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Management of anterior palatine fistula as a sequel of maxillectomy due to mucormycosis

Tratamiento de una fístula palatina anterior como secuela de una maxilectomía por mucormicosis

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Palabras clave:

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ABSTRACT

Jaw fistulas can occur as a result of infection, trauma, surgery, or irradiation. A wide variety of techniques can be performed to close such defects. Mucormycosis is a rare entity, caused by ubiquitous fungi in the environment that colonize the mucosa of the upper respiratory tract when the spores are inhaled in an immunocompromised individual, requiring medical and surgical treatment, presenting great consequences in patients, both aesthetic and functional. The objective of this article is to present a clinical case of a patient with sequelae of anterior palatine fistula, due to partial maxillectomy after mucormycosis where a myomucosal rotation flap of the orbicularis labii muscle was used. This technique allowed total closure of the fistula and low morbidity of the flap.

RESUMEN

Las fístulas mandibulares pueden producirse como consecuencia de una infección, un traumatismo, una intervención quirúrgica o una irradiación. Para cerrar estos defectos se puede recurrir a una amplia variedad de técnicas. La mucormicosis es una entidad rara, causada por hongos ubicuos en el medio ambiente que colonizan la mucosa del tracto respiratorio superior cuando se inhalan las esporas en un individuo inmunodeprimido, requiere de tratamiento médico y quirúrgico, presenta grandes consecuencias en los pacientes, tanto estéticas como funcionales. El objetivo de este artículo es presentar un caso clínico de una paciente con secuelas de fístula palatina anterior, debida a maxilectomía parcial tras mucormicosis en la que se utilizó un colgajo de rotación miomucosa del músculo orbicular de los labios. Esta técnica permitió el cierre total de la fístula y una baja morbilidad del colgajo.

INTRODUCTION

Maxillary fistulas can occur as a result of infection, trauma, surgery or irradiation¹ causing aesthetic defects and functional alterations in both the feeding and speech of patients.² When performing the reconstruction of these defects in the maxillary region, local flaps should be considered as the first option.³

The need for methods to close a palatine fistula will vary from simple to complex; it is due to the size, variable position of the fistula, and the amount and condition of adjacent tissue that can be used in the repair.¹

Intraoral flaps can be islands of palatal tissue, buccinator myomucosal flaps, buccal adipose

body flaps and tongue flaps, these have been commonly used for reconstruction of small to medium-sized intraoral defects.⁴

The orbicularis oris muscle occupies the thickness of both lips. It is elliptical and is made up of fibers arranged concentrically around the oral opening. Composed of two portions: one peripheral or marginal and another central or labial. Its function is to determine the occlusion of the mouth, supplied by the superior and inferior labial arteries, a branch of the facial artery. Lymphatic drainage is carried out towards the submental and submandibular lymph nodes. The motor innervation is given by branches of the seventh nerve and the sensory innervation

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by branches of the fifth nerve, through the infraorbital and mental nerves.^{5,6}

The objective of the article is to present the use of the myomucosal rotational flap technique of the orbicularis oris superioris muscle applied for the closure of anterior palatine fistula described in 2023 by Dr. Solano and cols, in a patient with palatal clefts,² demonstrating that this technique not only works for patients with congenital clefts, but also for patients with fistulas due to consequences of maxillectomy, trauma, among others.

CASE REPORT

A 68-year-old male patient with a pathological history of arterial hypertension controlled with valsartan 160 mg and bisoprolol 5 mg. He came to our service due to aesthetic discomfort and difficulty pronouncing words, following the sequelae of partial maxillectomy in the left jaw due to post-COVID mucormycosis in 2022. The clinical evaluation revealed marked rhinolalia, total edentulism of the jaw and the presence of anterior palatine fistula.

Under general anesthesia and nasotracheal intubation, cervical hyperextension with shoulder support, marking was performed for the design of the peri-fistular incision with methylene blue to close the nasal layer (*Figure 1*). With infiltration of 2% lidocaine with epinephrine 1:80,000 at the operating site, a peri-fistular incision and tissue dissection were performed for mucoperiosteal closure of the first nasal layer by closing with 4-0 polyglycolic acid type suture with simple sutures (*Figure 2*). Subsequently, marking of the myomucosal flap was carried out with the posterior base of the orbicularis oris muscle on the left side and the vertex to the anterior part of the mucosa of the upper lip (*Figure 3*), performing hydrodissection with infiltration of 2% lidocaine with epinephrine 1,80,000, an incision was made for the myomucosal flap adjacent to the fistula extending to the



Figure 1: Marking of the peri-fistular incision.



Figure 2: Conformation and suturing of the Nasal layer.



Figure 3: Marking of the myomucosal flap.

vestibular sulcus, the anterior region of the upper lip mucosa to the palatal region and supraperiosteal dissection in the alveolar crest adjacent to the fistula to maintain coverage and improve healing in this area of the flap.

Subsequently, a subperiosteal dissection was performed in the palatal region for closure and positioning of the flap. For this flap, mucosa and fibers from the orbicularis of the upper lip muscle were taken, preserving the arterial capillaries of the superior labial artery, forming a full-thickness flap, achieving rotation of the flap and closure of the fistula in the left anterior maxillary sector. Sutures with polyglycolic acid 3-0 simple stitches (*Figure 4*). Hemostasis tests were performed and the patient was satisfactorily extubated.

Postoperative controls were carried out on the third day where partial necrosis of the tissue was evident with the presence of operative infection, performing surgical cleaning (necrectomy) (*Figures 5 and 6*) and associating 0.12% chlorhexidine gluconate to the treatment. Reassessing on the seventh post-surgical day, tissue vitality and freedom from

infectious focus was observed. Evaluations were performed after 15 days showing adequate tissue closure and flap vitality (Figure 7). The patient was evaluated monthly up to three months with no evidence of fistula recurrence with good tissue health of the flap and surrounding tissue.

DISCUSSION

In 1981 Alan A. Quayle. Described the double flap technique for the closure of oro-nasal and oro-antral fistulas, where a portion greater than half of the fistulous tract in the denervated portion is marked and incised, continuing with a flap of the palatal mucosa on the epithelialized margin of the fistula. Maintaining the vascularization of the nasal mucosa and obtaining satisfactory results from fistula closure.¹ The viability of a double flap technique was not an option for our patient due to the fistula area.



Figure 4: Rotation of the myomucosal flap and suturing.



Figure 5: Surgical site infection.



Figure 6: Necrectomy performed.

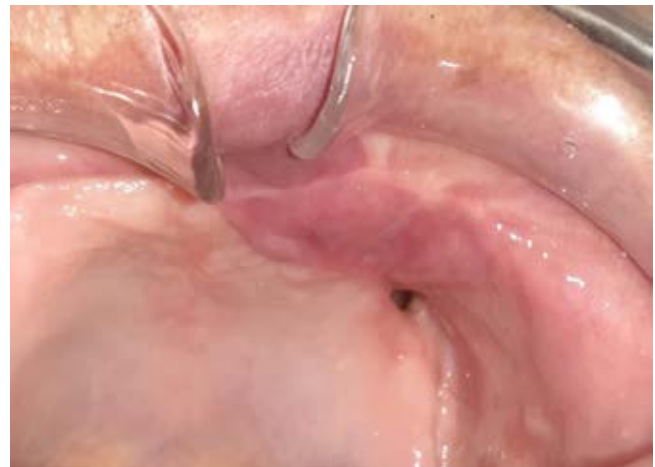


Figure 7: First month after surgery.

Yasuichi yamasiki (1986) used the submucosal island flap in the closure of oro-antral fistula, with this technique being successful due to good blood flow and tension-free mobility. Performing dissection of the palatal flap into the epithelial layer and the underlying connective tissue layer. Yasuchi et al refers that his technique can be used to repair even a large oro-antral fistula at a higher level in the buccal gingiva after surgical removal of a large maxillary cyst or tumor, if the bone in front of the greater palatine foramen is removed to avoid stress on the bundle, and if the island flap shape is designed accordingly.⁷

Christopher Naranjo describes maxillary reconstruction techniques whether with mucosal, myomucosal or osteomyomucosal tissue must satisfy the following main objectives: 1) obliteration of the defect, 2) restoration of

function, particularly speech and chewing, 3) structural support for the reconstruction of external facial features, and 4) aesthetic reconstruction of the particular facial features of each patient.⁸

Alejandro Galicia reports the use of tongue flaps is indicated in cases of fistula recurrence, in palates with excess scars, in those where the quality and quantity of residual palatal tissue do not allow adequate closure and in defects greater than 1 cm in diameter; describing that the vascular supply of this flap allows its viability and lower morbidity rate.⁴ In the case hereby described, it was important to seek the patient's comfort when speaking, eating and going about their daily lives. The orbicularis muscle myomucosal flap was ideal for this case since it did not limit the patient.

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Patient consent statement: the authors certify that they have obtained all appropriate patient consent forms. On the form, the patient has given consent for his/her images and other clinical information to be published in the journal. Patients understand that their names and initials will not be published and due efforts will be made to conceal their identity.

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