

The Buccal Fat Pad: Importance And Function

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Abstract:

The buccal fat is an important anatomic structure intimately related to the masticatory muscles, facial nerve, and parotid duct. While anatomically complex, an understanding of its boundaries will allow the surgeon to safely manipulate this structure in reconstructive and aesthetic procedures. Technically, the buccal fat pad is easily accessed and mobilized. It does not cause any noticeable defect in the cheek or mouth, and it can be performed in a very short time and without causing complication for the patient. The pedicled BFP graft is more resistant to infection than other kinds of free graft and will result in very success.

The buccal fat pad has a satisfactory vascular supply, this property of graft and other properties will allow for the closure of defects that cannot be repaired by conventional procedures. The buccal fat pad exposed through an intraoral and buccal incision, has several clinical applications including aesthetic improvement, closure of oroantral and Oroantral defects reconstruction of surgical defects and palatal cleft defects and palatal cleft defects, reconstruction of maxilla and palatal defects.

It has been proved that, epithelialization of the buccal fat pad without coverage is completed during 3-4 weeks after surgery, and approximately depth of vestibular sulcus does not decrease after improvement.

To diminish the incidence of postoperative complication, the BFP graft should cover completely the defect and should not be sutured under tension and the patient should be received a liquid or soft, nonchewy diet until soft tissue healing has taken place.

I. Introduction

Buccal fat pad was, for the first time, described by Heister in 1732. He believed that this structure has a glandular nature. Due to this fact, he called it 'molars glandular'. In 1802, Bichat was able to detect the nature of the pad's pure fat. Since that time, other anatomists have been investigating function, embryology and its relationship with chewing space. There is a close relationship between buccal fat pad and chewing muscles. Its importance in chewing function is best described as an auxiliary factor for babies to suck milk. This pad is a means which fills the cheeks of low-age children. Its size will rather be decreased with increase in age and also with growth of facial anatomy (1).

Some times, buccal fat pad is driven toward mouth by Maxilla sinus due to trauma and it is seen much more among children because of relative magnitude of the pad in terms of the size. Children with lower age, often investigate external objects by putting them in their mouths. Thus, it is possible that when they fall down, the sharp objects make a hole wound in their oral mucus and the pad enters the mouth through the hole. It is also possible that milk sucking activity of a child leads to the entrance of the fat in to the mouth through the wound (6). This situation may occur during surgical operations, including Muller third problem surgery or osteotome facial bone surgery (2).

Buccal fat pad occupies a space known as chewing space and it has a close relationship with chewing muscles, facial nerves and parotid duct. Thus, it is necessary to have a correct understanding of such anatomic relationship.

By average, fat pad is 3.9 gm in weight (from 8 to 5.11), 6.9 in mass (from 3.8 to 9.11) and 6 mm in thickness. There is a little difference between its right and left side and its weight difference is about 5.1 gm.

The magnitude of fat pad has a weak correlation with the total fat of body. Buccal fat pad has a normal weight and mass even in cases such as cachexia or low-hype fat (1).

This pad, being a mass of particular fat tissue and distinct with hype fat, has the role in facilitating inter muscular movement of body for adults.

In general, fat pad has two types: white-yellow one and brown one. Buccal fat pad is often of the latter (5). Buccal fat pad is easily exposed to a buccal incision through an intraoral way. It has many clinical applications, including: improvement of aesthetic counter facial, to close oronasal fistulas, to correct intraoral

defects, to treat the surgery of sub mucous fibrosis, to repair palatal defects, to rebuild maxilla with bone graft and BFP, to rebuild the cleft palate defects, to rebuild the defects caused by surgery in mouth and Maxillofacial.

Application of buccal fat pad to improve aesthetic counter facial

Buccal fat pad (BFP) in terms of anatomy has a complicated structure which is of great importance in creation of counter facial. Selected in a proper way, its sufficient removal can create many changes in the face through decrease in fullness of the cheeks and increase in their augmentation (1). a proper candidate to remove buccal fat is strong bone of the cheeks which are less due to being full in the cheeks. In counter facial ill, the removal of buccal fat between the augmentation of the cheeks and mandibular redesigns the face in more angled shape. Decreasing the fat of the cheeks while increasing augmentation cause bone cheeks to seem stronger (1). To remove buccal fat can not be a good alternative for augmentation and it has counter indication for those ill with hypoplasia. Buccal fat removal can just intensify impotence and leads to a severe dent in the cheeks (1).

Application of buccal fat pad to treat sub mucous fibrosis surgery

Buccal fat pedicle pad is pervasively used to repair oral defects. The new application of this flap is to treat those ill who suffer trismus due to sub mucous fibrosis. Sub mucous fibrosis (OSF) is a progressive chronic dumb disease which is diagnosed by fibroid change in the mouth or in the throat. This change leads to hardness of salvia or trismus. This disease is often seen in India and it is not unusual in south East Asia (south china, Taiwan, Malia, Singapore, Indonesia, Vietnam and Thailand) (1).

To close oral sinus fistula by means of pedical graft of buccal fat pad

Oral sinus fistula is a common case which often occurs after Maxilla maller has been removed because anatomically there is a close relationship between root Apex of teeth and Antrum(7). Various methods have been reported on how to close AF such as buccal displaced flap and palatal flap. Nevertheless, these methods not always have satisfactory results. Pedical graft of BFP can be applied to close oral defects even with 50*60 mm dimensions and 6 mm thickness. This method was, first, introduced by Egyedi

Rebuilding of Maxilla by means of bony graft supported by BFP

There are three main points in regard to those ill with Hemi maxillectomy:

1. to correct counter zygoma and maxilla sinus walls
2. to rebuild the palate in order to make a right support of skeletal for putting denture
3. to improve physiologic function of maxilla sinus in order to prevent late complication coming resulted from insufficient drainage

In 1982, Burckhardt and Raveh showed a method for rebuilding after catching maxillectomy. In this method, using buccal fat pad as a covering layer in eternal parts of the bony grafts, it is prevented of such defects. This is a tool for isolation of graft from antrum. Normally, the fat tissue is low – vascularized and it is unable to enter composing cells of the bones while buccal fat pad has a good ability to supply the blood. Since the application of thin skin graft in BFP level has been successful, it seems that adjustment of reaming mucus with fat pad is done due to the regeneration of respiratory epithelium and returning of its function. External level of the graft is covered with buccal mucus or palatal.

Application of adjunctive fad pad of the graft to repair cleft palate defects

In 25 last years on this century, buccal fat pad has been used as a graft source. In 1977 Egyedi and then Neder in 1983 have used the fat pad to correct intraoral defects. Repairmen of palatal region almost include preparing of cleft margins and locating the tissue in the midline as well as closing oronasal relation. Application of pedical fat pad graft in line with pedicle flaps is of several advantages:

Buccal fat pad graft ensures vascular support of soft tissues and bony grafts which improve both the soft tissue and the clacific tissue due to that (8).

Application of buccal fat pad to correct defects resulting from surgeries in the mouth

In 1977, Egyedi reported the usage of buccal fat pad as a graft to close oronasal and oroantral relationship, for the first time. He described 4 ill for whom buccal fat pad was used in order to repair defects with 1-4 cm in diameter. After displacing of a necessary amount of the fat pad and hybridizing it in the region, the region was covered with split – thickness free skin graft and then prosthesis was used to adopt the skin to the lower fat tissue. In 1983, Neder introduced and described usage of buccal fat pad as a free graft for intraoral defects. Tideman followed his work and in 1986 he showed that when pedical buccal fat pad is uncovered it would be epithelialized in both oral and nasal sides during 1-4 weeks (12).

In 2000, Rapidis showed that surgical defects with a size less than 4*4*3 cm can be rebuilt by means of BFP and it is also possible for those buccal defects and retromandibular defects less than 7*5*2 cm. In these cases, BFD is located on a wide vascular bed which is provided by the receiver region muscle (14).

Application of buccal fat pad in line with temporal myofascial flap to rebuild the mouth

Application of BFP as a pedicle graft is a noticeable idea because of its easy accessibility and great ability in supplying the blood. A string of pedicle BFP can cover completely maxilla posterior regions, hard palate, retromolar pad, pterygomandibular and soft palate on the same side. The size of majority of the defects can be reduced by primary closing of the defect corners. This kind of closing can lead to the least prevention of the function. Closing causes defects with diameter less than 5 cm to be rebuilt and in this way its function indication will be increased.

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