



# OROANTRAL COMMUNICATION AND FISTULA OAC - OAF

*Dr.Sundus Abdul Wadood*

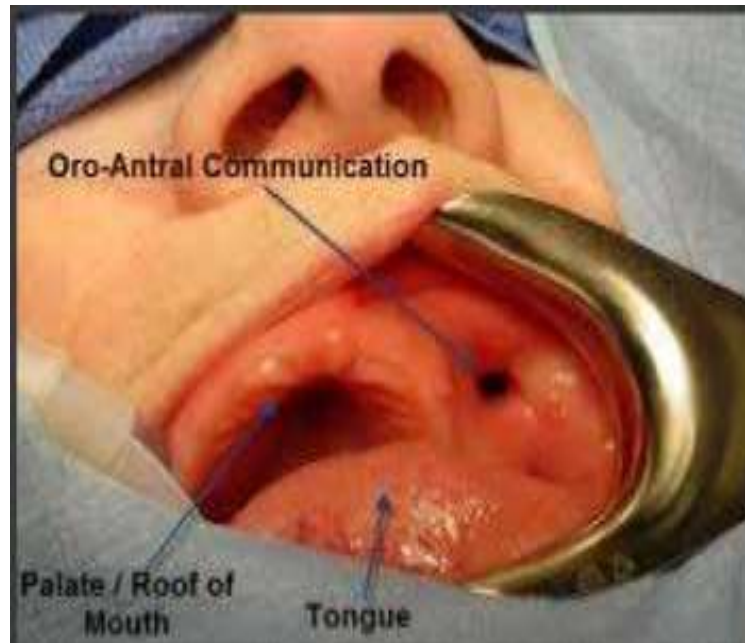
*OMFS*

*Basrah Dental College*



# OROANTRAL COMMUNICATION

Communication between the maxillary sinus and oral cavity. Its one of the complication which can occur when doing extraction of upper molars or premolars.





# COMPLICATIONS OF ORAL SURGERY INVOLVING THE MAXILLARY SINUS



The most common dental complications of oral surgical procedures that involve the maxillary sinus:

1. Include displacement of teeth, roots, or Instrument fragments into the sinus
2. the creation of a communication between the oral cavity and the sinus during surgery of the posterior maxilla.
3. Other causes of perforation into the sinus include abnormally long roots,
4. Destruction of a portion of the sinus floor by periapical lesions, perforation of the floor and sinus membrane with injudicious use of instruments,
5. Forcing a root or tooth into the sinus during attempted removal, and removal of large cystic lesions that encroach on the sinus cavity.



## **SIGN AND SYMPTOMS**

1. Unpleasant tasting discharge and odour.
2. Reflux of fluids and food into nose from the mouth.
3. Leakage of air.

## **PATIENTS AT HIGH RISK**

1. Extraction of maxillary 2<sup>nd</sup> molar.
2. Periapical infection.
3. Approximation of the maxillary sinus floor from teeth apices.



# DIAGNOSIS OF OROANTRAL COMMUNICATION

- It is identified easily by the dentist, because the periapical curette enters to a greater depth than normal during debridement of the alveolus, which is explained by its entering the sinus.



The Valsalva maneuver is performed by moderately forceful attempted exhalation against a closed airway, usually done by closing one's mouth, pinching one's nose shut while pressing out as if blowing up a balloon.





# DIAGNOSIS OF OROANTRAL COMMUNICATION



- Oroantral communication can also be confirmed by observing the passage of air or bubbling of blood from the post-extraction alveolus when the patient tries to exhale gently through their nose while their nostrils are pinched.



✓ If the patient exhales through their nose with great pressure, there is a risk of causing oroantral communication, even though communication may not have occurred initially, such as when only the mucosa of the maxillary sinus is present between the alveolus and the antrum.



# PREVENTIVE MEASURES

- Radiographic examination of the region surrounding the tooth to be extracted
- Avoiding luxation of the root tip if visualization of the area is hindered by hemorrhage
- Careful manipulations with instruments, especially during the luxation of a root tip of a maxillary posterior tooth
- Careful debridement of periapical lesions that are close to the maxillary sinus



# MANAGEMENT of OAC

The best treatment can be achieved through:

1. Careful observation
2. Radiography.
3. Do not probe the defect.
4. Promote good blood clot.
5. Place suture





# *Sinus precautions*

- Do Not drink with a straw.
- Do Not blow your nose.
- Use all medications as directed. ...
- Do Not play any wind instruments.
- Do Not smoke cigarettes, pipes, or cigars.
- Do Not open your mouth widely.
- Do Not sneeze through your nose. ...
- Avoid swimming and strenuous exercise for at least one week.
- Eat a soft or liquid diet. Chew on the opposite side of your mouth as much as possible.
- Continue to brush your teeth but avoid the surgical area. Rinse three times a day with warm water.
- It is not uncommon to have a slight amount of bleeding from your nose for several days.



## Management OAC depends upon size of opening

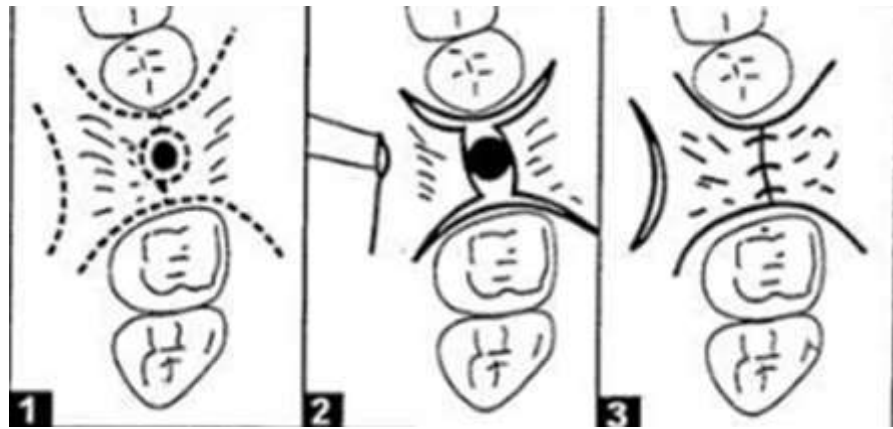
- If the communication is small (2mm in diameter or less)-
  1. no surgical treatment is necessary.
  2. The surgeon should take measures to ensure the formation of high quality blood clot in the socket and advice to take sinus precautions to prevent dislodgement of the blood clot.



# Management OAC depends upon size of opening



- If the communication more than (2-6 mm in diameter)
  1. Maintain the blood clot by use Figure 8 suture. Productive acrylic splint could be used to provide a barrier to the entry of food particles.
  2. Or Simple reduction of the buccal and palatal socket walls, and undermining the wound margins to allow light approximation of the buccal and palatal soft tissue flaps to close the defect without tension. It could be supported with palatal releasing incision.
  3. Decongestant nasal spray to shrink the nasal secretion.
  4. Antibiotic cover.
  5. Sinus precautions

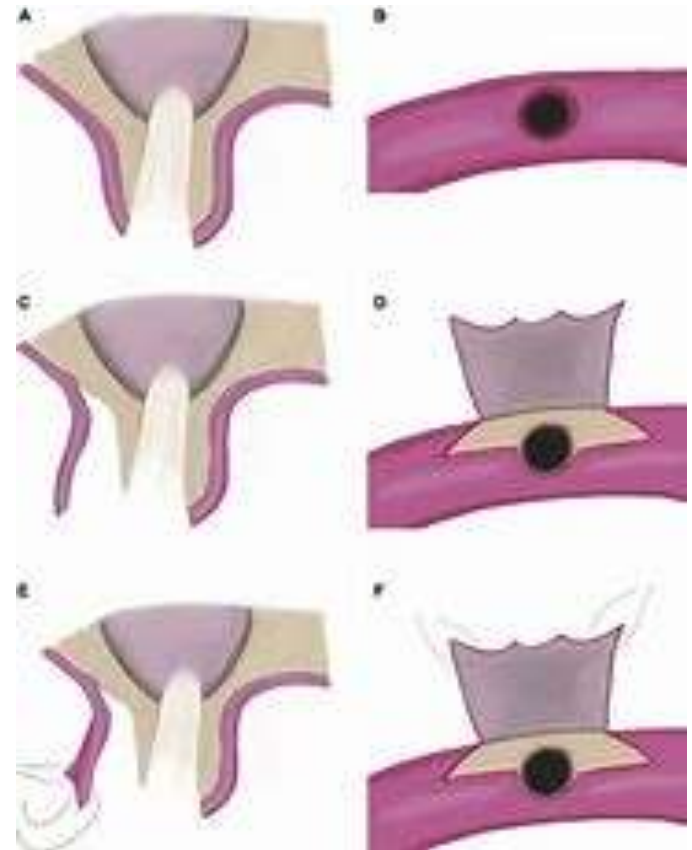




## Management OAC depends upon size of opening



- If the communication more than (7 mm in diameter or more)
- Surgical treatment by a flap needed
- Types of Flaps Buccal flap (most common)



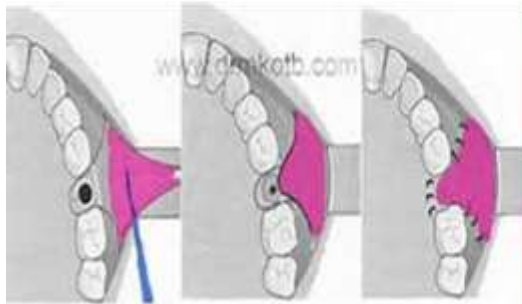




# Management OAC depends upon size of opening

## BUCCAL FLAP:

If larger perforations occur, it may be necessary to cover the extraction site with some type of flap advancement to provide primary closure in an attempt to cover the sinus opening. The most commonly used flap procedure involves elevating the buccal flap, releasing the periosteum and advancing the flap to cover the extraction site. The flap must be free of tension. Following closure, the patient is instructed to follow the sinus precautions as described previously.



Closure of fistula by buccal flap







# OROANTRAL FISTULA





# OROANTRAL FISTULA



- The fistula (OAF) is a pathological communication between the oral cavity and the maxillary sinus; depending on the location it can be classified as
  1. alveolo-sinusal,
  2. palatal-sinusal
  3. vestibulo-sinusal.
- The causes remain the same as for an oroantral communication. It must be emphasised that unlike the oro-antral communication (OAC), **OAF is characterized by the presence of epithelium arising from the oral mucosa and/or from the antral sinus mucosa that, if not removed, could inhibit spontaneous healing.**
- Closing this communication is important to avoid food and saliva contamination that could lead to bacterial infection, impaired healing and chronic sinusitis. OAF is apparently more frequent in male than in female subjects.



# OROANTRAL FISTULA

The term oro-antral fistula 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;

- 1) Iatrogenic oroantral communication.
- 2) OAF could be caused by dental infection, osteomyelitis, radiation therapy,
- 3) Trauma
- 4) Following removal of maxillary cysts or tumors.
- 5) The extraction of maxillary posterior teeth represents the most common etiology of OAF due to the proximity of the bicuspid apices and molars to the antrum.
- 6) During preparation of bone for insertion of a dental implant as a consequence of poor surgical planning.



## Management OAF depends upon size of opening and duration



- OAF might arise Most of the minor communications, having a diameter of 1-2mm, heal spontaneously in the absence of infection.
- When chronic oroantral fistula defects are wider than 5mm and persist for more than 3 weeks, a secondary surgical intervention is required.
- First step on treatment is treat any acute infection by irrigation ,antibiotic cover and decongestions.



# Management OAF Step 1



- After cutting the fistula edges, two vertical release incisions are made to provide a flap with dimensions suitable for closure of the antral communication.
- Incision removal of the epithelial lining of the palatal mucosa behind the communication might also be required. The flap, having a trapezoidal shape, consists of both epithelium and connective tissue, and it is positioned over the defect by means of mattress sutures from the buccal flap to the palatal mucosa.







# Management OAF Step II

## 1. Buccal Flap

The advantage of the buccal flap procedure is its possible utilization when the alveolar ridge is very resorbed and the fistula is located in a more mesial area . However the loss of the vestibule represents a serious problem requiring an additional vestibuloplasty in patients wearing removable dentures.

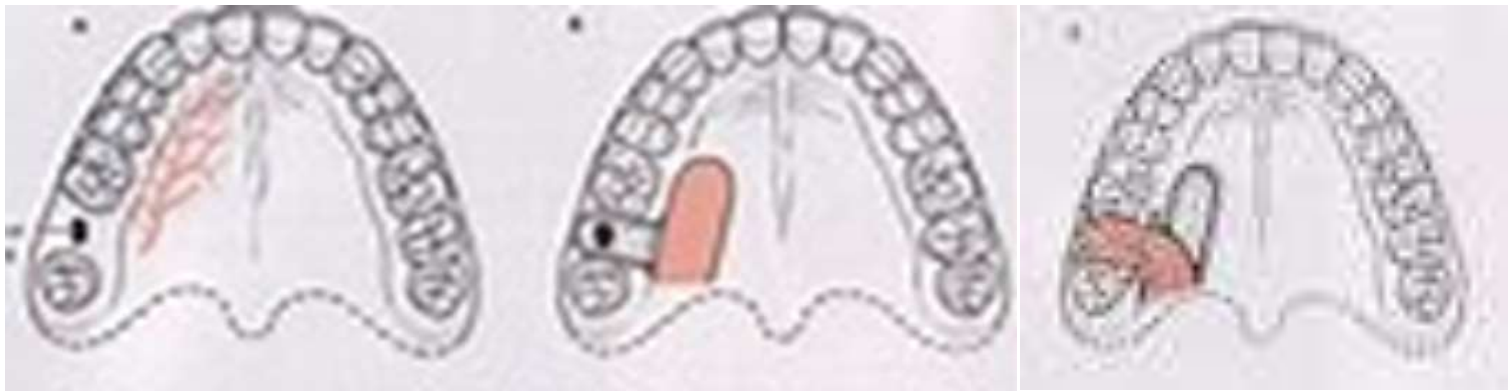




## Management OAF

### 2. Palatal Flap

- The first step consists in excising the epithelium from its edges and in cutting the palatal fibro-mucosa so as to create a flap having an axial stalk with a posterior base, supplied by the greater palatine artery.
- The palatal flap with its total thickness laterally rotated must have a large base to include the greater palatine artery at the site of its exit from the foramen.
- The anterior extension of the flap must exceed the diameter of the bony defect and have a length sufficient to allow its lateral rotation and the replacement and the suture without exerting tension on the vestibular mucosa



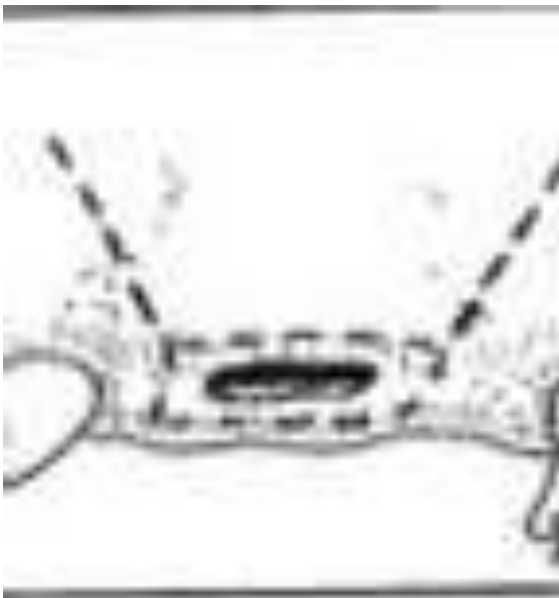


## Management OAF

### 2. PALATAL FLAP (preparation of fistula)

Procedure:

1. Incision to the soft tissue surrounding the oroantral opening is done, then reflection in order to suture the two end at the centre over the opening, this consider as first layer closure.
2. The full thickness palatal flap is elevated.





## Management OAF

### 3. Buccal Pad of Flat Flap

lobulated mass covered by a thin layer or capsule located deeply along the posterior maxilla and the superior fibers of buccinator muscle.

Pedical buccal fat pad flaps have been recommended for the closure of fistula and communications.

Advantages of this technique are

1. the low morbidity rate,
2. maintenance of the vestibular sulcus depth,
3. the low incidence of failure
4. good flap vascularization.
5. The fat when exposed in oral cavity epithelized and replace by fibrous coactive tissue within 30-40 day postoperative.





## Management OAF

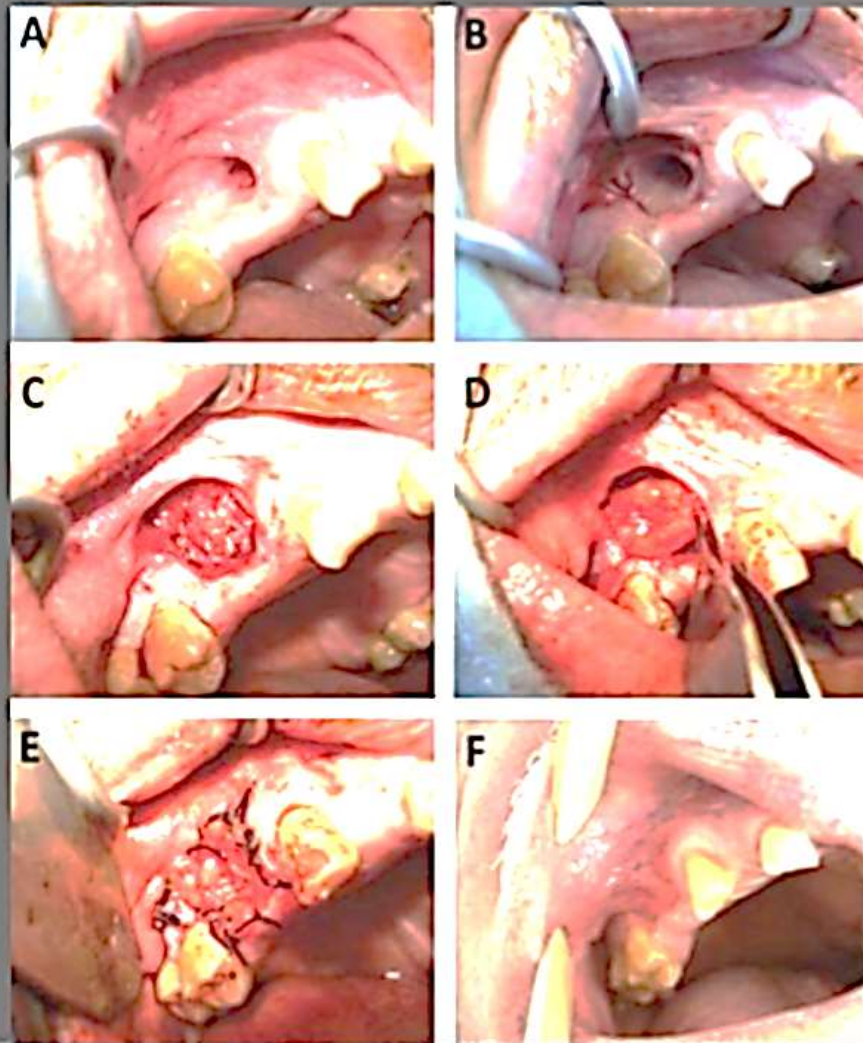
### The possible functions of the BFP include

- The prevention of negative pressure in suckling newborns
- The separation of masticatory muscles from one other as well as from the bone structures
- The enhancement of intermuscular motility, and
- The protection of neuromuscular bundles.
  
- The use of this type of flap has limited clinical usage and for many years has been considered a risky procedure due to the possibility of traumatizing the pterygo-maxillary space.



**A larger buccal flap is elevated and defect is covered by pedicled portion of the buccal fat pad with closure of mucoperiosteal flap  
Case of oroantral communication closure using a pedicled buccal fat pad graft.**

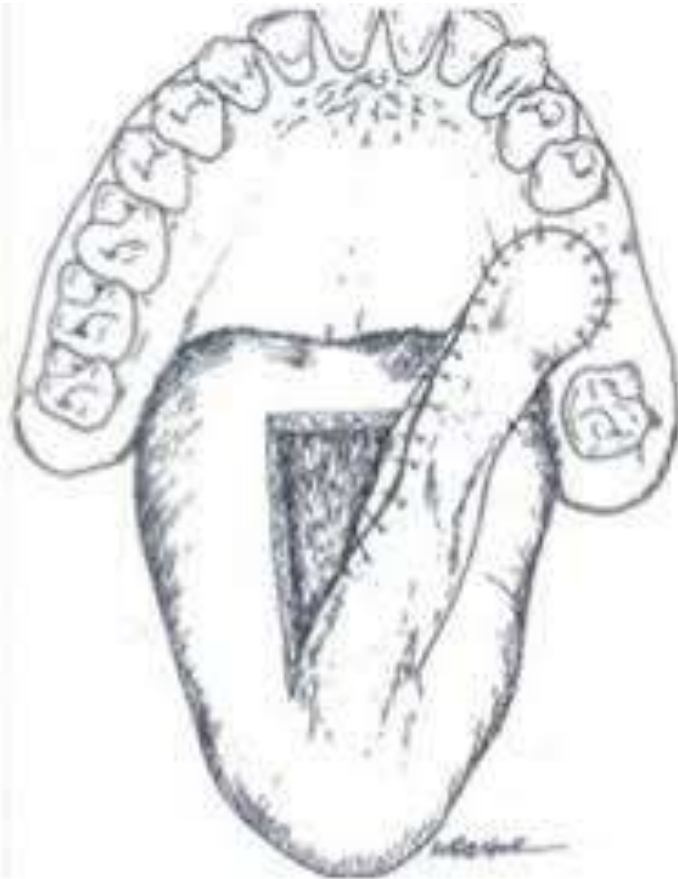
- (A) Late bucco-sinusual fistula in the 15-16 tooth area.**
- (B) Circular incision around the fistula and mucosa displacement on the fistulous path.**
- (C) Absorbable 4-0 catgut suture on the right maxillary sinus mucosa.**
- (D) Buccal fat pad dragging into the fistula site.**
- (E) 4-0 silk suture in isolated places around the fat tissue.**
- (F) Tissue repair in the 30-day postoperative follow-up.**



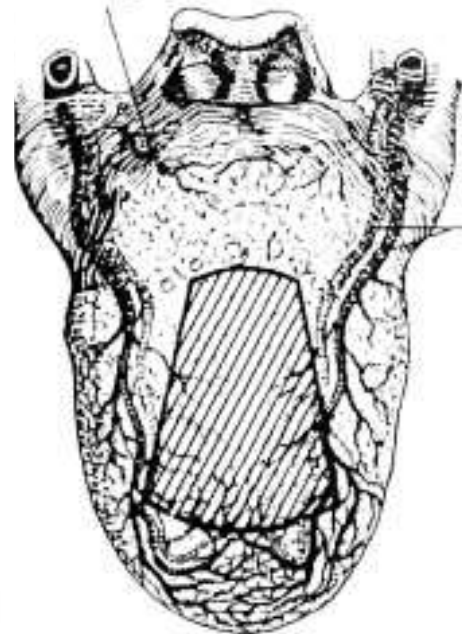




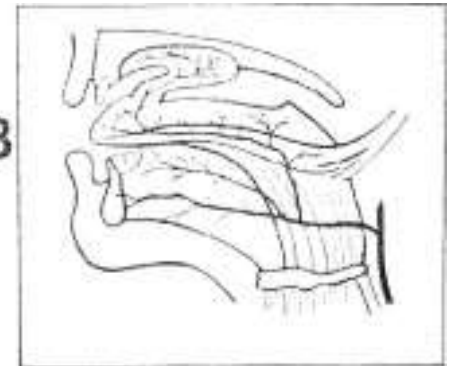
## TONGUE PELICLE FLAPE



sal Lingual Art.



B

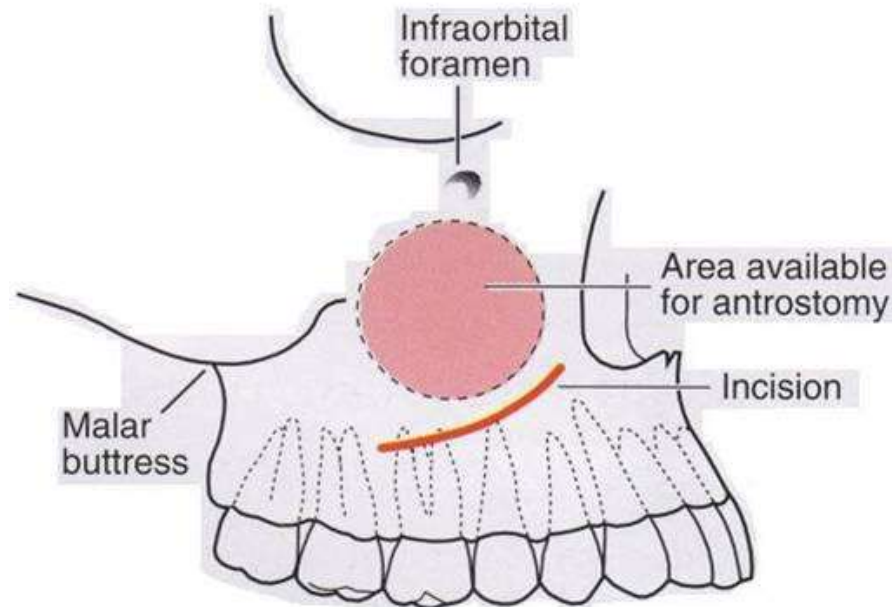


Lingual Art. & Vein



## Management OAF

In all sizes of OAC and OAF the treatment changes if there is a tooth or root pushed in side the sinus the treatment by **Caldwell-Luc operation**



**The Caldwell-Luc Operation**





## Management OAF



Bone graft and membrane also used to close the OAC or OAF





# CONCLUSION

- Treatment modalities to repair the oroantral fistula include local or free soft tissue flaps, with or without autogenous grafts or alloplastic implants.
- The closure of an oroantral communication of any origin, can be achieved by different techniques. Particular emphasis should be made in choosing the most appropriate method
- The three operative techniques here reviewed are: buccal flap, palatal flap, and buccal pad fat flap, each having both advantages and disadvantages.



# REFERENCES

1. Fragiskos, D.F. (1965) – Oral Surgery, Heidelberg: Springer-Verlag
2. Hupp, J.R, Edward Ellis III and Tucker, M.R. (2009) – CONTEMPORARY Oral and Maxillofacial Surgery, Missouri: Mosby
3. Andrea Enrico Borgonovo, Frederick Valerio Berardinelli, Marco Favale, and Carlo Maiorana- Open Dent J. 2012; 6: 94–98. Jun 1, 2012  
Surgical Options In Oroantral Fistula Treatment



**THANK YOU**