
Buccal pad of fat and its applications in oral and maxillofacial surgery: a review of published literature (February) 2004 to (July) 2009

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This review of the literature was performed to study the frequency and preference of usage of the buccal fat pad (BFP) in oral and maxillofacial reconstruction and to determine its potential versatility in various clinical applications. A computerized literature search using Medline, the JGate@Helinet database, and the Google internet search engine was performed for all relevant articles with specific keywords from February 2004 to July 2009. Focus was on the use of BFP regarding size, location, and types of defects and success and failure rates for various applications. It was found that BFP has been used most commonly for closure of oroantral communications/fistula, followed by reconstruction of maxillary defects; with closure of primary clefts, coverage of mucosal defects, etc. being other uses. Studies suggested that owing to favorable anatomic location, high vascularity, ease of handling, and low failure rate, the BFP has become the flap of choice for reconstruction of various oral defects. The size limitation of the BFP must be known to permit successful outcome. The results have been encouraging for clinicians to make use of potential benefits of the BFP in closure of defects in the oral and maxillofacial region. (*Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010;110:698-705)

The buccal fat pad (BFP) has become more and more popular for closing oronasal and oroantral communications and as a versatile pedicled graft for closing post-surgical maxillary defects.¹ Originally described as an anatomic structure without any obvious function, it was for a long period even considered to be a surgical nuisance.²⁻⁴ However, during the past 3 decades, the BFP has become a well established tool in oral and maxillofacial surgery for the closure of oroantral communications (OAC)⁵ and reconstruction of small to medium-sized acquired or congenital soft tissue and bone defects in the oral cavity.⁶

The aim of the present article was to review the database available in the past 5 years regarding buccal fat pad (BFP), including its anatomy, clinical usage, success, and complications and to ascertain the reason for its preference over other modalities in various applications in oral surgery.

MATERIALS AND METHODS

A computerized literature search was performed using Medline, J-Gate@Helinet, and the Google search

engine for articles published from February 2004 to July 2009 on BFP and its application. Key words used were buccal pad of fat and its application, buccal fat pad, Bichat's, oroantral communication/fistula. "And" was used as a Boolean operator to combine and narrow the search. The search produced 33 articles, which included case reports, case series, retrospective case series, randomized controlled trials, comparative studies, technical notes, and abstracts. Abstracts were not included in the review. Case series were found to be most informative regarding correlation between various uses and complications. Case reports were included for completion of discussion.

The following clinical uses of the BFP in the literature were observed: closure of OAC/oroantral fistula (OAF) (270 cases), closure of postexcision defects (140 cases), as a covering for mucosal defects, closure of primary clefts, midline secondary clefts, in TMJ reconstruction, postincisional fibrotomy coverage in oral submucous fibrosis, elongation of soft palate, vocal cord augmentation, and root coverage.

BUCCAL PAD OF FAT

Terminology

The BFP was first described by Heister (1732), who believed this structure to be glandular in nature and termed it the "glandula molaris."^{7,8} Bichat is credited with recognizing the true nature of the BFP. Therefore, it is commonly referred to as the *boule de Bichat* or *bolle graisseuse* in French; it is called *wangenfett-*

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fropf or Wangenfettpolster (Wangen = Cheek + fett = fat, polster = pad-cheek, fat, pad) in German, and the sucking pad, sucking cushion, masticatory fat pad, or buccal pad of fat in English.⁸

History

The anatomy of the BFP was first described by Scammon, later by Goughran.⁹ The BFP had limited clinical usage for many years and was considered to be a surgical nuisance because of its accidental encounter during various surgical procedures in pterygomaxillary space and after injuries in the maxillofacial region.^{2,3} Its usage has increased after Egyedi (1977) described BFP for closing oronasal and oroantral communications and as a versatile pedicled graft for closing post-surgical maxillary defects.¹ Nader described the use of buccal pad fat as free graft to close oral defects.⁹ Tideman et al. (1986) described its detailed anatomy, vascular supply and operative technique in their study.¹⁰

Rapidis et al., Hao, and Dean et al., used pedicled BFP for reconstruction of medium-sized postsurgical oral defects of malignant lesions.^{9,11,12}

Anatomy and characteristics

The BFP is a simple lobulated mass described as consisting of a central body and 4 extensions: buccal, pterygoid, pterygopalatine, and temporal. The main body is situated deeply along the posterior maxilla and upper fibers of the buccinator, covered with a thin capsule. The buccal extension lies superficially within the cheek and is partially responsible for cheek contour. The buccal extension and main body together constitute 55%-70% of total weight. The pterygopalatine extension of fat tissue extends to the pterygopalatine fossa and inferior orbital fissure. The pterygoid extension is a posterior extension that generally stays in the pterygomandibular space and packs the mandibular neurovascular bundle and lingual nerve. The temporal extension can be divided further into 2 parts: superficial and deep. The superficial part of the temporal process of the BFP stays between the deep temporal fascia, temporalis muscle, and tendon. The anterior end of it turns around the anterior rim of the temporalis muscle, and continues with the deep part. The deep part of the temporal process lies behind the lateral orbital wall and frontal process of the zygoma and turns backward into the infratemporal space. Each process has its own capsule and is anchored to the surrounding structures by ligaments. The size of the pterygoid and temporal extension is inconsistent, but is usually smaller than either body or buccal extension.^{11,12-16}

The superficial temporal fat situated between 2 layers of deep temporal fascia is a separate fat pad and differs

in appearance, has a separate vascular supply, and is anatomically distinct from the BFP.¹⁶

The parotid duct courses with the buccal branches of the facial nerve anteriorly (superficial), and on the lateral surface of the BFP, it penetrates the buccinator muscles, entering the oral cavity opposite the second molar. The facial vessels are in the same plane and mark the anterior extent of the BFP.¹⁷

The BFP derives its blood supply from the buccal and deep temporal branches of the maxillary artery, transverse facial branches of the superficial temporal artery, and branches of the facial artery. The branches from different sources form the lobar subcapsular plexus by freely anastomosing with each other. Owing to its rich blood supply, it can be considered as a pedicled graft with an axial pattern. The rich blood supply may explain the high success rate with this flap. It may also be one reason for the quick epithelialization of the fat.¹³⁻¹⁶

The average volume of fat is 9.6 mL (range 8.33-11.9 mL).^{13,15,18,19} The size of the BFP is fairly constant among different individuals regardless of overall body weight and fat distribution; even cachectic patients have BFPs that are of normal weight and volume.⁸

The possible functions of the BFP include the prevention of negative pressure in newborns while sucking, separating the masticator muscles from one another and from the adjacent bony structures, enhancement of intermuscular motion, and the protection of neurovascular bundles.^{12,13,16}

Physiologically, it is a specialized type of fat termed as syssacosis,¹⁵ a fat that enhances intermuscular motion. Ranke, in 1884, recognized that its rate of lypolysis also is different compared with subcutaneous fat.^{5,10,13,18} It persisted during times of severe emaciation, even after subcutaneous fat was lost. It shares this characteristic with periorbital fat. Early reports comparing neonatal fat and the BFP indicated that these were more saturated.¹⁷

The quick epithelialization of the uncovered fat is a characteristic feature of the pedicled BFP flap and is histologically proven.^{8,20,21} The layer above the originally uncovered BFP consists of stratified squamous epithelium migrating from the adjacent mucosal regions.

TECHNIQUE TO HARVEST THE BFP

Under either local or general anesthesia, an upper mucosal incision posterior to the area of the zygomatic buttress is made, followed by a simple incision through the periosteum and fascial envelope of the BFP. Gentle blunt dissection with a fine curved artery forceps anterior and medial to the coronoid process exposes the

yellowish-colored buccal fat. Further blunt dissection with 2 vascular clamps is necessary, one to gently pull out the emergent part and the other to dissect the tissues surrounding the BFP. Mechanical suction must be avoided once the BFP is exposed. It easily herniates into the defect with little teasing and is gently pulled out from its bed with a vascular clamp. External pressure in the temporal and lateral orbital region can be applied at this time to facilitate removal of the temporal process of fat. Depending on the amount of fat required, various processes of fat pad can be manipulated and used as either a pedicled or a random flap.⁵

HEALING OF THE BFP

Clinically, in the typical course, the surface of the orally exposed fat becomes yellowish-white in 3 days and then gradually becomes red within 1 week, which is most likely due to the formation of young granulation tissue. This changes into firmer granulation tissue during the 2nd week, and becomes completely epithelialized with a slight contraction of the wound by 3 weeks after the operation.^{5,22}

VARIOUS APPLICATIONS OF THE BFP (TABLE I)

BFP in closure of OAC/OAF

The BFP flap, preferably pedicled type, has been used most commonly for the closure of OAC/OAF.^{1,5,6,20,22-28} The fact that the location of the BFP is anatomically favorable, the ease and minimal dissection with which it can be harvested and mobilized, good rate of epithelialization, and low rate of failure have made it the preferred choice.⁷ Dolanmaz et al. have considered the pedicled BFP flap to be an acceptable and reliable alternative in management of acute or chronic OAC, and it seems to be best choice of treatment, especially in recurrent OAF.²²

In their series of 75 cases, all of them had a favorable healing course after the operation, and the wounds became successfully epithelialized in 3-4 weeks after surgery. Excessive granulation and hypertrophy were noticed in 9 cases. In 6 of these, the BFP near the mucosal border was reduced with scissors to prevent the risk of dental trauma while chewing. In another 3 patients, such an operation was not needed, and no significant healing differences existed between these cases. The BFP that was left hypertrophic reached an almost normal level by completing secondary epithelialization. The difference between levels eventually disappeared completely.²²

Haraji and Zare, in a series of 13 patients, reported that OAF closed with the BFP healed without any esthetic disadvantages or disturbances of the masticatory function. There was minimal obliteration of the vestibule in the closure of OAF with the BFP as com-

pared with closure with buccal advancement flap. They also reported that after complete healing, there were no differences in the level or color of the local mucosa.²⁴

Most studies suggest a high success rate of BFP in the closure of OAC/OAF. However, a few complications, such as mild obliteration of vestibule and recurrence of OAF, in up to 7.5% were reported in one study.⁵ The vestibular depth became normal in due course of time resulting in no postoperative prosthodontic complications. Recurrent OAF needed a second operation to achieve closure.⁵

BFP in reconstruction of postexcision defects

The other major use of the BFP has been in closure of postexcision defects.^{6-9,12,19,21,29-33} The defects were caused by excision of pathologies, cancer involving the maxilla, etc. The BFP can be applied ranging from the angle of mouth to retromolar trigone and palate.³⁴ Hard palate is the location in which the BFP has been most often used for reconstruction after tumor resection.³⁰ The major consideration has been the size of defect adequate for its usage. Literature shows that defects up to 6 × 5 × 3 cm have been successfully closed, but considering the manipulation required in adapting the flap to the defect, a guideline needs to be laid down for maxillary defects: ~4 cm and up to 6 cm for buccal or retromolar defects.⁵ The BFP in reconstruction of defects is highly successful; however, complications, such as postoperative infection,^{19,33} fistula formation,³² partial or complete loss of flap, limitation in mouth opening,³⁰ depressed cheek,^{5,19,31} hematoma, and hemorrhage, have been reported.²⁹ Hollowness of the cheek might be because of excessive amount of fat harvested for larger defects. Hematoma and hemorrhage were suspected to be due to rupture of the pedicles and were controlled by pressure. Follow-up period for the defects in most studies was variable: from 4 weeks to 12 years in one study.³² However, a majority of studies showed that follow-up of 3-6 months is adequate to comment on the success and failure of the flap, and no delayed postoperative complications were observed (Table I).

Liu et al. used the BFP in reconstruction of postexcision defects along with prefabricated titanium mesh and found it to be satisfactory, concluding that BFP is most suitable for benign tumors reconstruction.³³

BFP in closure of mucosal defects

The BFP has also been used to cover the mucosal defects after ablation of buccal cancer.³⁵ The epithelialization of the flap has been found to be satisfactory at 4-6 weeks. The BFP has been compared with radial free forearm flap and free split-thickness graft. Results showed that it readily epithelializes but has been found

Table I. Summary of applications of the buccal fat pad (BFP) in studies sorted by year of publication

<i>Author(s) (year)</i>	<i>No. of patients</i>	<i>Purpose/region</i>	<i>Size of defect (cm)</i>	<i>Type of flap (if any)</i>	<i>Follow-up</i>	<i>Results/healing</i>	<i>Complications</i>
Case series							
1. Zhong et al. ³² (2004)	38	Reconstruction of partial maxillectomy defect	—	Pedicled	1-12 y	Uneventful	Fistula (3 cases, managed secondarily)
2. Colella et al. ³⁰ (2004)	15	Reconstruction after tumor excision in palate (5), buccal mucosa (7), retromolar trigone (3)	2-4.5	—	4-6 wk	Uneventful	(i) Partial loss of flap (1 case); (ii) limitation in mouth opening (7 cases)
3. Dolanmaz et al. ²² (2004)	75	OAC closure	—	—	6 mo		(i) Decrease in sulcus depth (relieved spontaneously); (ii) partial necrosis of flap (3 cases); (iii) excessive granulation & hypertrophy (9 cases, regressed spontaneously)
4. Chien et al. ³¹ (2005)*	16	Reconstruction of buccal mucosal defect	—	Pedicled	4-6 wk	Uneventful	Depressed cheek (1 patient)
5. Sharma et al. ⁴⁶ (2005)	20	OAC with or without mucosal closure	1 × 3	Pedicled	3 mo	Uneventful	
6. Amin et al. ¹⁹ (2005)	24	Reconstruction of oncologic maxillary defects	6 × 5 × 4 (largest)	Pedicled BFP with split skin graft	4 wk	75%	(i) Minor infection (2 cases) (resolved with antibiotics); (ii) hollowing of cheek (1 case, large defect); (iii) partial dehiscence and loss of skin graft (6 cases, (decreased in size in few weeks)
7. Abuabara et al. ²³ (2006)†	28	OAC closure in molar and anterior region	—	Pedicled	—	100%	—
8. Liu et al. ³³ (2006)	17	Reconstruction of postexcision maxillary defects	—	Pedicled BFP with prefabricated titanium mesh & autologous graft	3-41 mo	Uneventful	Infection (2 cases)
9. Tamura et al. ⁴³ (2007)	10	Vocal cord augmentation	—	Free graft	6 mo	—	—
10. Haraji & Zare ²⁴ (2007)	13	a) OAC closure; b) secondary closure after buccal advancement flap failure	—	Pedicled	6 wk	100%	Minimal obliteration of vestibule
11. Chakrabarti et al. ²⁹ (2009)	29	Post-partial maxillectomy defect reconstruction in: 1) buccal mucosa; 2) angle of mouth; 3) gingivobuccal sulcus; 4) retromolar trigone	5 × 4 (maximum)	Pedicled	1-30 mo	—	(i) Hematoma (1 case) healed with fibrosis; (ii) hemorrhage (2 cases) causing partial or complete loss of flap

Table I. Continued

Author(s) (year)	No. of patients	Purpose/region	Size of defect (cm)	Type of flap (if any)	Follow-up	Results/healing	Complications
12. Poeschl et al. ⁵ (2009)	161	OAC closure	5.6 × 4 (maximum)	Pedicled	2-11 mo	—	(i) Post-op pain (3 cases); (ii) limited mouth opening (5 cases); (iii) cheek deformity (1 case); (iv) Recurrent OAC (12 cases); (v) mild obliteration of vestibule (became normal later)
13. Levi et al. (2009) ³⁷	14	1) Congenital cleft palate repair (as adjunct); 2) palatal fistula repair	5 × 5	Pedicled	3 mo	—	Thrush (1 case)
14. Mehrotra et al. ³⁶ (2009)‡	25	Coverage of mucosal defect after incision of fibrous bands	—	Pedicled	1-24 mo	—	Highest outcome score compared to other modalities
15. Hassani et al. ⁴⁰ (2009)	11	As membrane for sinus floor augmentation	—	Pedicled	6 mo	—	—
Case reports							
1. Khouw et al. ⁴⁴ (2004)	1	Lengthening of soft palate after necrotizing tonsillectomy	—	Bilateral Pedicled	5 wk	—	—
2. Adeyemo et al. ⁶ (2004)	1	OAC closure	1.8 × 1.3	Pedicled	4 wk	Uneventful	—
3. Riu et al. ³⁸ (2006)	1	Postosteotomy midpalatine cleft	—	Double Pedicled graft	6 mo	Uneventful	—
4. Rattan ¹⁶ (2006)	2	TMJ ankylosis as interpositional material	—	Random	15-19 mo	Uneventful	—
5. Junior et al. ²⁷ (2008)	1	OAC closure	—	Pedicled	—	—	—
6. Moraes ²⁵ (2008)	1	OAC after orthognathic surgery	—	Pedicled	4 wk	—	—
7. Pappachan and Vasant ³⁹ (2008)	1	Closure of wide primary cleft palate	—	Pedicled	—	—	—
8. Rattan et al. ⁴⁷ (2008)	1	Interpositional material to prevent heterotopic bone formation after excision of myositis ossificans of medial pterygoids	2.0 × 1.5 × 1.5	Pedicled	2 y	100%	—
9. Kim et al. ²⁸ (2008)	1	Sinus membrane repair	1.5	Pedicled	1 y	Adequate	—
10. Allais et al. ²⁶ (2008)	1	OAC closure	—	Pedicled	—	—	—
11. El Haddad et al. ⁴⁸ (2008)	1	Root coverage of severe gingival recession defect	—	Pedicled	3 mo	Adequate	—
12. Ferrari et al. ³⁵ (2009)	1	Closure of cheek mucosa defect	—	Pedicled and buccinator island flap	8 mo	—	—
Total	509						

OAC, oroantral communication; TMJ, temporomandibular joint.

*16 patients out of 37 in the series.

‡28 patients out of 112 patients for closure of OAC/OAF.

‡25 cases out of 100 cases in the series.

to restrict the mouth opening. The dense fibrous connective tissue in the subepithelial stroma lacking lamina propria and submucosa could lead to retraction of the BFP and limitation in mouth opening. Depression over the cheek has also been mentioned occasionally.³¹

Mucosal defects also have been closed with the combination of the BFP and buccinator myocutaneous flap, and results have been satisfactory.³⁵

BFP in treatment of oral submucous fibrosis

A retrospective study of 100 patients compared the BFP with nasolabial flap, tongue flap, and split skin graft for the coverage of postfibrotic band incision in oral submucous fibrosis with 25 patients in each group.³⁶ The authors concluded that the BFP serves as the best substitute, providing excellent function without deteriorating esthetics. It offered ease of surgery, little postoperative morbidity, and good patient acceptance.

BFP in repair of primary cleft palate

Levi et al. innovated the use of pedicled BFP in conjunction with the Furlow repair and the hard palatal 2-flap procedure for closure of primary cleft palate, citing less dissection and reduced donor site morbidity of this material for their choice. They posited that an added layer of vascularized tissue (the BFP flap) functions to fill and line this open denuded space, increases vascularity to this area, and may thwart or even prevent significant wound contracture. They thought this technique may decrease scar contraction and subsequent transverse maxillary growth restriction induced by the lateral hard palatal tissue defect, as well as buttress areas where fistula formation is most common. No change in the hollowness of the child's cheeks was seen in their study.³⁷

Other authors have used the double pedicled BFP in the closure of postosteotomy midpalatine cleft with reasonable success and no postoperative complication.³⁸

Pappachan and Vasant pedicled the BFP in conjunction with pedicled mucosal flaps and reported that the BFP helps to lengthen the soft palate without generating tension on the nasal side.³⁹

Role of BFP in temporomandibular joint reconstruction

Rattan used the BFP as a useful adjunct to autogenous or alloplastic temporomandibular joint (TMJ) reconstruction after TMJ ankylosis release and multiple operate joints.¹⁶ The rationale for placing fat around the joint is to obliterate dead space around the joint, thus preventing the formation and organization of hematoma. It also may isolate any residual active tissue, such as periosteum, and reactive tissue from previous failed

alloplastic implants to the periphery of the region, thus decreasing chances of fibrosis and bone formation. The BFP lies in close proximity to the TMJ and can be easily harvested through the same preauricular approach as used for TMJ exposure, therefore diminishing the chances of infection. Rattan concluded that the BFP can be used for TMJ reconstruction because of its local availability, but further studies are required to draw firm conclusions. In addition, the adequacy of volume and long-term fate of the BFP in TMJ reconstruction is not known.¹⁶

BFP as membrane in sinus floor augmentation

Hassani et al. used the BFP and performed sinus augmentation with a mixture of autogenous bone and natural bone mineral, covering the lateral sinus wall with the BFP.⁴⁰ They based this on the fact that the successful osseous reconstruction of small and major maxillary jaw defects by bone grafting is dependent on the early physical protection of the graft from trauma and micromotion and the establishment of a blood supply to the graft. Both of these prerequisites could be aided by judicious use of the BFP. Use of pedicled BFP provides immediate blood supply to the recipient site and promotes rapid neovascularization of the grafted material. By placing the BFP between fast-growing fibrous tissue and the defect itself, slow-growing osseoprogenitor cells can migrate into the bone defect and lead to the reossification of this area.⁴¹ They also mentioned that it has an additional protective function of providing a multilayer wound closure over all types of maxillary bone grafts, thereby preventing graft exposure and enhancing success.⁴² There may be some complications, such as reduction in oral opening, partial necrosis, infection, excessive scarring, and sulcus obliteration. The authors concluded that the BFP might be a substitute for bioresorbable collagen membranes in maxillary and sinus floor bone grafts. They also suggested that the vascularity of this pedicled flap could be responsible for good implant survival in the posterior maxillary area. They recommended that the validity and reliability of using the BFP could significantly increase with more comprehensive research in this field and by directly comparing BFP with different types of membranes and analyzing the results statistically. They stated small sample size (11 patients) as a limitation of their study.⁴⁰

Miscellaneous uses

The BFP has also been used for vocal cord augmentation, where intracordal injection of autologous fat harvested from the buccal fat pad is administered.⁴³

Khouw et al. used bilateral BFP in combination with a superiorly based pharyngeal flap for palatal recon-

struction (to lengthen the soft palate) in rhinolalea aperta after extensive necrotizing tonsillitis.⁴⁴

Pedicled BFP has also been used in the coverage of severe gingival recession defects (Miller class IV) and provides a considerable amount of keratinized tissue for coverage of the upper molar teeth.⁴⁸

SUMMARY AND CONCLUSIONS

After going through pertinent studies, we find that the BFP is versatile in terms of its location and application. It can be used as far anteriorly as the superior alveolar ridge canine tooth region and up to but not beyond the midline of the palate extending laterally to the superior buccal sulcus and buccal mucosa. Posteriorly it can be used in the hard palate, the tuberosity region, the retromolar area, the soft palate (up to midline), and the anterior tonsillar pillar.²⁹ It can be used alone or in combination with other flaps, such as the pedicled temporalis muscle myocutaneous flap²¹ or the pectoralis major myocutaneous flap.¹²

It has been put to many uses, ranging from closure of OACs to closure of postexcision maxillary defects caused because of benign and/or malignant tumors.^{6,8,9,11,12,21,29-33} Other uses include coverage of mucosal defects after ablative surgery or after fibrotic band incision in oral submucous fibrosis, as adjunct in closure of primary clefts or post-osteotomy clefts, as membrane in sinus lift procedures, and in TMJ surgeries.¹⁶

The success of the BFP has been attributed to its rich vascular supply, less donor site morbidity, almost constant weight for all individuals, reliability, and ease of harvest and lower complication rate.⁶

The most critical factor for the success of the BFP seems to be the size; although the literature reports that defects of size $7 \times 5 \times 2$ cm have healed successfully,³⁴ most authors recommend 5×4 cm (medium-sized) defects for reconstruction with the BFP. However, if the defects are big and near the midline, bilateral flaps have been used, so that it can be distributed over a large area.³⁸

The follow-up period for most of the studies was 4 weeks to 3-6 months,^{4,5,10,30,37,40} and 1 series had a protracted follow-up of 12 years.³² However, that series contained the use of the BFP after excision of malignant tumors, and the prolonged duration was to detect any signs of recurrence of the lesions. The BFP healed in 2 weeks and completely epithelized in 6 weeks.⁵

Among the few complications associated with the BFP were recurrence of OAF and partial loss of flap, which was mostly seen in large-sized defects.^{5,30,32,45} Cheek deformity has also been reported in few series, but the change has been stated to be "subtle."^{14,37} Limitation in mouth opening was most commonly seen

when the BFP flap was used in the retromolar region. Occasional hematoma and hemorrhage were also reported, which were found to be due to one of the pedicles of the flap²⁹ and which responded to conservative treatment. Mild obliteration of the vestibule, which corrects in due course of time, has also been reported.

To conclude, in recent years, the BFP has been used for a variety of purposes, owing to its physical and biologic properties, and the results have been encouraging clinicians to make use of its potential benefits. The most common use of the BFP has been in the closure of OACs, followed by postexcision reconstruction. The size limitation of the BFP must be known to permit successful outcome. More studies with adequate sample size and long-term follow-up are required to ascertain its use in cleft palate closure, in TMJ reconstruction, and as sinus floor membrane.

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