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Maxillo-facial Surgery

Reconstruction of the Anterior Buccal Floor by a Nasolabial Flap: Report of a Case and Literature Review

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Abstract **Case Report**

Oral floor defects pose a significant challenge in reconstruction. The primary goal of reconstruction is to preserve tongue mobility, which allows for restoration of chewing, swallowing, and phonation. Current literature suggests that a nasolabial flap is a reliable treatment option for the reconstruction of this type of defect, with a low complication rate and excellent functional and aesthetic results. We present a patient who underwent resection of a gingivomandibular tumor. Due to his age, and the size of the defect, reconstruction was performed with a nasolabial flap. There were no postoperative complications. The purpose of this presentation is to demonstrate the use of the nasolabial flap for reconstruction of the floor of the mouth and to determine its advantages, disadvantages and interest compared to other surgical and microsurgical techniques.

Keywords: Floor of the mouth reconstruction; Nasolabial flap; advantages; disadvantages.

1. INTRODUCTION

The nasolabial flap is a safe and useful method for intraoral reconstruction and particularly defects of the anterior floor of the mouth.

The nasolabial flap is simple, provides reliable, hairless, thin tissue, resistant to possible postoperative radiation, with limited morbidity and an acceptable scar cost. It offers a quick alternative in elderly patients, with comorbidities to other pedicled flaps and free flaps [1].

2. OBSERVATION

A 60-year-old man with no history was referred to our maxillofacial surgery department for an infiltrating and budding left gingivomandibular tumor that had been developing for 2 months (Fig 1).

A facial CT scan revealed an osteolytic lesion at the expense of the left mandibular body, disrupting the cortex, infiltrating the homolateral anterior mandibular soft tissues and the submandibular fossa (Fig 2).

The cervical, thoracic and abdominal CT scans were normal. A tumor biopsy confirmed the presence of squamous cell carcinoma. The patient had no comorbidities. He was afebrile and in good general condition.

The patient was treated by transoral resection of the tumor with mandibulectomy, selective ipsilateral neck dissections of level I-IV.

A mandibular repair was performed using a cemented prosthesis with fixation of the tongue on the prosthesis and direct closure of the mucosa.

A nasogastric tube was placed. A suture release was reported postoperatively, and despite several attempts at revision, the patient retained a loss of substance of the anterior floor.

One month later, our team decided to repair the surgical defect with a right nasolabial flap with an inferior pedicle (Fig 3).

There were no postoperative complications. At D14, tongue mobility was moderate. The patient had some difficulty restoring swallowing and speech.

He successfully continued swallowing and phonation rehabilitation. Radiotherapy was decided.

Surgical Technique

The inferiorly based nasolabial flap is drawn on the right cheek, with the tip of the flap located at the medial canthus and its base just above the angle of the

mouth. The length is 6-8 cm. The width of the flap depends on the size of the defect to be covered and the laxity of the facial skin, but it can be up to 3.5 cm. The flap is dissected from the facial muscles, keeping the base of the flap as thick as possible.

A transbuccal tunnel is made, giving access to the oral cavity. Care should be taken to avoid injuring the orifice of the parotid duct. The flap is led into the oral cavity and sutured in place. The donor site is closed directly in 03 layers. During the first week after the operation, the patient must refrain from speaking and fed by a nasogastric tube.

Figure 1: Left gingivomandibular tumor

Fig 2: Facial CT scan revealing an osteolytic lesion at the expense of the left mandibular body, disrupting the cortex

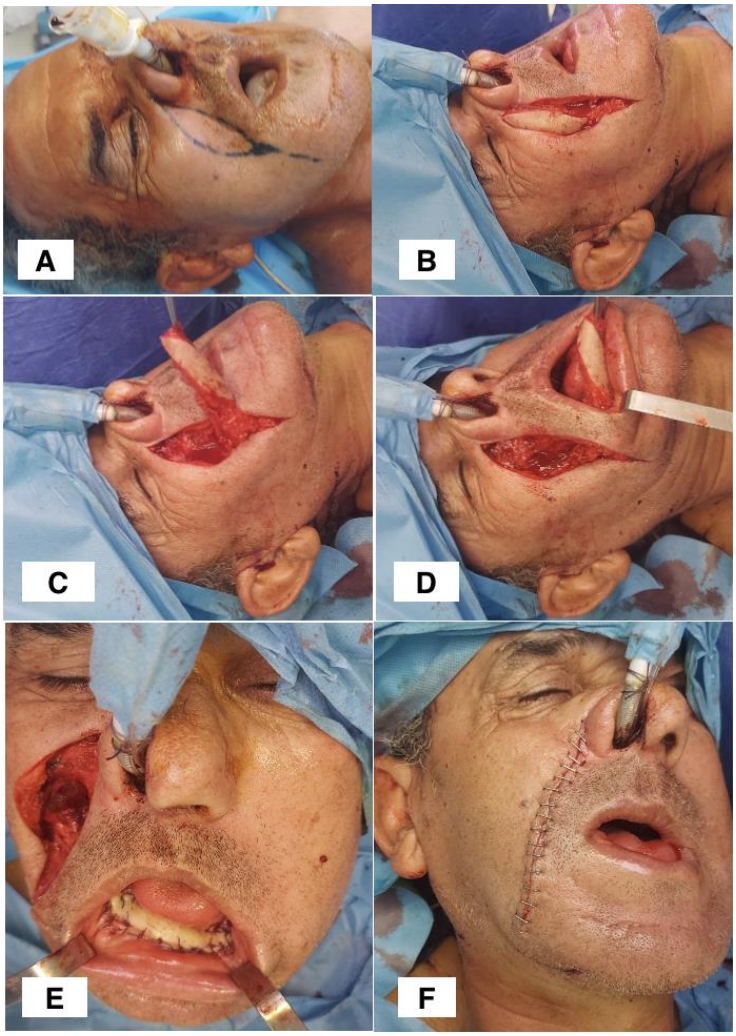

Figure 3: A) Outline of the flap centered on the facial artery; B; C) Location of the pedicle at the distal level of the flap dissection and lifting of the flap; D) Flap led into the oral cavity through the trans-jugal tunnel; E) Flap sutured in place on the floor of the mouth; F) Closure of the donor site

3. DISCUSSION

The functional integrity of the anterior floor of the mouth is essential for maintaining tongue mobility, swallowing, control of salivary activity, mastication, clarity of speech, and avoiding communication with the neck. Any loss of substance, even minimal, at this level can have important functional consequences [2].

When the loss of substance of the floor of the mouth is less than 10 cm2, a simple closure is possible. When it is greater than 20 cm2, we use either two LNGs, a pedicled flap or a microsurgical transfer. When it is between 10 and 20 cm2, we use a nasolabial flap [3].

The LNG is an axial flap, centered on the facial artery, it can be with a superior or inferior pedicle, musculocutaneous or fasciocutaneous. It is a very useful flap, used in the reconstruction of the nostrils, the columella, the defects of substance of the nasal pyramid, the lips, and in the reconstruction of the palate and the floor of the mouth [4].

The inferiorly based nasolabial flap is a simple and rapid procedure with minimal donor site morbidity. The donor site, located in the same operative field as the tumor resection, has little morbidity. Removal of the resection tissue in the nasolabial fold may even improve the patient's appearance [5].

The vascular richness of this region guarantees the viability of this flap despite a radical homolateral lymph node dissection proven in several studies in the literature, with a low risk of necrosis if bilateral ligation of the pedicle in the context of bilateral lymph node dissection. The fact that this flap resists radiotherapy well attests to its excellent vascularization [6].

This flap is particularly suitable for elderly patients, patients with multiple comorbidities, patients with malnutrition and poor health, and patients who are not good candidates for free flap reconstruction due to lack of vascular supply (after radical neck dissection) [7].

The disadvantages of this method of reconstruction are the need for a second-stage

intervention, inclusion cysts, an attachment effect on the cheek and a bulky base of the flap passing over the alveolus, which poses problems for wearing dental prostheses.

Sometimes donor site morbidity is greater with facial asymmetry. There is a risk of total flap necrosis in dentate patients due to inadvertent bite of the flap.

Superior-based flaps showed a higher rate of partial flap loss than inferior-based flaps [8].

Indeed, the use of the nasolabial flap is possible, but the disadvantages are a scar cost, a certain rigidity and a greater intraoral discomfort before weaning of the pedicle compared to the FAMM flap [9].

The FAMM (Facial Artery Musculo Mucosal) flap is commonly used in reconstructions of moderate oral cavity defects, the most common being the floor of the mouth. It has many advantages due to its ease of harvesting, its high reliability, its mucosal tissue origin, its usable surface, its large axis of rotation and the few sequelae of the donor site [10.

This is a flap taken from the inner side of the cheek (mucosa + muscle fibers of the buccinator) pedicled by the facial artery.

The FAMM flap harvesting method can be performed along an antegrade or retrograde vascular flow axis, allowing an anterior or posterior hinge to be obtained depending on the needs [11].

The filling surface is also appreciable since the flap can measure up to 3.5 cm in width by 10 cm in length without any sequelae of the donor site.

Ligation of the homolateral facial pedicle during neck curettage is not detrimental. In the case we are more familiar with, which is repair of the floor of the mouth, the flap appears to retract, probably because it is not under tension [12].

When the loss of substance exceeds 6 × 5 cm, we believe that deltopectoral and pectoralis major pedicled flaps are better indicated, with the sequelae of cervical deformation, disabling flap thickness and bothersome intraoral hairiness [13].

The antebrachial flap offers a larger skin surface but leaves significant scarring at the donor site and requires microsurgical expertise.

Since the advent of microsurgical transfers for reconstructions of the oral cavity, locoregional flaps, such as the nasolabial flap, have gradually been abandoned.

The standard method for reconstruction of floor of mouth defects described in the literature is the free microvascular flap of the radial forearm. Despite this, this flap presents a high perioperative risk and a significant complication rate.

4. CONCLUSION

The nasolabial flap is a satisfactory reconstructive option for defects of the anterior part of the floor of the mouth.

It has the advantage of being a flap that is quick to perform, reliable, the operating field is unique, allows good function and leaves few after-effects with negligible scarring [14].

Its disadvantages are its limited dimensions and residual intraoral hairiness in men. When the anterior floor of the mouth defect is of medium size or when the patient's health does not allow a microsurgical flap to be made, the LNG remains the ideal flap for quality locoregional tissue supply.

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