteen thought their clarity of speech was excellent or good. Seven patients had problems with mastication, and three of them had to adapt their meals. Three patients had swallowing problems, and one of them had a partly immobile tongue. Oral incontinence was not a major problem. Only one patient was not satisfied with the aesthetic outcome after operation(8). There are two possible problems associated with this type of reconstruction. The patient has to be edentulous, or without teeth in the canine and premolar region(9). There is a possibility of total flap necrosis in dentulous patients due to inadvertent biting of the flap(7,9). Some of the studies also suggest that there is a possibility of problems with wearing dentures after the one-stage procedure(8). Our patient had minor problems with swallowing that were quickly resolved. He did not complain about any other functional or aesthetic problems.

CONCLUSION

A local nasolabial flap is an important reconstructive option for defects of the floor of the mouth. This flap is especially suitable for elderly patients, patients with multiple comorbidities, malnourished patients who are in poor medical condition and patients who are poor candidates

for a free flap reconstruction due to a lack of vascular supply (after radical neck dissection).

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Sažetak

LOKALNI NAZOLABIJALNI REŽANJ U REKONSTRUKCIJI DEFEKATA DNA USNE ŠUPLJINE

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Nakon opsežne onkološke resekcije, defekt dna usta predstavlja rekonstruktivni izazov u smislu očuvanja mobilnosti jezika i zadržavanja zadovoljavajuće funkcije žvakanja i govora. Danas se slobodni mikrovaskularni režnjevi, prvenstveno podlaktični režanj, smatraju metodom izbora za rekonstrukciju defekata o ovoj regiji. Unatoč tome, kod bolesnika starije životne dobi i s multiplim komorbiditetima, očekujemo visok perioperativni rizik i povećanu stopu komplikacija nakon mikrokirurškog zahvata. Prema podacima iz literature, lokalni nazolabijalni režanj se pokazao kao jednostavna i pouzdana metoda rekonstrukcije defekata usne šupljine uz nisku stopu komplikacija te dobar funkcionalni i estetski rezultat. Cilj ovog rada je ukazati na mogućnost korištenja lokalnog nazolabijalnog režnja za rekonstrukciju defekata dna usne šupljine i utvrditi kriterije za izbor bolesnika za ovakav tip rekonstrukcije. Prikazujemo bolesnika koji je kirurški liječen zbog karcinoma dna usne šupljine. Zbog lošijeg općeg stanja bolesnika, visoke životne dobi i komorbiditeta odlučili smo se za rekonstrukciju lokalnim nazolabijalnim režnjem. Operativni zahvat je prošao bez komplikacija. Bolesnik je zadovoljavajuće govorno i gluticijski rehabilitiran te bez znakova recidiva bolesti dvanaest mjeseci postoperativno. Možemo zaključiti da lokalni nazolabijalni režanj i danas zadržava važno mjesto u rekonstrukciji defekata usne šupljine, osobito kod starijih bolesnika s brojnim komorbiditetima koji imaju visok perioperativni rizik.

KLJUČNE RIJEČI: *lokalni režanj; nazolabijalni režanj; tumor; dno usne šupljine; rekonstrukcija*