



Resistant oroantral fistula: combined technique of double flap closure and wide endoscopic middle meatal antrostomy.

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ABSTRACT

Oroantral fistula is a pathological communication between the oral cavity and maxillary sinus antrum. Many etiologies have been contributed for the abnormal communication; of these following dental extraction maxillary premolars and molars has been the commonest because of anatomic proximity of root apices of these teeth and maxillary antrum. Various methods have been described in literature for closure of these communications which vary from simple local methods like buccal advancement flap to complex distal flaps and grafts. We present you 2 cases of OAF repaired using double breasting flap technique.

Introduction:

The term oroantral fistula is understood to mean a fistular canal covered with epithelia which may or may not be filled with granulation tissue or polyposis of the sinal mucous membrane, and which most frequently occurs because of iatrogenic oroantral communication.¹ In such cases communication between the oral cavity and the maxillary sinus occurs as a result of extraction of upper lateral teeth, which do not heal by means of a blood clot but inside which granulation tissue forms, and on the edges narrowing of its vestibule occurs by migration of the epithelia cells of the gingival proprie, which cover the edges of the vestibule and partially grow into the canal.¹

During expiration the air current which passes from the sinus through the alveoli into the oral cavity facilitates the formation of a fistular canal,

which connects the sinus with the oral cavity.^{2,3} The fistula may spontaneously close by swelling of the gingiva, although the chances of this occurring are not great.^{2,3}

With the presence of a fistula the sinus is permanently open, which enables the passage of microflora from the oral cavity into the maxillary sinus and the occurrence of inflammation with all possible consequences.^{2,3} Because of the anatomic position of the maxillary sinus and its connection with the teeth it is particularly important in the field of oral and maxillofacial.^{4,5} The largest part of the upper jaw is taken up by the maxillary sinus, which is described as a large, pneumatic space.^{4,5} It is also known as Highmore's, Antrum after the English anatomist Nathaniel Highmore from the 17th century, who first described the sinus as a space in the bone and called it the antrum.^{4,5}

Case reports:

We report 2 cases, one a 60 years old male patient with history of right sided facial pain and right sided oral discharge close to upper molar tooth since 1 month. Dental extraction done 6 months back, following which patient had right sided intraoral discharge, diagnosed as OAF and primary closure done after 2 weeks of dental extraction but met with failure. Few weeks later patient developed severe pain in the right half of face and foul smelling discharge from the fistula site. On examination the right fistula with active mucopurulent discharges seen. CT scan showed discontinuity of the sinus floor, with loss of lamina dura at the inferior border of the maxillary sinus over the involved tooth.

Patient was put on prophylactic antibiotic coverage preoperatively with ceftriaxone and clavulanic acid 1.5 g for a week and good glycemic control patient for the diabetic status.

The surgical procedure is drilling of fistulous track and closure of defect by breasting flap that is inside layer of buccal flap and outer layer palatal flap to repair oro antral fistula with maxillary sinusitis with osteomeatal complex defect. The other case was a 55 years old female patient with left sided facial pain since 2 year and left sided oral discharge close to upper molar tooth since 6 month. On examination left upper alveolar tenderness present and a communicating fistula with active mucopurulent discharges was seen. On routine examination total count elevated, HIV, HBsAg non reactive. CT PNS showed maxillary, frontal and ethmoidal sinusitis with 3mm oro antral fistula and infratemporal abscess. Patient was put on prophylactic antibiotic coverage preoperatively with ceftriaxone and clavulanic acid 1.5 g for a week. After control of active infection surgery was planned. FESS and reconstructive closure of oroantral fistula was carried out. (fig 1)

Procedure:

Under general anesthesia the fistula was incised vertically and the bone exposed, later the alveolar bone was drilled and resurfaced. The mucosa lining the fistula was released and reflected into the sinus cavity. Buccal mucosal flap was raised and reflected onto the defect and pocketed into the raised palatal flap. The palatal flap was raised and sutured onto the buccal flaps cuts to mobilize the flap were given as when required. The flaps were sutured with 4-0 vicryl sutures. Later endoscopic sinus surgery was done and mobilization of the middle meatus done and the maxillary ostium was visualized.

Wide middle meatal antrostomy was done and the cavity suctioned and cleaned and douched with dilute povidine iodine. The inner mucosal flaps were visualized and repositioned back. Nasal pack with merocel was done for 48 hours. Both the cases had good symptom relief after the technique, the surgery of double breasting with wide middle meatal antrostomy endonasally has shown promising results in the study.

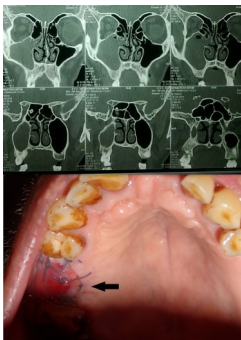


Figure 1

Discussion:

An oroantral communication (OAC) may develop as a complication of dental extractions, due to infection, sequelae of radiation therapy, trauma, and removal of maxillary cysts or tumors.^{6,7,8} OAC of less than 5 mm does not require any interventions and closes spontaneously.^{6,7,8} OAC of more than 5 mm requires surgical treatment. Some of the traditional methods that are being employed in the repair of OAC include buccal advancement flaps, palatal rotation and palatal transposition flaps, tongue flaps, and nasolabial flaps.^{9,10,11} Recently, because of various advantages, buccal fat pad (BFP) is increasingly being employed in the repair of oroantral fistula (OAF) and other oral defects worldwide.^{9,10,11}

However, there are some problems that can be encountered while harvesting BFP which has to be taken care of. In this paper, we present a case with one of such problems, its management using BFP with buccal advancement flap and review of literature on the long-term effectiveness of the same.^{9,10,11}

Oral fistula (OAF) is a pathological communication between the oral cavity and maxillary sinus which has its origin either from iatrogenic complications or from dental infections, osteomyelitis, radiation therapy or trauma.¹²⁻¹⁵ OAF closures can be achieved using different flaps which show both advantages and limitations.¹²⁻¹⁵ Therefore they all need careful consideration in order to select the best approach depending on the situation.¹²⁻¹⁵ The most widely employed flaps are of three types: vestibular flap, palatal flap and buccal fat pad Flap(BFP).¹²⁻¹⁵

According to the literature any communication between the maxillary sinus and the oral cavity lasting for more than three weeks should be surgically closed in order to avoid further medical problems.¹⁶⁻²⁰

In choosing the surgical approach to treat an oroantral fistula, different parameters must be considered, including location and size of defect as well as its relationship to the adjacent teeth, height of the alveolar ridge, persistence, sinus inflammation and the patient's general health.¹⁶⁻²⁰

Moreover, any sinus disease must be cured to allow the fistula to close.¹⁶⁻²⁰ Immediate repairs of the acute oroantral defect have a uniformly high success rate approaching 95% that decreases to 67% in cases of delayed closure.¹⁶⁻²⁰

An important role in the healing process is played by the presence of sinus diseases.¹⁶⁻²⁰ In these cases the advice of a specialist will help to deal with complications.¹⁶⁻²⁰ Since a chronic communication between the oral cavity and the maxillary sinus can represent an access route for fungal penetration into the sinus, a systemic antifungal treatment must be used associated with abundant washings with saline and topical antifungal solution.¹⁶⁻²⁰ Regardless of the chosen technique, two rules must be observed.¹⁶⁻²⁰

First of all, any sinus infection must be treated with adequate nasal drainage.¹⁶⁻²⁰ This kind of therapy might require a nasal antrostomy or endoscopic sinus surgery.^{21,22} Briefly, this procedure consists in exposing the antero-lateral wall of the maxillary sinus.^{21,22} A hole is then opened in the bone through which removal of the infected mucosa can be achieved.^{21,22} This drainage will allow washings with saline to be performed over the few days following the surgery.^{21,22} Antibiotic helps to reduce infection in such a high risk situation.^{21,22} The use of appropriate antibiotics in addition to topical or systemic decongestants is necessary pre-operatively, along with nasal precautions (no nose blowing and no sneezing).^{21,22} The second rule to be observed requires a tension-free closure of a broad based, good vascularized soft tissue flap over intact bone.^{21,22}

Conclusion:

Concurrent treatment of the maxillary sinus with endoscopic wide middle meatal antrostomy and double breasting flap repair of the gingival tissue gives the optimal results.

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