CASE REPORT

BICHAT'S FAT PAD IN CLOSURE OF OAF: REVIEW OF LITERATURE WITH A CASE REPORT

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ABSTRACT

Oro-antral communication (OAC) results from various reasons; however the extraction of the maxillary posterior teeth is the most frequent one. When OACs persist for more than 12 days, it is likely to form oroantral fistula (OAF) that contain an epithelial tract. This is due to the close relationship between the apex of these teeth and the floor of the maxillary sinus (antrum). Various surgical options exist to treat such cases including buccal advancement flap, palatal rotation flap and buccal fat pad (BFP), while the last one being one of the most versatile and reliable. The aim of this paper is to report a case of oroantral fistula treated successfully with BFP graft, the technique associated with it and a brief review of the literature.

KEY WORDS

Oroantral communications (OAC), Oroantral fistula (OAF), Buccal fat pad

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INTRODUCTION

Oro-antral communication (OAC) is a welldocumented complication and commonly associated with extraction and other oral surgical procedures. Attempts to close the defect (communication) have yielded many surgical options including the use of buccal fat pad(BFP); also known as Bichat's fat pad. Usually the OACs of 2mm diameter or smaller can close spontaneously whereas OACs of 3mm diameter or larger associated with maxillary or periodontal inflammation can persist. Closure of OAC and OAF can be done in various ways including buccal fat pad as well, the last one being one of the most convenient and versatile.

The BFP is a biconvex disc of vascularized fat lying behind the zygomatic arch. The buccal fat pad is made up with a central lipid mass with four extensions (buccal, pterygoid, superficial and deep temporal) with a 10ml volume and 6mm in approximate thickness. The Bichat's fat pad is encircled by a thin fibrous capsule and blood supply comes from vestibular and deep branches of the maxillary artery, transverse facial branch of the superficial temporal artery and branches of the facial artery. The fat pad can be utilised for closure of oro antral communications and fistulas, reconstruction of small defect after tumour resection, rehabilitation of cleft patient, in aesthetic correction of face and in coating/coverage of implant graft. Judicious use of Bichat's fat pad usage in closure of OAC and OAF offer simple, convenient and reliable solution even in older patients who may not be able to tolerate time consuming other surgical methods.

BRIEF HISTORY AND REVIEW OF LITERATURE

Buccal fat pad as a pedicled flap was first described by Egyedi in the year 1977. In the year 1983, Nederutilized the BFP as free graft in the oral cavity, Tideman et al showed the epithelialization of the pedicled BFP within 3-4 weeks therefore omitting the necessity of covering the flap with a skin graft. It was only after the onset of this century that Rapidis et al, Hao and Dean et al. used pedicled



Figure 1: Oro-antral fistula



Figure 3: Defect closed with BFP

BFP flaps for reconstruction of medium size postsurgical oral defects for malignant lesions. In 2005, Amin showed how effectively a buccal fat pad can be utilized in post partial maxillectomy defects for malignant lesion. It is well known that the buccal fat pad has a reasonably good success rate with ability to cover defects up to 60x50mm.

Various physiological functions of BFP given in the literature as follows; {a}to fill the masticatory space, acting as cushion for the masticatory muscles, {b}to counteract negative pressure during suction in new-born and {c}as a rich venous net, with valve like structures, possibly involved in the exo-endocranial blood flow through the pterygoid plexus. According to Hanazana, when fat tissue is exposed in the oral environment, it gets epithelialized and gradually gets replaced by fibrous conjunctive tissue without any functional damage to the treated site. OACs closed with BFP has low incidence of failure, high flap vascularisation and high applicability, with some authors claiming that non-significant change in facial contour despite of the fat tissue employed in the oral cavity.

CASE REPORT

A 29 year old male patient having good general health was referred to the Dept. of Oral and Maxillofacial Surgery at Haldia Institute of Dental Sciences and Research, complaining of pain in the left side of the upper jaw and persistence of nonhealed orifice with escape of fluid from his nose and food inflow through the communication. There was a history of maxillary 2nd molar extraction two months before by non-registered dental practitioner outside the institution. Patient also complained of foul smell in the mouth since last 6 weeks.



Figure 2: OPG showing the bony defect



Figure 4: 2 weeks after the closure

Clinical intra-oral examination reveals an approximately 4mm fistula extending from the site of extraction up to the left maxillary sinus with absence of pus but evidence of mild inflammatory signs. Extra-orally, the left buttress area was also tender on palpation. The panoramic radiograph revealed a bone defect in the extraction site and also the presence of a perforation in the floor of the left maxillary sinus which confirms the communication of it with the oral cavity. Antibiotic medications were given orally and thorough lavage/drainage of the fistulous tract was performed. In the next appointment, the pre-planned surgery was executed under local anaesthesia with strict sterilization and asepsis protocol. A crestal incision was given followed by a linear incision in the region of the left maxillary 2nd molar to denudate the periosteum and to let the buccal fat pad emerge. After raising the flap, the fistula's tract was now clinically identified and completely excised taking into care of the delicate mucosa. The BFP was now further approached by the horizontal incision through the mucoperiosteum. An artery forcep was now introduced through the periosteum in the distocranial aspectof the 1st molar tooth to create a submucosal tunnel for further convenience. The BFP was then dragged carefully into the defect in sufficient amount to close it. During the blunt dissection, care was taken so that the thin capsule does not tear and the fat pad was held distally to avoid damage to its blood supply. The wound edges around the defect are now excised to produce raw edges and the BFP was secured in the position using 4-0 vicryl vertical mattress suture.

Post-operatively patient was given antibiotics, decongestants and analgesics (S.O.S) and was advised not to blow his nose vigorously. The sutures were removed after 14 days and the healing appeared to be satisfactory with complete closure of the communication.

DISCUSSION

OACs have different aetiologies but appear more frequently with extraction of maxillary posterior teeth. Closure of oro-antral communications must be performed soon to avoid any pathological sinus conditions which can delay the resolution. In case of delayed identification, as reported in our case, one should examine the maxillary sinus carefully to rule out any pathosis and the infection must be resolved before treating the case surgically. To undertake closure of the oro-antral fistula, sinus irrigation with normal saline with antibiotic therapy should be given and complete excision of the epithelial tract should be performed just prior to the closure.

The buccal advancement technique is another option that can be successfully employed in small to medium size defects but its use is limited to situations when the defect has been dislocated to palatal side due to greater buccal loss, which requires a greater flap sliding. Some clinicians also prefer using the palatal rotation flap without harming the vestibular sulcus. This procedure create great morbidity because of considerable raw areas in the palate thereby requiring long post-operative care and the technique itself demand general anaesthesia for the comfort of the patient.

Pedicled buccal fat pad have been recommended for the closure of the communications and fistulae of different sizes and locations because of the following reasons. Low morbidity rate, conservation of the vestibular sulcus depth, its high applicability, low rate of failure and high vascularization of the flap.

In our case, we preferred this technique as an easy, efficient and safe procedure for the closure of the OAF (oro-antral fistula). Patient had no discomfort in the post-op period, there was no loss of vestibular sulcus depth and the exposed fat tissue underwent rapid coating by normal surrounding mucosa.

CONCLUSION

The treatment of oroantral fistula using the buccal fat pad is a simple and versatile method. The blood supply o the buccal fat pad is not affected due to its displacement, it heals with minimum scarring and failure rate is very low.

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