

Management Of Oro Antral Communication: A Reivew

Dr. Vijay Ebenezer¹, Dr. Balakrishnan², Dr.Rakeshmohan³, Dr. Vigil Dev Asir⁴.

Department – Oral and Maxillofacial surgery

Sree Balaji Dental College and Hospital

Pallikaranai, Chennai – 100

ABSTRACT

BACKGROUND: Oroantral communication is one of the most common complications during oral surgical procedure.it can be caused by extraction of maxillary posterior teeth and several other conditions like the presence of upper molars with long divergent roots, maxillary tuberosity fracture. The complication should be managed as early as possible to prevent the epithelial growth and fistula formation. Factors like contaminated site, time of perforation and diameter of defect are important factors in treatment plan of oac. This review article is aimed to give a comprehensive view about the aetiologies, diagnosis and the variable management of oro antral communication. **Materials and Methods:** In this review, online researchers will to articles to current subject using scientific databases such as PubMed, google scholar and dental medical books (with English language) about management of oro antral communication.

Keywords: oroantral, communication, management, complication, oral surgery

INTRODUCTION:

An Oroantral communication is an open communication between the oral cavity and maxillary antrum. The maxillary sinus occupies a major part of the body of the maxilla, normally extending into the alveolar process adjacent to the apices of the posterior teeth. Oro antral communication (OACs) are usually caused by extraction of maxillary posterior teeth (1:2). The thinness of the antral floor in that region ranges from 1mm to 7mm. Although the incidence is relatively low (5%) (4:5). OACs are frequently encountered due to the greater number of extractions. OACs may close spontaneously when the defect is <5mm, to our knowledge it has never been actually proven that small OACs(<5mm) will heal by itself. To prevent chronic sinusitis and the development of fistulas, it is generally accepted that all these defects should be closed within 24 to 48 hours. Wassmund reported development of sinusitis in 60% of fourth day after sinus exposure while Eneroth and Martenson reported a sinusitis rate of 50% by the third day after the OACs occurred to prevent this early diagnosis of OACs is mandatory for permitting successful closure. Surgical closure is indicated in cases with larger OACs and in patients with history of any sinus disease.

Aetiology:

Extraction of maxillary posterior teeth (92.63%) (due to its anatomic proximity or projection of roots within the sinus), tuberosity fracture, dentoalveolar infections/periapical infections of molars, implant dislodgement into the sinus tumour (4.47%), cyst, trauma (1.30%), osteoradionecrosis, flap necrosis.

Diagnosis:

Patient complains of unpleasant tasting discharge and odour, reflux of fluids into the nose from the mouth, leakage of air while blowing against closed nostrils, whistling sound while speaking.

VALSALVA MANOEUVRE TEST: This test is done to confirm if OAC has occurred and it is performed by moderately forceful attempted exhalation against a closed airway, usually done by closing the patient's mouth, pinching the nose shut while pressing out as if blowing up a balloon. Another method of confirmation of Oroantral communication is that by observing the passage of air or bubbling of blood from the post-extraction alveolus when the patient tries to exhale gently through his/her nose while their nostrils are pinched. If the

patient exhales through their nose with more pressure, leads to increase risk of causing oroantral communication, even though the communication may not have occurred initially, when only the mucosa of the sinus is present between the alveolus and the antrum.

Laboratory test is advisable if any sign of pus formation or exudate. Immediate treatment after diagnosis of OAC will prevent formation of oro-antral fistula. Radiographic investigations at the site of OAC is required to evaluate the clinical findings and to investigate the presence of foreign body with the antrum. Periapical film or panoramic radiography (give only a 2-d view of complicated 3-D structures) can provide an idea about the bony defect size of the OAC Radiologically, they reveal the disruption of the border of sinus. In addition, the structures are superimposed. Computed tomography (CT) and cone beam computed tomography (CBCT) are the golden standard modality for radiological assessment to rule out the presence of maxillary sinusitis.

Management of OAC:

Closure of OACs should be done after confirming the presence of infection, foreign body or inflammatory change in mucus membrane. The surgical intervention is not mandatory if the defect is from 1-2mm, it will heal spontaneously by formation of clot in the absence of infection

Preoperative management:

The maxillary sinus that has been affected should be irrigated through the fistulous opening with normal saline followed by an iodine-containing solution dilute with normal saline (1:1, betadine) to eradicate infection. This should be administered until the lavage fluid is clear and no longer contains inflammatory exudates.

There are surgical and non-surgical procedure used for management of OAC

Non-surgical procedures:

Without flap closure:

Allogeneous materials such as fibrin glue, prolamine occlusion gel

Xenografts such as porcine dermis and collagen

Other methods such as acrylic splints, low doses of laser light, root analogues and N-butyl cyanoacrylate gel

Surgical procedures:

Soft tissue flaps: Different flap designs include (Buccal advancement flap, palatal rotation, palatal transposition, tongue flap, nasolabial flap), other flap techniques include combination of buccal and palatal flap, pedicled buccal pad flap, Bichat's fat pad flap

Grafts: autogenous grafts from chin, retromolar area, zygoma, iliac crest, ramus and cryoplatelet gel

With flap closure:

Xenografts such as lyophilised porcine dermis, porcine collagen membrane, bovine bone and guided tissue regeneration (GTR) using bovine barrier membranes

Allogeneous grafts such as fibrin glue and GTR using allogeneous barrier membranes

Other techniques: platelet rich fibrin (PRF), gold foils, gold plates and polymethylmethacrylate, non-porous hydroxyapatite blocks, bioabsorbable polyurethane foam, bony press fit-technique, allogenic acellular dermal graft tissue by using endoscopic surgical equipment, using cartilage and auto transplantation of upper 3rd molars

Post-operative management:

The patients are advised to eat soft food and drink fluid from the opposite side to avoid trauma to operated site and not to eat hard food items. strenuous physical activities which can increase the inter-sinusoidal pressure

should be avoided until healing occurs. Nose blowing and sneezing with closed mouth to be avoided for 2 weeks the wound should be kept clean with warm saline rinses. Antibiotics and nasal decongestants used as an adjuvant to surgical and non-surgical interventions

DISCUSSION:

Immediate closure of OAC in 24h to 48h have high success rate 95%. If Oro antral communication is present for more than two weeks should be treated surgically in order to avoid any medical problems. Size and location of the defect helps in picking up the appropriate treatment. Multiple surgical flaps treatment options are there for management of OAC. all those flaps have advantages and disadvantages, sliding buccal flap is the most common techniques to manage the OAC.it has mild postoperative complication when compared to other flaps. The main problem for flap techniques is decrease in sulcus depth with time. in patients with large extended defects, lingual flap can be used in patients who have had multiple surgeries.it has no risk at the donor site, simple, reliable and effective technique. Only Drawback of lingual flap technique is that it needs two surgical procedure and nasogastric intubation between the visits to achieve closure. Some other drawbacks are Speech problems, depressed lingual mobility, pain lasting for three weeks approximately are also seen in this technique. Palatal flap technique has an advantage of better vascularisation, and its best for tissue quality and adequate thickness. Palatal flap considered as more complicated procedure in comparison with buccal flap. PRF and collagen membrane method shows superior advantages and results. Low cost, low risk and shorter healing time have been reported in this method. Umut., et al. used PRF for treatment of OAC with a diameter from 3mm to 5mm. this technique was biocompatible, simple, immediate and not affect the sulcus depth. According to G Sandhya., et.al. Guided tissue Regeneration membrane-bone substitute sandwich technique is a new technique that provides good clinical healing and integration into the hard and soft tissues. In recent studies use of cartilage has been reported to provide ideal healing between the sinus membrane and oral mucosa. Cartilage has minimal vascularity and resistant to infection.it can easily be trimmed, bent and can be used in compound defect. In case, implant rehabilitation has been scheduled in future, some experimental studies emphasized that using of autogenous bone graft will give better results in Osseo-integration on the receiving site. This technique is indicated for moderate to large defect. Cameron YS described a technique of using high density polytetrafluorethylene(dPTEE). this is a non-irritant synthetic polymer that has a biological inert. It's mainly used in small OAC defect. Hori., et al. performed a new technique for OAC closure and named a dean's technique. This technique used for closure small defects and main advantage of this techniques is minimal post-operative swelling and the buccal sulcus depth is not affected. Biodegradable polyurethane foam its resorbable material is effective in OACs treatment by inserting cylindrical shaped foam inside the defect, it's simple and quick procedure. Disadvantage of this techniques is displacement of the material into the sinus and causing sinusitis. Bony press fit technique is bone graft technique used for closure of an OAC its intraoral bone harvested from chin, buccal exostosis or ramus. This graft acts as supportive plug between the sinus cavity and the flap.

Conclusion: OAC is the most common complication occur during maxillary teeth extraction. Treatment should be done as early as possible to minimize further problems. Treatment is based on the size and location of the defect.

References:

- 1.Procacci p., et.al.” surgical treatment of oroantral communication” journal of craniofacial surgery27.5(2016):1190-1196
- 2.Kiran Kumar Krishnappa S., et.al.” interventions for treating oro-antral communications and fistulae due to dental procedures”. Cochrane database of systematic reviews5(2018):CD011784
- 3.Dym H., et.al.” oro-antral communication “oral and maxillofacial surgery clinics of north America24.2(2012):239-247.
- 4.chinches Iv.et.al.” oral communication repair using platelet-rich fibrin. IOSR journal of dental and medical sciences15.10(2016):100-104.

5. Evaluation of different treatments for oroantral/oronasal communications: experience of 112 cases. Int.journal oral maxillofacial surg.2006; Abuabara A., Cortez A.I., Passeri L.A.et al.
- 6.Closure of Oroantral Communications: a review literature. Journal oral maxillofacial surgery.2010- Visscher S., Von Minnen., Bos R.R.et al.
- 7.Closure of oroantral Communication using Guided Tissue Regeneration and an Absorbable Gelatin membrane-Thomas C. Waldrop and Scott E.Semba.
- 8.Haanaes HR, Pedersen KN. Treatment of oroantral communications. Int j oral surg 1974; 3:124-132.
- 9.Scala M. Gipponi MPasetti S, DellachaE.Ligorio M, Villa G,et.al.Clinical applications of autologous cryoplatelet gel for reconstruction of maxillary sinus in vivo 2001;21(3):541-7.