ORIGINAL RESEARCH PAPER

Dentistry

THE EFFECTIVENESS OF THE TWO-LAYERED CLOSURE OF PERSISTENT OROANTRAL FISTULA USING BUCCAL FAT PAD AND BUCCAL ADVANCEMENT FLAP.

KEY WORDS: oroantral fistula, oroantral communication, buccal pad fat, buccal advancement flap

Dr. Jyotsna Bds,mds (oral And Maxillofacial Surgery) Professor, Dept Of Oral And Maxillofacial Surgery, Uttaranchal Dental And Medical Research Institute, Dehradun

Dr. Sanjeev kumar Jha MBBS,DCh,DNB (Pediatrics) Doon medical college and hospital, Dehradun

ABSTRACT

Background: A prospective clinical study was conducted to assess the effectiveness of the two -layered closure of recurrent Oroantral Fistula using Buccal Fat Pad and Buccal Advancement Flap.

Materials and methods: Twenty patients with persistent OAFs larger than 5 mm were treated with two layered closure using Buccal Fat Pad and Buccal Advancement Flap. They were followed clinically and radiographically for 5 years after surgery to monitor the durability and effectiveness of the two layered closure of the OAF.

Result: The procedure was successful in all patients. The healing process was satisfactory,with no breakdown or liquefaction necrosis postoperatively. No complications were observed during the follow-up period.

Conclusion: The results of this study support the view that the use of the double-layered closure using BFP with buccal advancement flap is a durable, convenient, and effective method for the treatment of a persistent large OAF.

INTRODUCTION

An oroantral fistula (OAF) is an epithelialized ,pathological ,unnatural communication between oral cavity and maxillary sinus.. This type of communication arises mainly after extraction of posterior maxillary teeth owing to the close anatomic relation between the root apices of the molar and premolar teeth and the sinus floor. In addition, an OAF can occur after removal of maxillary cysts, benign or malignant tumors, trauma, or infection. Closing an OAF is very important to avoid the escape of food and saliva into the maxillary sinus.[4] OAC of less than 5 mm does not require any interventions and closes spontaneously. OAC of more than 5 mm requires surgical treatment.

Surgical principle involves raising the adjacent or distant flap and advancing into the defect, for example, buccal flaps, palatal flaps, tongue flap, and nasolabial flaps[2].All these methods have their own advantages and disadvantages.[3] Recently, because of various advantages, buccal fat pad (BFP) is increasingly being employed in the repair of oroantral fistula (OAF) and other oral defects worldwide.[5]

In 1977 Egyedi first described the use of the BFP for closure of oroantral communications. The BFP has several advantages compared with other local flaps; it is closer to intraoral defects, has a blood supply, and is pliable and adaptable to defects.[6]

After reviewing the advantages and limitations of double layered buccal pad of fat and buccal advancement flap , a sincere effort has been made in the form of a prospective clinical study to evaluate the effectiveness of the two -layered closure of recurrent Oroantral Fistula using Buccal Fat Pad and Buccal Advancement Flap.

MATERIAL AND METHODS

Twenty patients (10 women and 10 men) aged 30 to 60 years who reported to the Department of Oral and Maxillofacial Surgery, Uttaranchal dental and medical research institute, Dehradun, India, presenting with signs and symptoms of oroantral fistula underwent double layered closure of fistula with buccal pad fat and buccal advancement flap.

The inclusion criteria were patients with large (>5 mm in diameter) OAFs for longer than 1 month and without any systemic disease that would interfere with the healing process. Before the trial, every patient was informed about the treatment plan and the aim of the study. Signed informed consent was obtained from all patients. The patients were given amoxicillin, metronidazole, and decongestant nasal drops for 7 days preoperatively.

Under local anesthesia, a circular incision with a 2-mm margin was made around the OAF, and the epithelial tract was completely excised. The trapezoidal mucoperiosteal flap was reflected to expose the lateral wall of the maxilla. To reach the BFP, a 1-cm incision was performed at the zygomatic buttress area in the reflected periosteum and the fascial envelope of the buccal pad. Using a fine curved artery forceps, gentle dissection was carried out to expose the yellow BFP. Then, the buccal advancement flap was replaced in its original position and sutured over the BFP in the oral cavity . The patients were warned against blowing their noses for 2 weeks. The preoperative drugs and analgesics were continued for 1 week after surgery. The patients were followed on a weekly basis for 2 months and then every 6 months for 5 years after surgery. Assessment of all patients was based on the following parameters: the healing process, pain on a visual analog scale (no pain, mild pain, moderate pain, and severe pain), facial edema (using a measuring tape placed from the tragus to the soft tissue pogonion), sinus infection, maximum interincisal mouth opening, and an intraoral periapical radiograph.

Table 1 : Post operative assessment

Patient no	Mouth opening(mm)			Pain score (VAS)		Edema (% of increase in facial width)	
	1st wk	2nd wk	4th wk-5 yrs	1st wk	4th wk-5 yrs	1st wk	4th wk-5 yrs
1	22	29	38	mild	No pain	4	0
2	18	22	37	Mild	No pain	4	0
3	19	25	45	mild	No pain	3	0
4	22	32	42	mild	No pain	2	0
5	23	35	40	mild	No pain	4	0
6	25	36	39	No pain	No pain	1	0
7	19	28	45	mild	No pain	1	0
8	18	29	46	mild	No pain	3	0
9	23	30	40	mild	No pain	1	0
10	25	31	39	mild	No pain	1	0
11	19	29	40	mild	No pain	2	0
12	18	28	45	mild	No pain	2	0
13	27	35	39	moderate	No pain	4	0
14	22	36	45	mild	No pain	3	0
15	25	32	42	mild	No pain	3	0

16	22	36	47	mild	No pain	2	0
17	18	32	40	mild	No pain	1	0
18	19	30	41	mild	No pain	2	0
19	20	33	40	mild	No pain	4	0
20	22	31	38	mild	No pain	3	0

RESULTS

The patients tolerated the surgical procedures uneventfully and attended the follow-up periods regularly. Every patient received at least 5 years of follow-up, and there were no dropouts from the cohort during the follow-up period. No serious complications occurred during or after surgery. Facial edema after surgery was mild and successfully controlled with intermittent extraoral cold packs and anti-inflammatory drugs. The healing process rapidly progressed without any major complications. No breakdown or liquefaction necrosis occurred in any of the cases postoperatively. The transferred BFP started to epithelialize by the end of the first week, and it was completely epithelialized at the end of the first month after surgery . At that time, it was covered with a healthy-looking oral mucosa. No evidence of dehiscence was observed throughout the follow-up period. .There was a limitation in mouth opening in the first week after surgery in all cases, but this improved gradually to the normal measurements at the fourth week postoperatively. Postoperative pain was mild, tolerable, and controlled readily by analgesics; it disappeared 5 to 7 days after surgery. Clinical and radiographic examinations of the maxillary sinus showed the absence of infection.

DISCUSSION

Double layered buccal pad with buccal advancement flap has been used for various procedures other than closure of OAF because of numerous advantages and encouraging results.The advantages of BFP include that the location of the BFP is anatomically favorable, the ease and minimal dissection with which it can be harvested and mobilized, simplicity, versatility, excellent blood supply, low rate of complications, minimal to no donor site morbidity, a quick surgical technique due to fact that BFP is located in the same surgical field as the defects to be covered, a ,good rate of epithelialization and allows for replacement of the mucoperiosteal flap without loss of vestibular depth.

In the present study, treatment of large OAFs with the double layered flap was successful in twenty patients. Over a five - year follow-up period, no evidence of dehiscence or recurrence was observed.

In the present study, the mean preoperative mouth opening was 40 mm (range, 35 to 45 mm); postoperatively, it was 21 and 41 mm at the first and fourth weeks, respectively. This indicates a temporary limitation of mouth opening in the first week postoperatively that returns to its normal mean at the end of the first month after surgery. Postoperative pain was mild, tolerable, and controlled readily by analgesics. Post operative edema was also not very significant in our study. Mild facial swelling was noticed on first week which disappeared completely on fourth week.

Figure 1: Recurrent oroantral fistula wrt 16 Figure 2: Harvesting buccal pad fat

Figure 3: Suturing of buccal pad fat Figure 4 : Healing post –op 4th week

Thus, our study concluded that the use of BFP with buccal advancement flap provides more stability, can be used to cover BFP and as additional tissue for closure where there is a deficient BFP for closure. Also, the buccal flap need not be sutured to palatal tissue to avoid obliteration of the vestibule. It can be sutured to BFP at the desired site so that the vestibular depth is not altered to greater depth. To conclude, double-layered closure using BFP with buccal advancement flap should be kept as a valuable option in mind in the management of OAC.

REFERENCES:

1. Candamourty R, Jain MK, Sankar K, Ramesh Babu MR. Double-layered closure of oroantral fistula using buccal fat pad and buccal advancement flap. J Nat Sc Biol Med 2012;3:203-5.
2. Yilmaz T, Suslu AE, Gursel B. Treatment of oroantral fistula: Experience with 27 cases. Am J Otolaryngol 2003;24:221-3.
3. Visscher SH, van Minnen B, Bos RR. Closure of oroantral communications: A review of literature. J Oral Maxillofac Surg 2010;68:1384-91.
4. Emad T. Daif. Long-Term Effectiveness of the Pedicled Buccal Fat Pad in the Closure of Large Oroantral fistula . J Oral Maxillofac Surg 2016;74:1718-1722.
5. Adeyemo WL, Ogunlewe MO, Ladeinde AL, James O. Closure of oro-antral fistula with pedicled buccal fat pad: A case report and review of literature. Afr J Oral Health 2004;1:42-6.
6. Egyedi P: Utilization of the buccal fat pad for closure of oroantral communication. J Maxillofac Surg 1977;5:241
7. N. Samman, L.K. Cheung and H. Tideman, The buccal fat pad in oral reconstruction. Int J Oral Maxillofac Surg 1993;22:2-6
8. Fujimura N, Nagura H, Enomoto S. Grafting of the buccal fat pad into palatal defects. J Craniomaxillofac Surg 1990;18:219-22.
9. Batra H, Jindal G, Kaur S. Evaluation of different treatment modalities for closure of oro-antral communications and formulation of a rational approach. J Maxillofac Oral Surg 2010;9:13-8