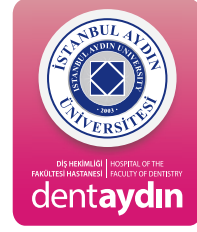




Aydın Dental Journal

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Oroantral Fistula Associated with Destructive Periodontitis

DergiPark
AKADEMİK

Feyza OTAN ÖZDEN¹, Bora ÖZDEN², H.İlyas KÖSE², Esra DEMİR¹, Peruze ÇELENK³

ABSTRACT

Background: Oroantral fistula (OAF) is a pathological communication between the oral cavity and maxillary sinus. This abnormal connection may be the result of a number of pathologic factors and often occurs following an extraction of posterior maxillary teeth due to the close anatomical relationship between the teeth and the sinus floor.

Objective: A rare case with maxillary sinusitis and advanced periodontitis that created oroantral fistula and its treatment with pedicled buccal fat pad was presented.

Case Description: Clinical and radiological examination of the 46-year-old male revealed OAF and Class II furcation involvement related with the tooth #17. The tooth was extracted and the buccal fat pad was stitched to the adjacent mucosa. Postoperative course was uneventful and the patient underwent periodontal therapy.

Practical implications: The maxillary sinus infection and/or periodontal destruction are rare causes of OAF. If these diseases are neglected or advanced, may lead to irreversible fistulas.

Keywords: oroantral fistula, periodontitis, buccal fat pad

ÖZET

Giriş: Oroantral fistül (OAF) oral kavite ve maksiller sinüs arasındaki patolojik bağlantıdır. Bu anormal bağlantı birçok patolojik faktör sonucu oluşabilir. Sıklıkla sinüs tabanı ile molar ve premolar dişlerin kök uçları arasındaki yakın anatomik ilişkiye bağlı olarak posterior maksiller dişin çekimini takiben oluşur.

Amaç: Bu makalede, nadir görülen maksiller sinüzit ve ilerlemiş periodontitis sonucu oluşan oroantral fistül ve fistülün saplı bukkal yağ dokusuyla tedavisi sunulmuştur.

Vaka: 46 yaşında erkek hastanın klinik ve radyografik muayenesinde 17 numaralı dişle ilişkili olarak sınıf II furkasyon problemi ile beraber oroantral fistül olduğu saptandı. Diş çekildi ve bukkal yağ dokusu komşu mukozaya dikildi. Postoperatif iyileşme sorunsuz tamamlandı ve hasta periodontal tedavi altına alındı.

Pratik Önem: Maksiller sinüs enfeksiyonu ve/veya periodontal yıkım OAF'ye çok nadiren sebep olabilir. Bu hastalıklar ihmal edildiğinde veya ilerlediğinde geriye dönüşümsüz olarak fistüle neden olabilmektedir.

Anahtar Kelimeler: oroantral fistül, periodontitis, bukkal yağ dokusu

¹ University of Ondokuz Mayıs, Faculty of Dentistry, Department of Periodontology, Samsun, Turkey

² University of Ondokuz Mayıs, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Samsun, Turkey

³ University of Ondokuz Mayıs, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Samsun, Turkey

INTRODUCTION

The maxillary sinus is the largest of the paranasal sinuses. It drains into the middle nasal meatus of the nasal cavity with single or multiple openings and there is not normally association with the oral cavity. Oroantral communication (OAC) is an abnormal pathway between the oral cavity and maxillary sinus. It commonly occurs as a complication of four upper last maxillary teeth extraction (80%), due to the anatomic proximity of the maxillary sinus to the dentoalveolar complex.¹ In addition, OAC may result as following; removal of the maxillary cyst (10-15%) and tumors (5-10%), trauma (2-5%),¹ osteomyelitis (11%)², Caldwell-Luc procedure (7.5%)² or dental implant placement.³ An OAC less than 2 mm diameter can spontaneously close, whereas those larger than 3mm require surgical procedures.⁴ If OAC is not treated,

the epithelial tissues may grow in it, leading to the fistula formation and it is called oroantral fistula (OAF). The OAF causes the passage of microflora from the oral cavity into the maxillary sinus via an epithelialized tract linking. In a rarely condition, periodontal infections were reported to lead OAF formations.⁵⁻⁷ If there is an oroantral communication associated with periodontitis, intraoral radiographs or panoramic radiographs can be used for the evaluation of periodontal bone loss. In this situation, radiological observations might show a sinus floor discontinuity, sinus opacity, focal alveolar atrophy and associated periodontal disease.

In this paper, a rare case with maxillary sinusitis and advanced periodontitis that created OAF and its treatment with pedicled buccal fat pad was presented.

CASE REPORT

A 46-year-old male patient was referred to our clinic with complains of fluid passage going from mouth to nose when drinking and feeling a sensation of air rushing through the socket as he breathes since two years. The patient had chronic renal disease and was otherwise healthy.

Clinical examination revealed OAF 5mm above from the root apices and deep periodontal pockets deeper than ≥ 4 mm, at the interproximal and lingual sides of the tooth #17. Class II furcation involvement was also noted on the mesial side and root apex was visually seen (Fig.1a).

Periapical and panoramic radiographs revealed radiolucency at furcations and angular bony destructions at the interproximal sides of the tooth #17 and the buccal defect extended apically causing the OAF as seen also clinically (Fig.1a, Fig.2). Computed Tomography (CT) images belonging to the right maxillary sinus region revealed the presence of a persistently opacified sinus cavity and a severe mucosal thickening. The circumferential bony defect was observed around the apical one-third of the buccal root of the first molar in three-dimensional imaging. The osseous communication between the maxillary sinus and periodontal intrabony defects was also seen (Fig.3).

The patient was placed on Amoxicillin capsules (500mg 8hrly) three days before the surgery. Excision of the fistulous tract from the sinus to the oral cavity and freshening of the wound edges done after local anesthesia with 2% lignocaine with adrenaline 1:80,000 was achieved. A full-thickness mucoperiosteal flap was reflected and granulation tissue was carefully removed. Upon flap reflection a sinus



Figure 1. a) Intraoral photograph showing OAF and periodontal defects, b) Harvesting of buccal fat pad (BFP), c) Extracted tooth with fixed prosthesis, d) Double-layered closure of OAC using BFP and buccal advancement flap.

communication measuring 5mm in diameter was observed at the apex of the buccal root (Fig.1b). The second maxillary first molar was extracted (Fig.1c). The borders of the fistula were subperiosteally incised in wedge with superior extension in vestibular floor up to the inserted mucosa. The posterior superior elevation was done with an elevator, close to the maxillary wall until the buccal fat pad was found. The buccal fat pad was stitched to the adjacent mucosa with plain catgut 3.0 suture. (Fig. 1d) After the surgery, the patient was

medicated and guided not to do any intra-oral negative pressure.

The histopathological examination revealed chronic sinusitis with presence of inflammatory cell infiltration and mucous glands. Postoperative course was uneventful and the patient underwent periodontal therapy including the whole mouth scaling and root planning. However, refusal of the patient for coming to the following treatments and the controls made the long term follow-up impossible.



Figure 2. a) Panoramic and b) periapical radiography showing horizontal and vertical bone defects.

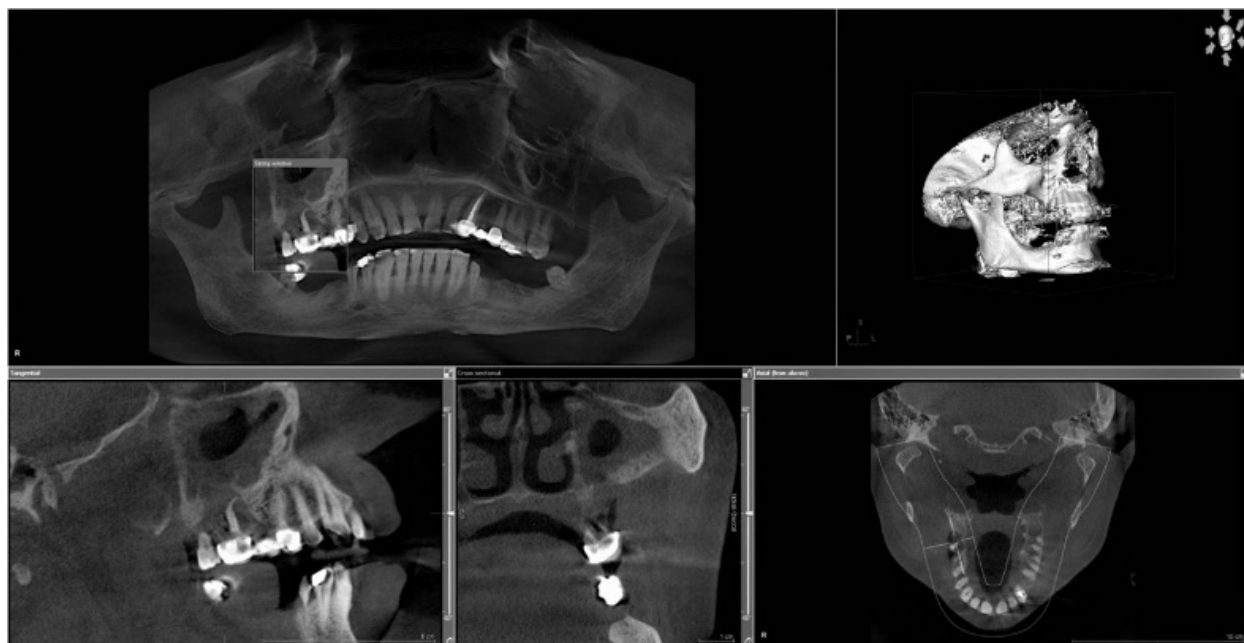


Figure 3. The appearance of oroantral fistula on multiplanar CT imaging.

DISCUSSION

Dental extractions, excision of the maxillary cyst and tumors, trauma, osteoradionecrosis or minor surgical procedures are the main causes of OAF.¹ The fistula might also very rarely originate following periodontal infections. However there exists limited information about the relation between periodontal problems and OAF. Franco-Carro et al. reported that only 0.93% of 1072 cases were originated from periodontal problems.⁵ Logan and Coates reported a case with OAF as a result of a periodontal disease associated with HIV.⁶ Moscow found that all 19 microscopic specimens demonstrated moderate to advanced periodontitis with significant pathologic changes in the mucosa of the maxillary sinus.⁷ Periodontal diseases, which are chronic inflammatory disorders are localized to the attachment structures of the teeth, and considered to be the major cause of tooth loss in adults.⁸ Thus the inflammatory process results in destruction of connective tissue and alveolar bone. As a result of this

process, significant pathologic changes in the mucosa of the maxillary sinus may occur. Similar to the presented case, if both chronic sinusitis and destructive periodontitis of the infected tooth is present, it is very difficult to determine the main etiologic factor of the OAF. The treatment approach included first the control of sinusitis with antibiotics and then periodontal therapy applied.

Small fistulas tend to heal spontaneously, whereas larger fistulae rarely heal. Surgery is indicated if a fistula does not heal within three weeks.⁴ Closing this communication is important to avoid food and saliva contamination that could lead to bacterial infection, impaired healing and chronic sinusitis. Various methods for the closure of communications have been reported in the literature, such as local flaps, distant flaps, grafts^{2,4} and the buccal fat pad (BFP).⁹ Each has advantages and disadvantages. The most common methods used today for closure of

OAF are buccal and palatal flaps. Borgonovo et al. advised buccal flap for small and mesial fistulas, taking into consideration that additional surgery to re-establish the proper vestibular depth may be necessary.¹⁰

The purpose of this article was to present a rare case with maxillary sinusitis and advanced periodontitis together that destroyed the lateral sinus wall and created OAF. The limitation of the presented case is the long term follow up of the patient who underwent periodontal therapy and closure of the OAF with buccal fat flap. Larger studies with long time intervals are necessary to reveal the success of this kind of therapy approach.

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