

Immediate Closure of OAC with Buccal Advancement Flap: A Case Report

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INTRODUCTION

Oro-antral communications and fistulas (OACs & OAFs) are one of the most frequently encountered complications by oral and maxillofacial surgeons. Oro-antral communication is an unnatural link amid the oral cavity and the maxillary sinus [1]. If there any sinus infection is not present, acute oroantral communications having diameter of 1 to 2 mm will heal spontaneously after the formation of a blood clot and secondary healing. Still, larger oroantral defects that are left undiagnosed do not heal on their own, and hence the formation of an oroantral fistula (OAF) becomes unavoidable [2]. Such complications occur most frequently during extraction of upper molar and premolar teeth (48%) owing to the anatomic proximity or projection of the roots within the maxillary sinus. Patients having OAC will experience unpleasant symptoms like a reduced sense of smell and taste, pain in maxillary teeth, postnasal exudate, and halitosis [1].

Several treatment options are present for the closure of OAC that includes autograft, allograft, alloplastic materials and closure with membranes or titanium mesh [3].

Immediate closure of acute oroantral defects has a success rate of approximately 95% whereas the success rate of secondary closure of OAFs has been reported to be as low as 67%. A variety of flap designs to cover these defects have been reported, including local soft tissue flap techniques such as buccal and palatal flaps and their modifications and distant soft tissue flaps such as tongue and temporalis flaps [2].

Rehrmann in 1936 designed a buccal advancement flap that has an upper hand other modality. Not only it provides adequate access but also has a good blood supply along with ease of tissue release for primary closure [3].

CASE REPORT

A 65-year-old male patient reported to department of oral and maxillofacial surgery with the chief complaint of pain and mobile tooth in upper back left tooth region since last 20 days. On clinical examination the tooth was tender on percussion along with grade one mobility.

Radiographic evaluation showed a presence of an oval shaped radiolucency having a dimension of 2×2 mm in relation to tooth number 28 (Figure 1). It was also quite prevalent in the radiograph that the root apex of the tooth was having close proximity with the maxillary sinus.

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Figure 1: Radiograph of the offending tooth.

The treatment aimed at firstly extracting the tooth as traumatically as possible followed by closure of the communication with buccal advancement flap.

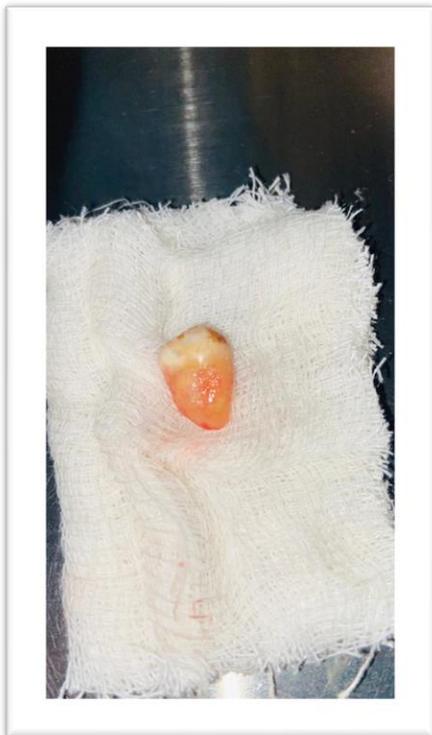


Figure 2: Extracted tooth.

The patient was first scrubbed and draped. The treatment was initiated by giving Posterior Superior Alveolar Nerve Block and Greater Palatine Nerve block with 2% lignocaine having 1:100000 adrenaline succeeded by

extraction of 28 using upper third molar forceps in figure of eight motion (Figure 2).



Figure 3: Photograph after raising buccal advancement flap.

A trapezoidal buccal advancement flap was raised by making two buccal divergent vertical incisions extending into the buccal vestibule (Figure 3). The flap was then horizontally scored and then advanced to cover the defect (Figure 4). This flap was then sutured with the help of 3-0 silk suture in horizontal mattress pattern (Figure 5).



Figure 4: Advancement of flap to cover defect.



Figure 5: After suturing of flap.

The patient was then prescribed antibiotics BD along with analgesic (SOS) for 5 days along with routine post-extraction instructions and was advised to take steam inhalation after 24 hours for 5 days. The sutures were removed at 7th post-operative day. The patient was then followed after 48 hours and 7 days in which he didn't report of any pain, discomfort, fluids releasing from nose on eating or any associated symptom of oroantral communication.

DISCUSSION

The main etiological factor for an oroantral communication is extraction of tooth. Killey and Kay, Von Wovern, Ehrh, and Punwutukorn et al concluded that extraction of the upper first molars are mostly responsible for oroantral communications [4-8]. In our case the roots of maxillary 3rd molar were in close proximation with the sinus. OACs and OAFs are mostly commonly encountered in the age group of 30 to 60 years [2]. Our patient was 65 years old male who reported with the chief complaint of pain in upper back left tooth region for which thorough clinical examination followed by radiological evaluation was done.

Closure of OAC is a significant problem owing to its undesirable consequences of sinus infection, impossibility to perform implant rehabilitation or pre-implant surgical procedures. Although the surgical technique of buccal advancement flap technique is easy to perform but its perfusion is poor. When the buccal advancement flap is used, narrowing of the gingivobuccal sulcus is an undesirable sequela. This situation becomes even more significant when the patient is edentulous because mild to severe reduction in vestibular depth can occur postoperatively. In 1930, Axhausen was first to describe the use of a buccal flap with a thin layer of buccinator muscle for closure of an oro-antral defect. Later, Berger advocated a buccal sliding flap technique for closure of small to medium sized (< 1 cm) fistulas which are located either laterally or at center of the alveolar process. Krompotie and Bagatin described immediate closure of an oroantral communication and fistula by rotating gingiva-vestibular flap [9].

Buccal flap techniques are superior due to the nearness of the harvesting area to the defected area. Despite the possibility of a decrease in sulcus depth, its ease of use and proximity to the recipient site make it a preferred procedure among clinicians when they encounter patients with small OAFs [9]. Therefore, when the defect size is small (<5 mm) and no alveolar resorption has occurred or the patient is not edentulous, the buccal advancement flap technique can be used successfully. [2]

Despite of the pros and cons of each flap design, all techniques yield successful results when used in areas where they are properly indicated. Hence, clinicians should be competent and well aware of the various treatment options available for closure of OACs. certain factors must be taken into account when establishing the treatment plan; specific needs and the medical history of the patient such as the use of dentures and a history of radiation therapy in the head and neck region must be taken into account. Therefore, the quantity and quality of

remaining tissue should be thoroughly evaluated along with the possibility of further implant placement in the affected site [9].

CONCLUSION

OAC if left untreated may result in tract formation further leading to chronic sinusitis. Primary closure within 48 hours is reported to have a high success rate of 90 – 95

% whereas late closure has been associated with a success rate of 67% [3]. Sufficient blood supply and, consequently, a high survival rate have been reported in the literature in relation to this technique. However, this flap technique also presents the major disadvantage of that the buccal sulcus depth might decrease after the surgery, possibly resulting in reduced retention and increased discomfort among patients using dentures [9].

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