

Buccal Fat Pad Graft (BFPG): An Ideal Graft for Closure of Oro-Antral fistula -Our Experiences

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Abstract: Oro antral fistula (OAF) is a common condition encountered in day to day practice. There are various etiological factors and different treatments options available. We performed a clinical study using BFPG in different cases of OAF and found it a versatile technique for different sizes of fistula. Our experiences on this aspect have been presented in this paper.

Keywords: Oroantral fistula, Maxillary sinus, Buccal fat pad graft,

I. Introduction

An oroantral communication (OAC) is a pathological connection between the oral cavity and a maxillary sinus (1). OAC of size more than 3 mm if not treated can lead to formation of oroantral fistula (2). Etiological factors that leads to formation of OAC are simple or surgical extraction of maxillary teeth, cysts and tumors, or infectious processes (3).

A number of treatment modalities are available in literature for closure of oroantral fistula like palatal flap, buccal advancement flap, tongue flap, or buccal fat pad graft.

Use of BFP to close OAF was first described by Egyedi in 1977(4). In 1986 Tideman et al studied the use of BFPG to treat buccal and maxillary defects and showed good results.

In this paper we report the successful closure of OAC with the BFPG in a series of 13 patients.

II. Materials & Methods

This study included 13 patients of OAF who reported to Department of oral and maxillofacial surgery, Dr.Z.A.Dental College & Hospital, AMU Aligarh, India. Patients with uncontrolled systemic disorders like Diabetes mellitus, hypertension etc. were excluded. The study procedure was explained to all the patients and their consent were obtained. Preoperatively all patients were prepared with lavage of sinus with normal saline and prescribed antibiotics (Amoxycillin 500mg TDS and Metronidazole 400mg TDS) along with nasal decongestant drops (xylometazoline) & antihistaminic tablet (levocetirizine 10mg OD) for seven days to make them free of their sinusitis. The absence of sinusitis was confirmed with findings of no discharge and negative culture report in all cases. Complete detail of the study patients is given in table 1.

III. Surgical Technique

All the cases were operated under local anesthesia using 2% lignocaine & 1: 80,000 adrenaline. A margin of 2mm tissue around OAF was excised by giving a circular incision and complete epithelial tract of fistula was removed. To expose BFP graft two vertical releasing incisions, one anterior and one posterior to OAF extending into the vestibule were given. The trapezoidal mucoperiosteal flap was reflected and a horizontal incision of the periosteum was given at the level of buccal sulcus. With the help of curved mosquito artery blunt dissection was done to expose BFP and then it was gently advanced into the defect and sutured without tension with palatal mucosa.

Preoperative medications along with 0.12% chlorhexidine digluconide mouth wash were continued for 1 week postoperatively. Patients were instructed to take soft diet and avoid nose blowing for 2 weeks postoperatively. Follow up visits were scheduled for a period of 3 months to observe any complication.



Fig. 1 showing Oroantral communication

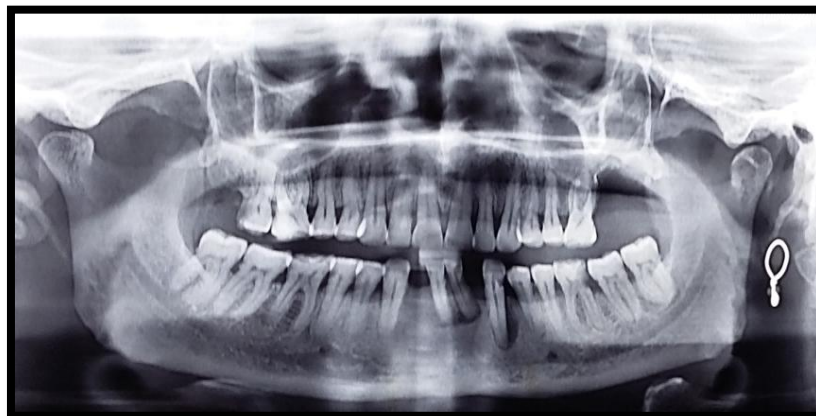


Fig. 2 Panoramic X-ray showing bone defect with bone loss in relation to upper first molar adjacent to OAF.

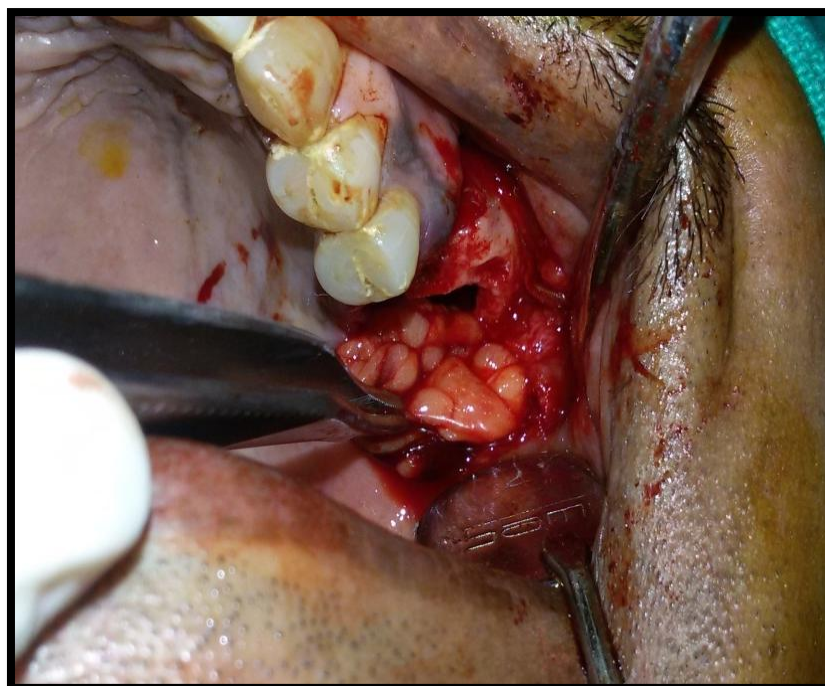


Fig. 3 Buccal fat pad mobilized at the site of OAF.



Fig. 4 Buccal fat pad secured with sutures.



Fig. 5 Showing excellent healing after 4 weeks.

IV. Results

A total of 13 patients (11 men & 2 women) with a mean age of 49.3yrs (range 24 to 70) having OAF treated with buccal fat pads were included. The causes of communication were as, 6 cases developed OAF after simple extraction, 5 cases after surgical extraction and 2 cases after cyst removal in maxillary posterior region. Mean communication size was 7.5mm(range 4 to 11mm).None of the operated patients showed any sign of infection and wound dehiscence .Pain and swelling was mild in first 48hrs postoperatively which decreased with time. Table 1 shows details of patients with outcomes of surgery.

Table1: Details and outcomes of the 13-patients of OAF operated using buccal fat pad graft.

Patients	Age/Sex	Cause of OAD	Location of OAF	Complication
1	40yr/M	Simple extraction	16 tooth region	—
2	65yr/F	Surgical extraction	27 tooth region	—
3	60yr/M	Simple extraction	18 tooth region	—
4	35yr/M	Simple extraction	28 tooth region	—
5	62yr/M	Surgical extraction	27 tooth region	—
6	55yr/M	Surgical extraction	16 tooth region	—

7	70yr/M	Simple extraction	15 tooth region	_
8	46yr/M	Surgical extraction	28 tooth region	_
9	51yr/F	Simple extraction	17 tooth region	_
10	24yr/M	Cyst removal	26 tooth region	_
11	36yr/M	Surgical extraction	16 tooth region	_
12	57yr/M	Simple extraction	27 tooth region	_
13	40yr/M	Cyst removal	16 tooth region	_

M, male; F, female; OAF , oroantral fistula

Postoperative healing was satisfactory and uneventful in all the patients and there was no recurrence of OAF with no sign of graft rejection. Complete epithelisation of BFPG occurred in 4 weeks.

V. Discussion

The BFP is biconvex disc shaped highly vascularized fat lying in the masticatory space. BFP has acentral body from which four processes arise, the buccal process, the pterygoid process, the superficial and the deep temporal process. These process extend from the body to the surrounding tissue spaces such as the pterygomandibular space and the infratemporal space.(7)

For the closure of OAF various flaps like buccal or palatal flaps and their combinations and tongue flaps are used (5,6). There are different complications associated with these flaps, like with buccal advancement flap there is high risk of reduction of buccal sulcus depth while in palatal flap chances of creation of large denuded area is high. Use of tongue flap to close OAF is inconvenient to the patient as it is a 2-stage or 3-stage procedure.

The use of the BFP to close oroantral defect as a pedicled flap was first reported by Egyedi in 1977. BFPG can also be used in the reconstruction of other minor oral defects. In 1995 BFPG was used to repair cleft palate by Hudson-et al.

BFP use for the treatment of oroantral communications has been reported in many studies (4, 8-14) with favourable results. Harvesting of BFP is a simple and quick procedure to perform. with no major complication associated with this graft . Consequently the chances of success are high with good patient acceptance.

BFP is highly vascular and is covered with a thin capsule. Baumann & Ewers (15) have stated that it is important to preserve the thin capsule of the BFP to protect the thin small blood vessels.

The buccal fat pad has its own mechanism of lipolysis, unlike subcutaneous adipose tissue (10), so neither age nor sex of the patient are important in determining the outcome with this technique (10,15). For this reason successful results have been reported with buccal fat pad technique even in older patients (16). The complications described in literature are persistence of communication and limitation of mouth opening , especially in cases of oroantral communications accompanied by large bone defects (9, 10, and 11).

In this study no complication or recurrence of OAF was observed in all the cases . Patients were evaluated on first postoperative day and at the end of 1, 2, 4, 6 and 12 weeks of subsequent visits. Postoperative pain and swelling seemed to decrease during subsequent follow up. No sign of postoperative infection and graft rejection was observed in 3 months of regular follow up.

Success of the buccal fat pad technique has been attributed to its rich vascular supply, less donor site morbidity, constancy of the buccal fat pad irrespective of the weight of the individual, reliability, ease of harvest and low complication rate (16).

Alkan et al. (17) defined success criteria for closure of OAF using BFPG as, complete epithelialisation of the graft, absence of recurrence of fistula and infection, and no facial contour deformity. According to Poeschl et al. (10), 3 to 6 months of follow-up is sufficient to assess the success of healing. In this study, we did 3 months of follow up and achieved 100% success rate with no recurrence of OAF.

VI. Conclusion

BFPG for closure of OAF is a versatile technique and on the basis of its success and least complications it can be considered as an ideal graft to treat OAF.

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