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Oro Antral Fistula-A Review

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ABSTRACT: -
OAC is a complication of surgery which results in a connection between oral cavity and maxillary sinus. Removal of maxillary molars may results in oro antral communication. Formation of OAC may results in chronic maxillary sinusitis and formation of chronic oro antral fistula. Oro antral fistula is characterized by formation of tract which is epithelized between oral cavity and maxillary sinus
Keywords: oroantral fistulas, maxillary sinus, flaps, oral surgery, oral cavity

INTRODUCTION: -

The maxillary sinus is pneumatic space that is lodged inside the body of maxilla and that communicates with the environment by the way of middle nasal vestibule.It is also known as ANTRUM OF HIGHMORE. They are 2 in number ,one on each side of maxilla and they are largest of paranasal air sinus.

It can be described as pyramidal in shape ,consisting of base ,apex, and 4 sides.

Base:lateral wall of nose

Apex:projects laterally into zygomatic process of maxilla

- 4 walls are formed by:-the roof of antrum or floor of orbit
    - The anterior
    - Infratemporal surface of body of maxilla
    - The alveolar process of maxilla which is the floor of the sinus

An oroantral perforation is an communication between the oral cavity and maxillary sinus which occurs unnaturally[1]. An oroantral fistula is an epithelialized ,pathological ,unnatural communication between these 2 cavities.It may classified into:-alveolo-sinusal, palatal-sinusal, vestibulo-sinusal

The term OAF is meant to indicate a canal lined by epithelium that may be filled by granulation tissue or by polyposis of the sinus membrane ,most frequently due to iatrogenic oroantral communication.

ETIOLOGY:-

OAF could be caused by dental infection, osteomyelitis ,radiation therapy,trauma or following removal of maxillary cyst and tumors[2].The extraction of maxillary posteriors teeth represents the most common etiology of OAF due to proximity of the bicuspid apices and molar to the antrum .Alternatively,OAF might arise during preparation of bone for insertion of a dental implant as a consequence of poor surgical planning.

SIGN & SYMPTOMS:-

Unpleasant tasting discharge and odour

Reflux of fluid and food into nose from the mouth

Leakage of air

Some patient may be asymptomatic

Fresh oro antral communication:-

Escape of fluid from the nose,Epistaxis,Escape of air from mouth into nose,Enhanced column of air -alteration in vocal resonance -change in the voice,Excruciating pain in the and around the region of affected sinus

Late stage of oro antral communication:-

Pain,Purulent nasal discharge,Post nasal discharge,Possible sequelae of general systemic toxaemic condition fever,malaise popping out of an antral polpy

PREVENTIVE MEASURES:-

To examine the extracted socket radiographically.Careful manipulation with instruments ,especially during the luxation of root tip of a maxillary posterior tooth[3].Avoiding luxation of the root tip if visualization of the area is hindered by haemorrhage.Careful debridement of periapical lesion that are close to maxillary sinus

MANAGEMENT:-

Immediate management:-

Effort should be made to establish blood clot and preserve it in place, when exposure and perforation of the sinus is small and the sinus is disease free,. Sutures are placed on soft tissue to reposition the flap and gauze pack is placed on the surgical site for 1-2 hours. The patient is instructed to use nasal precautions for 10-14 days

Includes :mouth opening with sneezing,not sucking on straw or cigarettes and avoid nose blowing

Communication:-

During endodontic treatment :

Infected canal -Ab therapy ,closure and filling

Non infected canal -nothing (low risk of sinusitis)

If sinusitis has occurred- drainage through the root canal

During tooth extraction:-

Prevention

<5mm-noninvasive intervention(apontaneous closure by blood clot)

>5mm-surgical management

During dentoalveolar surgery:-

Small-noninvasive wound surgery

Large-rotational flap

Extremely large- distant flap and graft

Fistula:-

Surgical closure is mandatory regardless of the defect

Medication:-

Antibiotics{penicillin}

Oral mouth rinse with antibiotics

Anti histamines

Analgesics

Oral decongestant

- Decolgen non-drowsy
- Neozep non-drowsy

Decongestant nasal spray and nose drops should be used for about 5-7 days at a time.If they are used for longer than this a rebound,more severe congestion of nose most often occurs[4].Oxymetazoline and xylometazoline nasal preparation are thought to be more likely to cause rebound nasal congestion because they are the strongest. Oral decongestant are not thought to cause this problem when they are stopped .Decongestant sprays and drops are thought to work better tan oral tablets or capsules .

Most of the smaller communication,which are about of 1-2 mm,heal spontaneously if it is free of infection.When chronic oroantral fistula defect are wider than 5mm and persist for more than 3 weeks ,a secondary surgical intervention is required

SURGICAL TECHNIQUES:-

BUCCAL ADVANCEMENT FLAP TECHNIQUE:-

Elevate the buccal flap,base should be broad with adequate width to cover the communication[5].Flap to cover the communication.Repositioning of the flap across the extraction site.suturing of flap

Indications: minor communication, buccal defect

Advantages:-simple ,lowest post operative pain and discomfort

Disadvantage-thin flap, limited extend, loss of vestibular depth, scaring may cause impaired mobility

Not preferred for large communication and recurrent fistula

PALATAL FLAP TECHNIQUE:-

Palatal flap is often used to close an oroantral fistula

Procedure- soft tissue surrounding the oroantral opening is excised exposing underlying alveolar bone around the osseous defect. The full thickness palatal flap is outlined and elevated.Advantages of insured vascularity and thickness of tissue more like crest of ridge.Allows for maintenance of the vestibular sulcus defect.Flap is rotated and positioned to cover the osseous defect. Flap rotation and closure.Suturing done

Advantages-more tissue attachment, firm and more resistant to trauma and infection,could be used with large defect, help to preserve the buccal vestibular depth , good vascularization

Disadvantage:- denudation of palatal surface, greater post op surface, more complicated technique, appearance of roughness at the donor site , possible flap necrosis, interfere with wearing partial dentures for covering the hard tissue

BUCCAL FAT PAD FLAP:-

This is commonly used for OAF due to its location which is anatomically favourable, easy and minimal dissection with which it can be harvested and mobilized. The fat pad has low rate of failuresand good rate of epithelialization

In order to reach BFP an incision of the posterior mucosa must be made in the area of the zygomatic buttress, followed by a light in incision of the periosteum and the facial envelope of buccal pad[6]. A gentle dissection with fine curved artert forceps exposes the yellowish colored buccal fat. The buccal fat pad flap ,preferably of the pedicle type,has been used most commonly for the closure of the OAF. This is due to location of the buccal fat pad which is anatomically favourable,to the easy and minimal dissection with which it can be harvested and mobilized[7]. The fat pad provide a good rate of epithelialization and low rate of failure. This flap type has a possibility of injuring pterygomandibular space .

Discussion:-

ACC to the literature and to the authors clinical experience ,any communication between the maxillary sinus and the oral cavity lasting for more than 3 weeks should be surgically closed in order to avoid further medical problems[8].Immediate repairs of the acute oroantral defect have a uniformly high success rate approaching 95%that decrease to 67% in cases of delayed closure. An important phase in the healing process is done by the presence of sinus disease. Treatment modalities to repair the oroantral fistula include local or free soft tissue flaps,with or without autogenous graft or alloplastic implants.The closure of an oroantral communication of any origin,can be achieved by different technique.Particular emphasis should be made in choosing most appropriate surgical technique to use

CONCLUSION:-

OACs can be successfully treated if diagnosed at the time of occurrence or at an early stage.The size of the defect is an important factor in deciding which technique to use. Small openings can heal spontaneously, but the health of the sinus is an important factor which may lead to an incomplete healing and the formation of an OAF[9].The clinician must decide the correct indication for treatment.Local buccal and palatal flaps are the most proper for the closure of OACs resulting from dental procedures. However, large defects following tumor resection or trauma may require the use of more refined techniques for successful healing.

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