

Use of the Bichat'S Buccal Fat Pad Postero-Anterior Rotation for Oro-Nasal Communication. Case Series.

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Abstract

Bichat's buccal fat pad has had a limited aesthetic purpose for many years, but its use as an option in Oral surgery to reconstruct and close oro-nasal communications has been gaining attention. This article will expose two clinical cases in which the buccal fat pad was rotated postero-anteriorly to close and achieve healing in oro-nasal communications.

Keywords: *Bichat's Fat Pad; Maxillary Sinus; Dental Implants; Antrostomy*

Introduction

The indication of regenerative surgical procedures prior to implant placement is becoming more common in our consult currently. These procedures improve the survival and long-term stability of the restorative treatment.

Among them we can mention the maxillary sinus floor lift with open technique [1]: the lateral window published in 1980 by Boyne and James or the close: crestal access described by Summers [2]. This surgical procedure has a working protocol that will determine its efficacy: definition of a wide approach while considering immediate implant placement or not, osteotomy (antrostomy) location considering the different instrument types to use (rotary vs. piezo electric), identifying important anatomical structures related to maxillary sinus (vascular), thickness of the window's bone, presence or absence of interseptal bone and previous surgeries or pathologies that could enlarge or weaken the Scheider membrane (changing the consistency of the pseudostratified ciliated cylindrical epithelium with goblet cells).

It is more than clear that it is a surgical procedure sensitive to intraoperative or postoperative complications [3] that can condition the time of the rehabilitation treatment, which is why we will focus on describing some of the complications that in our experience condition the development of the treatment in question: perforation of the Schneiderian membrane, massive hemorrhage when performing the osteotomy, displacement of root remnants,

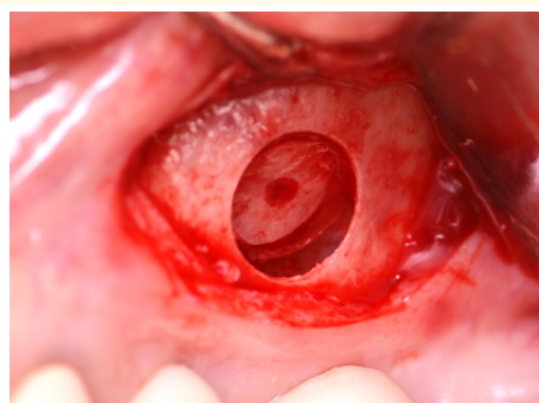


Figure 1: SLA approach-technique (lateral window).

migration of dental implants or surgical instruments (pins, osteosynthesis material), infectious processes caused by migration or rejection of biomaterials in the cavity, odontogenic sinusitis and ostium obliteration (causing exacerbated chronic infectious processes).

In our review of different publications we have also found the use of bichat's buccal fat pad in closure of oro-sinus communications which we will define as a post-operative complication or sequel of maxillofacial trauma, surgical or implantology procedure.

Maxillary sinus

The maxillary sinus is a skull cavity also called the cavity or antrum of highmore, it is the largest of the paranasal sinuses. This has a pyramidal shape and extends to the zygomatic bones, having as limits the nasal fossa, middle meatus, floor of the orbit, tuberosity of the maxilla, zygomatic process, and having as a floor, the alveolar process of the maxillary bone, presenting extreme proximity with the roots of maxillary molars and premolars [4-6].

It is sensorily innervated by the maxillary nerve (2nd branch of the trigeminal nerve), which reaches the sinus through the anterior, middle and posterior superior alveolar nerves. It also presents an autonomous innervation for the secretory function which comes through the vidian nerve [6,7].

Regarding irrigation, we found that it comes mainly from the carotid artery, through the maxillary artery and its terminal branches, which are the superior alveolar, infraorbital and sphenopalatine arteries.

These anatomical references are vital when performing any procedure or surgical act that involves the maxillary sinus, in order to avoid future complications [8-10].

Among the sinus main functions we find the respiratory, olfactory, phonatory, defensive, reflex function and also the reduction of the skull's weight thanks to its air cavities.

The interior of the sinus is lined by a membrane formed by a pseudostratified ciliated columnar epithelium, with mucus-secreting goblet cells, and serous and mucous glands. This is the so-called Schneiderian membrane, which has a variable thickness between 0.3 and 2 mm [4]. This membrane's main function is to facilitate the passage of fluids to the middle meatus, allowing to maintain the health and normal function of the sinus. On the other hand, the mechanical function of the ciliates provides it with a protective function, and as it is a membrane it also acts as a biological barrier [4,5,7].

Bichat fat pad

Bichat's Buccal fat pad is a fat, lobulated, simple mass consisting of a central body that has four extensions: buccal, pterygoid, pterygopalatine, and temporal. The main body is located deep along the posterior maxilla and the upper fibers of the buccinator are covered with a thin capsule [4]. The buccal fat pad has had a limited clinical-aesthetic use for many years and was considered a surgical nuisance, due to an accidental encounter during several surgical procedures in the pterygomaxillary and buccal space.

The use of the buccal fat pad has increased after Egyedi (1977) described the Bichat fat pad to close oro-nasal and oro-antral communications, and as a versatile pedunculated graft to close post-surgical maxillary defects. The buccal fat pad is an initiator of the formation of soft tissue and osteoid, since it contains mesenchymal stem cells, in addition to the easy access it has, it is very convenient at the time of a surgical maneuver.

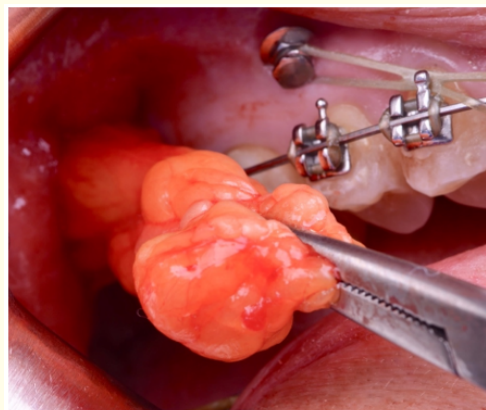


Figure 2: Bichat's buccal fat pad.

Objective of the Study

Report the use of the postero-anterior rotation of Bichat's fat pad for closure of oro-sinus communications in two surgical cases.

Case Report and Discussion

Case N°1

43 years old female patient presents to consult with a maxillo-facial trauma after losing consciousness, falling and hitting the left zygomatic region with the edge of a piano, entering the operating room with a left zygomatic-orbit complex fracture diagnosis that was managed under general anesthesia with Osteosynthesis material of the 1.5 system (low profile), highlighting in this procedure the bursting of the entire anterior wall of the left maxillary sinus. When the patient was discharged from the operating room during postoperative controls, she began to experience headaches, with rhinorrhea and a constant sensation of pressure in the sinus region, which on clinical examination was correlated with a Valsalva maneuver (+). The imaging examination revealed the left maxillary sinus completely veiled (occupied) and with micro perforations caused by the osteosynthesis material, so it was decided to treat it with the antibiotic Augmentine (amoxicillin + clavulanic acid 875/125 mg) orally every 12 hours for 10 days and wait for the bone healing period to re-enter it and perform relocation + removal

of the osteosynthesis plate of the anterior sinus wall with postero-anterior rotation of the bichat's fat pad, fixing it with RB1 5.0 vicryl suture in previously placed holes of the plate. Suturing by planes exiting without any complications, it is important to note that compensatory bichectomy was performed on the right side at the same operating time in order not to alter facial symmetry.

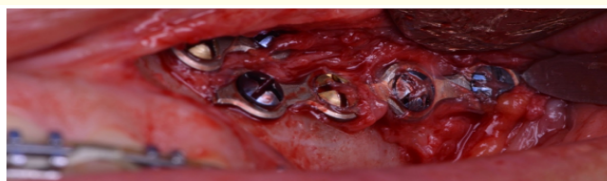


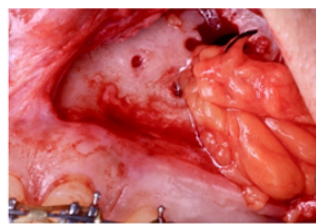
Figure 3: Initial condition of osteosynthesis material with granulation tissue.



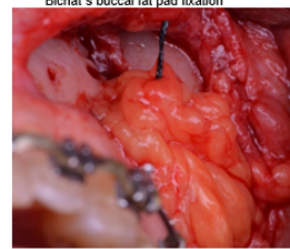
Osteosynthesis material removal



Bichat's buccal fat pad fixation



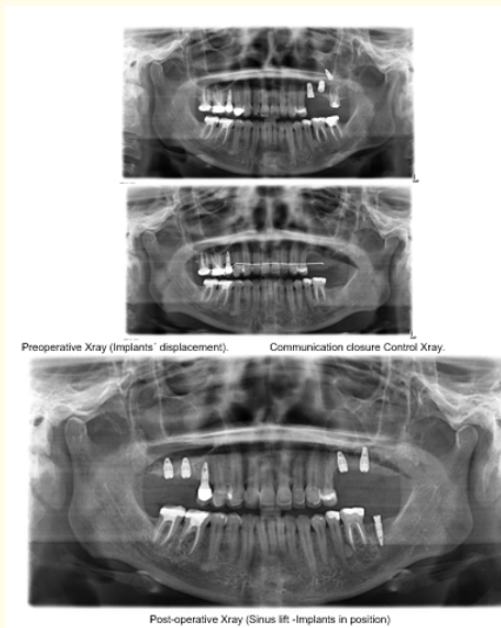
Closure of the maxillary sinus anterior wall perforation.



Postero-anterior rotation (no tension).

Figure 4

anterior rotation of the buccal fat pad flap to achieve closure of the antrostomy. At 9 months postoperative patient returns presenting localized pain at the level of the upper left molar area accompanied by spontaneous discharge at the level of the attached gingiva that communicated directly to the floor of the maxillary sinus, which is extraction of the piece 27 was done with enucleation of the cystic lesion that occupied the posterior area of the maxillary sinus. In the anterior area at the level of the anterior wall of the sinus, an antrostomy was performed with KIT SLA bur (Neobiotech®) carefully detaching the newly formed Schneiderian pseudo membrane, closing the perforation and placing the collagen membrane covering the entire regenerated bed of the maxillary sinus floor, combining (50:50) xenograft and autologous graft with PRGF membranes (Anitua, *et al.*). It was decided to wait 9 months for bone healing time and re-evaluate with CBCT to plan implant placement in regenerated sinus bed, without any complications.



Preoperative Xray (Implants' displacement). Communication closure Control Xray.

Post-operative Xray (Sinus lift -Implants in position)

Figure 5

Case N°2

51 years old female patient, smoker and with a history of odontogenic sinusitis, presents to clinic for implant consultation, patient was told that a maxillary sinus floor lift procedure had to be done and probably an immediate implant placement in the anterior sector. Displacement within the left sinus cavity of two posterior implants and loss of the implant located at the level of the premolar area occurred. Surgical cleaning and removal of the implants from the sinus cavity was performed making postero-

Conclusion

The rehabilitation of atrophic jaws with dental implants is an increasing challenge for today's clinicians, even more so when we have to consider the management and correct resolution of different complications that may arise inherent to the sinus cavity (Post-traumatic oro-sinus communications, communications as sequelae in elevations of the maxillary sinus floor or displacement of foreign bodies to the cavity). Where the postero-anterior rotation of Bichat

Fat Pad is very useful not only for its histological composition and mechanical properties but also for the stimulating capacity of soft tissue and Osteoid formation that is established when achieving and collaborating in achieving the closure of the defect.

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