

Low quality evidence for treatment approaches for oro-antral communications

Abstracted from

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Interventions for treating oro-antral communications and fistulae due to dental procedures.

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Question: What is the safety and effectiveness of treatments for oro-antral fistulae?

Data sources Cochrane Oral Health Group's Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL), Medline via Ovid, Embase via Ovid, US National Institutes of Health Trials Registry and the World Health Organisation (WHO) International Clinical Trials Registry Platform were searched until July 2015 followed by hand searching of relevant references.

Study selection Using no language restrictions, two authors independently assessed for inclusion of randomised controlled trials (RCTs) evaluating any intervention for treating oro-antral communications (OAC) and oro-antral fistulae (OAF) due to dental procedures. Quasi-RCTs and crossover trials were excluded.

Data extraction and synthesis Two authors independently assessed for inclusion, resolved disagreement by discussion and a third reviewer was consulted if necessary.

Quality was determined independently by using GRADE 2004. For the dichotomous outcome complete closure, they expressed the estimate effect as risk ratio (RR) with 95% confidence interval (CI).

Results A single study that started with 22 participants was included in the review where the overall risk of bias was judged as unclear. The main outcome was complete closure. The study compared pedicled buccal fat pad flap (PBFPF) with buccal flap (BF) and showed no difference in the closure of OAC, with a calculated RR of 1.00, 95% CI 0.83 to 1.20.

Conclusions Very low quality evidence from a small single study provided insufficient proof to judge if there is a difference in the effectiveness of the interventions.

Commentary

Oro-antral communications, or perforations that connect the mouth and the sinus, are commonly seen in clinical practice, especially after extractions of maxillary teeth posterior to the canines. According to the literature, the incidence of OAC has been reported to be as high as 11%.^{1,2} Older patients are most likely to have OACs after simple tooth extractions³ and extraction of the palatal root of the maxillary first molar most often contributes to its formation.⁴ In patients with healthy sinuses, OAC that are less than 5 mm in diameter typically heal after the development of a blood clot in the socket⁵ without intervention and are clinically insignificant. Larger OAC often require closure at the time that they are diagnosed to mitigate impending consequences like leakage of food and fluids from the nose, development of recurrent sinus infections and chronic pain.⁶ There are many ways to manage OAC greater than 5 mm and these include the use of autogenous local soft tissue flaps from either buccal or palatal tissues, the use of buccal fat pad, tongue flaps, bone grafts, and/or alloplastic materials, such as hydroxyapatite, resorbable collagen membranes and gold foil.^{6,7} In addition to closing the communication, OAF also require surgical excision of the epithelial lined tract and reconstruction of the missing tissue. As there is no one 'gold standard' for the treatment of an OAC/OAF, treatment decisions are often based on a combination of several factors: patient-related factors (such as age, medical co-morbidities, sinus health, size and location of the defect, distance to adjacent tissues, and ability to sustain intraoral procedures) and surgical-related factors (such as the dentist's experience, comfort level and technical skill, and ability to obtain certain materials for use).

In this review, the authors performed a comprehensive literature search on the available interventions for treating OAC and OAF due to dental procedures and developed a high quality protocol. After a rigorous selection process, the authors chose to include one study in their review while one more study awaits classification. Nezafati et al. analysed the clinical outcomes associated with the use of a pedicled buccal fat pad flap, PBFP (as the experimental group), and compared them to the use of a rotational flap of buccal unattached soft tissue as the control group. This study randomised 22 patients into the two treatment groups. Two participants, one from each group, were lost to follow-up. Characteristics of the study population were not included. Outcomes were measured at 48 hours, one week and one month postoperatively. As reported in the study, the primary outcome was the same for both treatment groups, RR 1.00 CI 95% 0.83–1.20. Although patients in the

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experimental group had higher pain scores, initial reduction in maximum incisal opening and more swelling, the authors reported that none of the patients in the experimental group complained of pain or swelling.

Multiple non-RCTs showed that the incorporation of buccal fat is far superior to a flap without buccal fat.^{8,9} Buccal fat provides an immediate blood supply and encourages neovascularisation, supports a multi-layer wound closure over all types of bone grafts and allows granulation tissue to form, even when the fat is exposed to the oral cavity.¹⁰ The added surgical manipulation involved with this type of procedure can lead to increased pain and postoperative swelling. A reduction in maximum incisal opening can also be expected given the anatomical constraints and as shown in this study, is often temporary.

Because using PBFP appears to be far superior to the standard buccal flap, it should be considered as a strategy when managing a patient with an OAC larger than 5 mm. A patient's age, medical history and sinus health should be carefully assessed as these may impact negatively on a patient's ability to sustain the procedure and heal uneventfully. Sinus disease typically requires consultation with an otolaryngologist and in certain cases OAC/OAF repair is delayed until the maxillary sinus is deemed to be healthy. In addition, it is important to think about the size and location of the defect with respect to the use of donor tissues; in general, smaller defects are easier to close with buccal flaps without buccal fat as compared to larger defects that would be more amenable to the use of buccal fat. Harvesting donor tissue can be a technically sensitive and time intensive procedure and not all patients are able to tolerate these types of operations. In certain situations, the use of allogenic materials may be preferable rather than autogenous ones.

A surgeon's preference may also come into play when making treatment plans. Use of buccal fat can be technically challenging for those practitioners who are not accustomed to harvesting and handling it.

A single study with unclear risk of bias and limited information on the ability to detect a difference because of the sample size is not sufficient to provide any recommendations at the present time.

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