

Closure of Oroantral Communication Using Buccal Advancement Flap: A Case Report

S Sharma¹, D Vandana²

¹Consultant, Department of Oral and Maxillofacial Surgery, Superspeciality Dental and Maxillofacial Centre, Jammu and Kashmir, India, ²Incharge, Department of Periodontics, Superspeciality Dental and Maxillofacial Centre, Jammu and Kashmir, India

Abstract

The term oroantral communication (OAC) is an abnormal communication between the oral cavity and the maxillary sinus, which mostly occurs as a result of extraction of upper premolars and molars. This may, subsequently, lead to the formation of oroantral fistula if left untreated at an early stage. The fistula may close spontaneously due to swelling of the gingival tissue but in very rare cases. The maxillary sinus occupies an important place in oral and maxillofacial surgery owing to its anatomical proximity to the teeth. The hard palate and the alveolar process form the floor of the maxillary sinus. Passage of microflora from the oral cavity into the maxillary sinus occurs with the presence of fistula. In children and adolescents, the risk of OAC is less, due to smaller volume of the maxillary sinus. Surgical treatment to close the communication should be done at an early stage after thorough evaluation and planning.

Key words: Buccal flap, Maxillary sinus, Oroantral communication

INTRODUCTION

The largest part of the upper jaw is taken up by the maxillary sinus, which is also known as antrum of Highmore after the name of anatomist Nathaniel Highmore who first defined the sinus as a space in the bone and called it as antrum.¹ Oroantral communication (OAC) is a common complication seen after the extraction of maxillary premolars and molars, where the sinus floor is close to the root apices and the maxillary sinus is separated by a thin bony lamella.^{2,3}

Normal sinus mucosa thickness ranges in between 1 and 7 mm.⁴ Periapical infections and cysts lead to resorption of the bony floor of the sinus which increases the risk of OAC. It can also occur due to trauma and iatrogenically while performing sinus lift procedures and placing dental implants, etc., epithelialization of this pathological communication leads to the formation of oroantral

fistula (OAF). Openings which are <2 mm may heal spontaneously whereas larger openings require surgical intervention. In 1957, Martensson considered that there is minimal possibility of spontaneous healing when the OAF is persistent for 3-4 weeks or fistulae with diameter >5 mm.⁵ There are many techniques for the closure of OAC including buccal or palatal alveolar flaps and their modifications. The preferred technique depends on surgeons past experience and expertise.

CASE REPORT

A 40-year-old⁶ male reported with the chief complaint of aspiration of oral fluids into the nasal cavity and halitosis. Past dental history revealed extraction of maxillary premolar tooth 12 days back. Clinical and radiographic investigation revealed oroantral communication (Figure 1). Patient was briefly explained about the treatment plan, and pre-operative medications were advised. Surgery was done on the next day under local anesthesia; two vertical releasing incisions having a trapezoidal shape were placed, and buccal flap was raised. The palatal flap was also elevated. Socket lining was debrided; curettage was done to remove any epithelial lining or infected tissue, and fresh bleeding was induced in the socket. The buccal flap was placed over the socket and sutured to palatal flap

Access this article online



www.ijss-sn.com

Month of Submission : 12-2016
Month of Peer Review : 01-2017
Month of Acceptance : 01-2017
Month of Publishing : 02-2017

Corresponding Author: Dr. D Vandana, Roop Nagar, Jammu – 180 013, Jammu and Kashmir, India. Phone: +91-9419262262.
E-mail: dr.souravsurgeon@gmail.com

using interrupted 3-0 silk sutures (Figure 2). Releasing incisions in the buccal flap were also sutured. Post-operative instructions and medications including nasal decongestant spray were advised. Periodic follow-up was done. Healing

was uneventful with no aspiration of fluids in the nasal cavity after 4 months of follow-up (Figure 3).

DISCUSSION

In choosing the surgical approach for closure of OAC, different parameters must be considered, including location, size of the defect as well as height of the alveolar ridge, persistence, sinus inflammation and patient's general condition. Most of the surgical techniques to close the OAC and OAF rely on mobilizing the tissue and advancing the resultant flap into the defect. The advantage of the buccal flap to close the OAC is its possible utilization when the fistula is located in more mesial area as in our case.⁷ The loss of buccal vestibule may require an additional vestibuloplasty indenture wearing patients. In addition to the use of various flaps for closure, the use of some alloplastic materials has also been documented. Zide and Karas used blocks of hydroxyapatite to close the communication by filling the bone defect in the alveoli.⁸ Infection of the maxillary sinus if any must be treated before surgical intervention, as the infection may cause delayed healing and bone graft failure. Due to patient's economic status, the option of using autogenous bone graft to fill the defect was kept for the 2nd surgery (if required); in case of failure of the flap alone to close the defect satisfactorily. However, the patient was fully satisfied and there were no symptoms of OAC present on 4th month's follow-up. This technique of buccal flap closure was innovative and successful for treating mild OAC.

CONCLUSION

Treatment options for OAC include various local and free soft tissue flaps with or without bone grafting, and the best method should be emphasized upon to achieve proper closure. Strict instructions should be given to the patient to avoid creation of negative pressure in the oral cavity and nasal decongestants/steroidal anti-inflammatory spray should be prescribed to avoid any infection in the nasal cavity; which delays healing. While suturing the flaps, only non-cutting needle should be used to avoid tearing of the flap.

REFERENCES

1. Highmore N. *Corporis Humani Disquisitio Anatomica*. The Hague: Samuel Brown; 1651.
2. Anavi Y, Gal G, Silfen R, Calderon S. Palatal rotation-advancement flap for delayed repair of oroantral fistula: A retrospective evaluation of 63 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2003;96:527-34.
3. Lee JJ, Kok SH, Chang HH, Yang PJ, Hahn LJ, Kuo YS. Repair of oroantral



Figure 1: Intraoperative picture showing oroantral communication



Figure 2: Intraoperative picture showing the sutured flap over the defect



Figure 3: Follow-up picture on 4th month showing completely closed defect and healed tissue

Sharma and Vandana: Closure of Oroantral Communication Using Buccal Advancement Flap

- communications in the third molar region by random palatal flap. *Int J Oral Maxillofac Surg* 2002;31:677-80.
4. Skoglund LA, Pedersen SS, Holst E. Surgical management of 85 perforations to the maxillary sinus. *Int J Oral Surg* 1983;12:1-5.
 5. Martensson G. Operative method in fistulas to the maxillary sinus. *Acta Otolaryngol* 1957;48:253-4.
 6. Güven O. A clinical study on oroantral fistulae. *J Craniomaxillofac Surg* 1998;26:267-71.
 7. Amaratunga NA. Oroantral fistulae - A study of clinical, radiological and treatment aspects. *Br J Oral Maxillofac Surg* 1986;24:433-7.
 8. Zide MF, Karas ND. Hydroxylapatite block closure of oroantral fistulas: Report of cases. *J Oral Maxillofac Surg* 1992;50:71-5.

How to cite this article: Sharma S, Vandana D. Closure of Oroantral Communication using Buccal Advancement Flap: A Case Report. *Int J Sci Stud* 2017;4(11):224-226.

Source of Support: Nil, **Conflict of Interest:** None declared.