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The oroantral fistula: A case report

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Abstract

Introduction: An unnatural communication between the maxillary sinus and oral cavity is known as "oro-antral communication"(OAC) and if it does not close spontaneously, it is epithelialized so that oroantral fistula develops.(2) The most common cause of oroantral fistula is the extraction of a maxillary molar or premolar.(2,11) The close relationship between the apex of these teeth and the thinness of the antral floor explains this.(11) From simple local methods like buccal advancement flap to complex distal flaps and grafts, various methods have been described in the literature for the closure of these communication.(2) To facilitate gravitational drainage and aeration via an inferior meatal antrostomy and to remove irreversibly damaged mucosa of the maxillary sinus, Caldwell Luc procedure was designed.(10)
Objective: To describe a case report of oroantral fistula [OAF] and its closure.
Case Report: We repot a case of 28 years old male patient who came to our attention for the presence of the OAF and presence of maxillary third molar root piece in the maxillary sinus. This patient was treated by "Caldwell –Luc procedure."
Conclusion: This treatment modality provide a systematic approach for repair of oro-antral communications.

Keywords: Oro-Antral Fistula (OAF), Caldwell-Luc Procedure.

Introduction

The existence of an unnatural communication between the oral cavity and maxillary sinus due to loss of soft and hard tissues that normally separate these compartments, characterizes the "oroantral communications"(OAC).(13) The oroantral fistula(OAF) is a pathological communication between the maxillary sinus and oral cavity and it can be classified as alveolo-sinusal, palatal-sinusal and vestibulo-sinusal, depending on the location.(8) Dental infection, radiation therapy, sequelae of removal of maxillary cysts(10-15%) and tumors (5-10%), osteomyelitis, trauma(2-5%) can cause OAC.(6) The most common etiologic factor for oroantral communications(OAC) is upper molars extractions(0.31% -4.7%).(12) Postop frequency of OAC varies between 3.8%(ARRIGONI & LAMBRECHJ 2004) and 18.7% (ROTHAMEL ET AL. 2007).(7) Oroantral communication (OAC) is the most common complication in the maxilla due to the close proximity of the third molars to the maxillary sinus. From simple local methods like buccal advancement flap to complex distal flaps and grafts, various methods have been described in the literature for closure of these communication.(2) The Caldwell-Luc operation was first described while creating intranasal counter drainage through the inferior meatus in the late 19th century.(10) The Caldwell Luc operation was first described as a technique to remove infection and diseased mucosa from the maxillary sinus via the canine fossa.(10) The objective of this article to describe a case report of oroantral fistula and its closure by "Caldwell Luc procedure".

Case Report

A 28 year old male patient had referred to the department of the "Oral and Maxillofacial Surgery", M. A. Rangoonwala College of Dental Sciences & Research Centre, Pune, with chief complaints of the pain in the upper left back teeth region and pain with the left buccal mucosa. Radiographic examination revealed the presence of the left maxillary third molar root piece in the maxillary sinus and presence of the oroantral communication.

Fig. 1: CBCT Report Showing the location of displaced root piece

Under local anaesthesia administration, root piece was extracted by "Caldwell –Luc approach" and closure was done. The patient's follow-up was done carefully and was examined for the presence of oro-antral communication during follow-up.

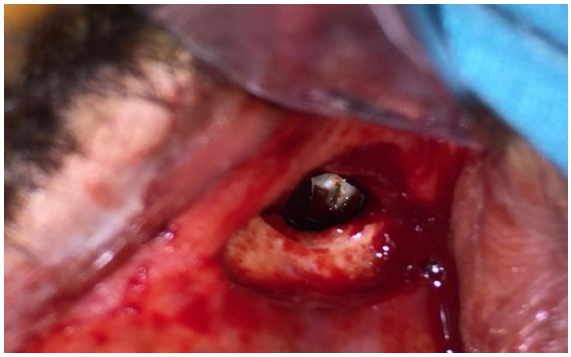

Fig. 2: "Caldwell-Luc Approach" to locate maxillary third molar root piece

Fig. 3: Water-tight closure after removal of maxillary third molar root piece

Discussion

Maxillary sinus is a part of the paranasal sinuses which is internally revested by a membrane known as "schneiderian membrane".[11] "Highmore antrum" is the another name of the maxillary sinus.[11] The most important paranasal sinuses are the maxillary sinuses because of their proximity to the roots of maxillary dentition.[15] Inspection of oroantral communications(OAC), especially after maxillary molar and premolar tooth extraction or endodontic surgery performed on maxillary teeth should be done by the surgeon extremely carefully as it can result in sinus perforation which may develop into oroantral communication.[4] The incidence of OAC should be higher after 30 years of life because the maxillary sinus reaches its greatest size during the third decade of life.[6] The incidence rate of 0.31% to 5.1% is there for oroantral communication & subsequent OAF after extraction of upper posterior teeth.[3] OAF occurs after dental extraction. Oroantral fistula is may be the result of several different pathologic processes like infection, inflammatory conditions, neoplasm, Paget's disease, iatrogenic injury and trauma.[14] Any communication between the oral cavity and the maxillary sinus which lasts for more than 21 days should be closed surgically in order to avoid further medical problems as per the literature.[8] Different parameters must be taken into account including location and size of defect as well as its relationship to the adjacent teeth, height of the alveolar ridge, persistence and sinus inflammation and the patient's general health while choosing the surgical approach for treatment of an oroantral fistula.[8] A systematic antifungal treatment must be combined with abundant washing with saline and topical antifungal solution, because a chronic communication between the maxillary sinus and oral cavity can denote an access route for fungal penetration into the sinus.[8] The "Caldwell Luc surgery" is required prior to antrum exposure to remove the diseased lining if severe sinusitis is present.[2] The success rate of the primary closing of oro-antral fistulas in 48 hours is about 90-95% and it falls to 67% in secondary closing.[1] To close oro-antral communications, the buccal fad pad can be used.[3] Buccal fat pad do not interfere the vestibular groove depth and because of its anatomical position, it can be used as pedicellate graft, hence, buccal fat pad is more beneficial to treat oro-antral communications.[3] For the closure of OAF, Bio-Oss-Bio-Gide Sandwich technique has been used. This procedure is beneficial for achieving bony and soft tissue closure.[3] Allografts, autografts, absorbable materials [e.g: polydioxanon], synthetic materials [e.g. gold foils], rotational flaps are the different treatment modalities for the treatment of Oroantral fistula.[11]

Conclusion

In this reported case, the "Caldwell-Luc approach" to close the oroantral communication (OAC) proved successful. The operated case had no complications and the oroantral communication was cured.

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