

Use of Double Layer Technique for closure of Oro-antral fistula-Our experience.

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Abstract

Various options are available for the surgical management of oroantral fistulae however postoperative wound dehiscence is common with a single layer closure technique, and the management often becomes difficult because of a lingering maxillary sinus infection. In this case a double layered technique, consisting of buccal fat pad in conjunction with buccal advancement flap was used for surgical closure of oroantral fistulae.

Key words- Oroantral communication, dental extraction complications, buccal fat pad, buccal pedicle flap.

Introduction

An oroantral fistula is a pathological condition in which the oral and antral cavities have a permanent communication by means of a fibrous conjunctive tissue fistula coated by epithelium[1]. It is not an infrequent complication of dental extraction because of continued pneumatization of the alveolar portion of the maxilla by the maxillary sinus leads to a close proximity of the dental roots of especially the maxillary first molar, but also the maxillary second and third molars, premolars and sometimes the maxillary canine[2]. It may also develop due to infection, sequelae of radiation therapy, trauma, and removal of maxillary cysts or tumors[3].

This communication leads to regurgitation of oral fluids into the sinus and nasal cavity, foul smelling discharge from the site of the communication, inability to build oral pressure and possibly sinusitis. Oroantral communication 2 mm in diameter or smaller are likely to close spontaneously, without the need for surgical intervention. However, a communication of 3 mm in diameter or larger, require surgical closure of the defect¹. This is

accomplished by excision of epithelized fistula lining followed by closure of defect using isolated buccal advancement flap, buccal fat pad flap, buccal advancement closure over a metal foil, palatal rotation flap and palatal is-land flaps, bone grafts[4]. Larger flaps including temporalis and free tissue transfer might be required for larger fistulae, as resulting from ablative surgery or traumatic loss of posterior maxilla⁵.

However, the most common complication encountered in such a closure is wound dehiscence.

We describe here our experience of using buccal fat pad (BFP) flap in conjunction with a buccal advancement flap for management of established case of oroantral fistula.

Case report

A female patient of 32 years age reported to the Department of Oral and Maxillofacial surgery with a chief complaint of liquid outflow through his nose after extraction of right upper posterior tooth 15 days back from a local dentist. Clinical examination revealed an approximately 10-mm fistula linking the oral cavity to the maxillary sinus, with no pus or systemic inflammatory signs in the region of 16 Fig(1). A Water's radiographic image confirmed the clinical findings of an oral fistula with no maxillary sinus inflammation. Informed written consent obtained. The patient was taken for closure of defect by buccal fat pad (BFP) along with buccal advancement flap. A procedure was performed with local

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anesthetic consisting of 2% lignocaine and 1:80,000 adrenaline. A four cornered buccalmucoperiosteal flap is raised with releasing incisions to the depth of the vestibule (Fig 2). Raising of the flap gives a clear view of the whole length of the fistula tract within the tooth socket. Periosteal incision was then given in the depth of the flap, extending into the area opposite the second molar. After incision of the periosteum, fine mosquito forceps was gently introduced into the buccal space to expose the BFP (Fig 3)



Fig 1- Preoperative oroantral fistula



Fig 2- Buccal pedicle flap raised

The buccal fat pad was dragged into the fistula site taking care to preserve the thin, delicate fascial envelope surrounding the fat & the fat is sutured to the palatal mucosa with 4-0 vicryl without tension. The fat tends to adapt very well because of its volumetric expansion, and the defect was completely covered. The initially raised buccal advancement flap was then opened up to ensure a tension free closure, and formed a second lining over the defect & sutured with palatal mucosa, passing through the BFP using 3-0 vicryl (Fig 4)



Fig 3- Buccal fat pad harvested



Fig 4- Closure

The patient was advised not to blow the nose for 2 weeks. Antibiotic, (Amoxicillin 500 mg three times daily, analgesic Diclofenac sodium two times a day, decongestant-Otrivin nasal drops 2 times a day were prescribed for 5 days. The patient was followed-up for a duration of 3 months periodically at the regular intervals to evaluate for any postoperative complications like wound dehiscence, necrosis, infection, etc. Complete epithelization was observed with no postoperative complications (Fig 5).



Fig 5- Followup at 3 months

Discussion

BFP has been used for various procedures including closure of OAF[6] reconstruction of post excision defects [7], mucosal defects[8], treatment of oral submucous fibrosis[9], repair of primary cleft

palate[10],temporomandibular reconstruction & sinus floor augmentation[11] because of numerous advantages .

The location of the BFP is anatomically favorable, the ease and minimal dissection with which it can be harvested and mobilized, excellent blood supply, low rate of complications, minimal to no donor site morbidity, a quick surgical technique due to fact that BFP is located in the same surgical field as the defects to be covered, a good rate of epithelialization and allows for replacement of the mucoperiosteal flap without loss of vestibular depth¹².The possibility of harvesting under local anesthesia can be considered as an added advantage, and this advantage was utilized in this case.

According to Hanazawa[13],when fat tissue is exposed to the oral environment, it becomes epithelialized and is gradually replaced by fibrous conjunctive tissue within a 30-40-days of postoperative period, without any functional damage to the treated site .

Although there has already been documented success for closure of oroantral communications with BFP only[14], however as volume of BFP varies among persons which may lead to inadequacy in some cases and also there are chances of perforation if BFP is excessively stretched, its use as a single layer is limited. Use of isolated buccal advancement flap for oroantral fistula closure is associated with a high risk of postoperative dehiscence. This indicates need of a combination technique[15]. Closure of oroantral fistula through a combined use of buccal fat pad and buccal advancement flap is a safe and reliable method & provides an adequate barrier to withstand a mild degree of sinus inflammation which is invariably present in the setting of an oroantral fistula

Conclusion

To conclude, double-layered closure using BFP with buccal advancement flap should be kept as a valuable option in mind in the management of OAC

Reference

1. Ruy Oliveira, Fernando G, Rafael M Karsburg, Marcos Torriani. Oroantral communication closure using a pedicled buccal fat pad graft. *Rev. Odontociênc.* 2010;25(1):100-103
2. Bichat F. Anatomie generale, appliquee a la Yalcin S, Oncu B, Emes Y, Atalay B, Aktas I. Surgical treatment of oroantral fistulas: A clinical study of 23 cases. *J Oral Maxillofac Surg* 2011; 69: 333-9.
3. Isscher SH, van Minnen B, Bos RR. Closure of oroantral communications: A review of literature. *J Oral Maxillofac Surg.* 2010;68:1384–91.
4. Baumann A, Ewers R. Application of the buccal fat pad in oral reconstruction. *J Oral Maxillofac Surg* 2000; 58: 389-92.
5. Aslam A, Yunus M, Rahmaan P, Luqman U, Shah S. Buccal Fat Pad Flap in management of oroantral fistula. *Pakistan Oral & Dental Journal*, 2015; Vol 35, No. 1.
6. Jain MK, Ramesh C, Sankar K, Babu KTL. Pedicled buccal fat pad in the management of oroantral fistula: A clinical study of 15 cases. *Int J Oral Maxillofac Surg* 2012; 41: 1025-9.
7. Dean A, Alamillos F, Garcia-López A, Sanches J, Penãlba M. The buccal fat pad flap in oral reconstruction. *Head Neck* 2001;23:383-8.
8. Martín-Granizo R, Naval L, Costas A, Goizueta C, Rodriguez F, Monje F, Muñoz M, Diaz F. Use of buccal fat pad to repair intraoral defects: review of 30 cases. *Br J Oral Maxillofac Surg* 1997;35:81-4.
9. Mehrotra D, Pradhan R, Gupta S. Retrospective comparison of surgical treatment modalities in 100 patients with oral sub-mucous fibrosis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009; 107: 1-10.
10. Hai HK. Repair of palatal defects with unlined buccal fat pad grafts. *Oral Surg Oral Med Oral Pathol* 1988;65:523-5.
11. Baumann A, Ewers R. Application of the buccal fat pad in oral reconstruction. *J Oral Maxillofac Surg* 2000;58:389-92.
12. Singh J, Prasad K, Lalitha RM, Ranganath K. Buccal fat pad and its applications in oral and maxillofacial surgery: A review of published literature (February) 2004 to (July) 2009. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2010;110:698–705.
13. Anazawa Y, Itoh K, Mabashi T, Sato K. Closure of oroantral communications using a pedicled buccal fat pad graft. *J Oral Maxillofac Surg* 1995;53:771-5.
14. Jain MK, Ramesh C, Sankar K, Babu K. Pedicled buccal fat pad in the management of oroantral fistula: A clinical study of 15 cases. *Int J Oral Maxillofac Surg* 2012; 41: 1025-9.
15. Candamourty R, Jain M, Sankar K, M. R. Ramesh M R. Double-layered closure of oroantral fistula using buccal fat pad and buccal advancement flap. *J Nat Sci Biol Med.* 2012 Jul-Dec; 3(2): 203–205.