

CASE REPORT



Oroantral fistula: A case report and review of literature

Tejavathi Nagaraj, Poonam Sahu, Swati Saxena, Haritma Nigam, Arundhati Biswas

Department of Oral Medicine and Radiology, Sri Rajiv Gandhi College of Dental Sciences, Bengaluru, Karnataka, India

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Correspondence:

Dr. Poonam Sahu, Department of Oral Medicine and Radiology, Sri Rajiv Gandhi College of Dental Sciences, Bengaluru - 560 032, Karnataka, India. Phone: +91-9845347985. E-mail: poonam_sahu@yahoo.com

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Abstract

A communication formed between the maxillary sinus and oral cavity is known as “oroantral communication,” and it does not close spontaneously, it is epithelialized and develops into a fistula. The most common etiological factor is maxillary molar and premolar extraction. The close approximation between the apex of the maxillary molars and premolars with the antral floor is the risk factor for OAC. A case of oroantral fistula reported to the department of oral medicine and radiology and was treated with buccal pad of fat and followed up for a year.

Introduction

Oroantral fistula (OAF) is an epithelialized pathological communication between the oral cavity and maxillary antrum.^[1] It is divided into three forms: (1) Alveolo-sinusal, (2) palatal-sinusal, and (3) vestibulo-sinusal, depending on the location.^[2] The etiopathology for OAF is dental infection, radiation therapy, sequelae of removal of maxillary cysts (10–15%) and tumors (5–10%), osteomyelitis, and trauma (2–5%) can cause OAC.^[3] The most common etiologic factor for OAC is upper molar extractions (0.31–4.7%).^[4] Post-operative frequency of OAC varies between 3.8% (Arrigoni and Lambrechj, 2004) and 18.7% (Rothamel *et al.*, 2014).^[5]

Case Report

A female patient aged 60 years by name Eramma, complained of pain in the upper left back tooth region for a week. The patient had undergone extraction of root piece i.r.t the same region a month back under local anesthetic administration. The patient was carefully followed up for 1 year carefully. General physical examination, the patient revealed that she was moderately built and well oriented [Figure 1]. On clinical examination, facial asymmetry was seen on the left side of the face with mild swelling over the left malar area [Figure 2]. Intraoral examination revealed an OAF in the vestibular region in relation to the

upper left maxillary first molar with purulent discharge through it [Figure 3]. Orthopantomogram revealed a radiolucent tract continuous with the extraction socket of the tooth extending into the maxillary sinus, leading to the discontinuity of the floor of the antrum [Figure 4]. To close OAF, the buccal fat pad was used. Local anesthesia was administered, the removal of fistula was done through skirting incision corresponding to the extraction socket. 0.9% saline solution irrigation was done, then two incisions anterior and a more posterior to the region were done. Incisions into the periosteum and muscle layer were made preceding the detachment, to expose the buccal pad of fat. After exposing the tissue, it was carefully pulled out with forceps and fully covering the defect without tension. 4–0 Vicryl suturing was done to secure the buccal pad of fat. Postoperatively, antibiotics - 400 mg metronidazole and 500 mg amoxicillin, 3 times a day for 7 days along with analgesic-diclofenac 50 mg and paracetamol 325 mg, 3 times a day for 3 days were prescribed.

Discussion

Maxillary sinus is internally lined by a membrane known as “Schneiderian membrane.” “Highmore antrum” is another name of the maxillary sinus.^[6] Maxillary sinuses because of their proximity to the roots of maxillary posterior teeth are of more clinical significance. The dimension of the fistula,



Figure 1: Facial profile of the patient



Figure 2: Bird's eye view of the patient, showing swelling on the left malar area of the face

epithelialization, and presence or absence of infection must be taken into account before initializing the treatment. The defects which were <3 mm in dimension and without epithelialization healed spontaneously. Otherwise, to avoid impaired drainage and recurrence, infection was cured beforehand. Defects more than 5 mm required the use of rotating and sliding flaps. Antifungal agents given systemically must be combined with saline irrigation and antifungal oral rinse, as fungal penetration into the sinus is very common in longstanding cases of OAC.^[2]

In the recent past, buccal pad of fat has been a widely used graft for closure of OAF. The buccal fat pad is a supple mass which is accessible and can be easily mobilized present between the buccinator muscle and the ramus of the mandible, acts as a barrier between muscles of mastication and considered to be a hindrance during intraoral procedures such as osteotomies, elevation of buccal flap, or surgical procedure on Stensen's duct. Buccal fat pad, because of its anatomical position, does not interfere the vestibular groove it can be used as pediculate graft; hence, buccal fat pad is more beneficial to treat oroantral communications (OAC). For the closure of OAF, sandwich technique using Bio-Oss-Bio-Gide. This procedure is beneficial for achieving bony and soft tissue closure. Allografts, autografts, absorbable materials (e.g., polydioxanone), synthetic materials



Figure 3: Oroantral communication seen in the vestibular region i.r.t left maxillary first molar

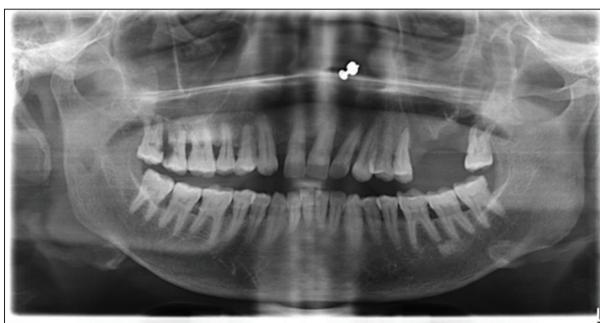


Figure 4: Orthopantomogram showing the oroantral fistula

(e.g., gold foils), and rotational flaps are the different treatment modalities for the treatment of OAF.^[6] Inspection of OAC formed after extraction of maxillary molars and premolars or apicectomy performed on maxillary posterior teeth should be done by the surgeon carefully as it can result in sinus perforation. The incidence rate of 0.31–5.1% is there for OAC and subsequent OAF after extraction of upper posterior teeth. OAF occurs after dental extraction. OAF may be the result of several different pathologic processes such as dental infection, osteomyelitis, neoplasms, bone diseases, and iatrogenic injury.^[7] Any communication between the oral cavity and the maxillary antrum which lasts for more than 21 days should be surgically closed to avoid further complication. Parameters such as location and size of defect as well as its relationship to the adjacent teeth, the alveolar ridge height, sinusitis, and general health of the patient must be taken into consideration before taking the surgical approach for the treatment of an OAF. Approach is made through the anterolateral wall of the maxillary sinus. An opening in the bone is made, through which the infected mucosa is taken out. Following the surgery, saline irrigation or cephalosporin solution rinses to be done for few days. The opening of the OAF should be preserved to allow drainage of fluids even after the removal of the drainage. Preoperatively, the

use of antibiotics and topical and/or systemic decongestant is needed, along with precautions such as no blowing of nose and no sneezing. A well-vascularized soft tissue flap with broad-base and tension-free closure given over the intact bone.

Conclusion

OAC/OAF should be managed promptly by creating a barrier between oral mucosa and maxillary antrum. It is done to prevent maxillary sinusitis and infections. Local or free soft tissue flaps are used to close oroantral defects with or without autografts or alloplastic materials. Buccal fat pad is suitable for the closure of large posterior OAC/OAF. The use of the buccal fat pad for reconstruction of defects is easy to handle and convenient to perform for both patients and for the operator. Location of the buccal pad of fat in the same surgical field as the defect to cover diminishes the infection risk and the prognosis is good.^[8]

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