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The Use of Buccal Fat Pad Reconstruction in Oral Submucous Fibrosis

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ABSTRACT

An oral fibrosing disease was first described in the year 1952 by Schwartz which was later termed as "Oral Submucucous Fibrosis" by Joshi in the year 1953. The management of this disease can be of two categories: medical and surgical. The buccal fat pad has been an easy and effective method in the surgical management of oral submucous fibrosis and is discussed here. The buccal fat pad is epithelialized within 3 to 4 weeks and hence further skin grafts are not required. The review was done by a web search of case reports in using buccal fat pad for the management of oral submucous fibrosis. Studies suggest that the use of buccal fat pad is a better choice of treatment for managing oral submucous fibrosis. The easy way of use, quick healing and rich vascularity provides better function and aesthetics and thus seems to be an appropriate choice for the surgical treatment of oral submucous fibrosis.

KEYWORDS- *Oral sub mucous fibrosis, buccal fat pad, reconstructive surgery, oral cancer treatment, pan-parag hazards.*

Introduction

In 1952, Schwartz coined the term "atrophica idiopathia mucosa oris" to describe an oral fibrosing disease that he discovered. This condition was termed as "oral sub mucous fibrosis by Joshi[1] in 1953. Studies show that most cases are reported from Indian subcontinent[2]especially southern India. Oral sub mucous fibrosis is widely prevalent in all age groups. An acute increase in oral sub mucous fibrosis was noted after pan parag came into market. This leads to intolerance to spicy food, rigidity of lip, tongue and palate leading to limited

opening of mouth and restricted tongue movements.[3],[4]

Oral sub mucous fibrosis can be managed in two categories: medical and surgical.[5] The medical management includes injections of hyaluronidase, hydrocortisone, placental extract, triamcinolone plus vitamin and iron. Surgical treatment is done in patients with limited mouth opening. (Kerr et al).[6] The surgical modalities used are release of fibro bands and covering of the raw areas with split thickness skin grafting, bilateral nasolabial flaps, palatal island flaps, tongue flaps, temporalis myotomy and coronoidectomy.[7]

The use of buccal fat pad as a grafting source was first described in 1977 by Egyedi.[8] Neder used buccal fat pad as a free graft in oral cavity in 1986. Tideman et al showed that the buccal fat pad is epithelialized within 3 to 4 weeks and therefore further skin graft is not required.[9]

Anatomy

The buccal fat pad is an encapsulated, rounded, biconvex specialized fatty tissue which is distinct from subcutaneous fat. It is located between buccinator muscle medially anterior margin of masseter muscle and the mandibular ramus and zygomatic arch laterally. It is wrapped within this fascial envelope. The buccal fat pad is divided into three lobes (anterior, intermediate and posterior). The posterior lobe has four extensions (buccal, pterygoid, pterygopalatine and temporal).[10]

Several nutritional vessels exit in each lobe and together form a supra capsular plexus.[11] The principal arteries that supply buccal fat pad are derived from buccal and deep branches of maxillary artery, from transverse facial branch of superficial temporal artery and from few branches of facial artery.[9] Buccal fat pad is morphologically different from subcutaneous fat but similar to orbital fat. Mean volume of buccal fat pad is about 10ml, mean thickness is 6mm and approximate weight is of 9.3g. It is capable of covering small to medium defects of about 4cm in diameter.[10]

Physiological Function

- Fill masticatory space.
- Act as cushion for masticatory muscles.
- Counteract negative pressure during suction in a new born.
- Rich venous net with valve like structures possibly involved in endrocranial blood flow through pterygoid plexus.[12]

Materials and Methods

The review was done by a web search of articles under the web sites like Pubmed, medline, Wikipedia and google scholar. The key words used for the review were: surgical management of oral sub mucous fibrosis, use of buccal fat for the management of oral submucous fibrosis. The interest of this review was concentrated on the use of buccal fat pad in the reconstruction of oral sub mucous fibrosis.

Discussion

Oral sub mucous fibrosis is an insidious chronic disease affecting any part of the oral cavity, sometimes pharynx associated with juxta epithelial

inflammatory reaction followed fibro elastic changes which lead to stiffness of oral mucosa causing trismus and difficulty in eating.[13] According to Mohan et al the buccal fat pad became an ideal choice for rectifying intra oral defects. Buccal fat pad is advantageous that it improves the vascularity and hence can be used for large flap reconstruction. It is the useful, easy and uncomplicated method for reconstruction of oral defects.[14] According to Alper alkan et al, the success rate of the use of buccal fat pad is relatively high in all comparative studies. The use of buccal fat pad in small or medium intra oral defects is a convenient, reliable and quick reconstructive method. The rich blood supply and easy mobilization makes it an ideal flap. The risk of infection is reduced by the use of buccal fat pad.[15] As stated by Saravanan and Vinod Narayan, the main advantage of the buccal fat pad are the ease of harvesting, simplicity, versatility, low rate of complications, as well as quick surgical techniques. The basic aim of the treatment modality is to relieve the symptoms which hamper function in the form of trismus, difficulty in mastication, deglutition and speech. They concluded that the buccal fat pad seems to be an appropriate interpositional graft in the surgical management of oral sub mucous fibrosis.[13] Jayanta Chakrabarti et al reported that the buccal fat pad is a quick, simple and easy flap to use, which heals with minimal scarring having very less morbidity. It can be used with other flaps. The drawbacks of the buccal pad are that it can cover only small to medium defects and due to its thinness; it cannot provide any bulk.[10] Studies made by Kumar et al, suggests that the buccal pad is employed due to its high ease of accessibility. It improves the function of the cheeks by regaining its suppleness and elasticity post operatively. The rich vascularity ensures its vitality and resistance to infections. Hence it is a logical, reliable and convenient technique for the treatment of oral sub mucous fibrosis.[16] According to a report done by Ahmad Alshawdli and Ishwar Bhatla in 2012 comparing the use of full thickness skin graft with buccal fat pad reconstruction, concluded that treatment for oral submucous fibrosis is palliative and early diagnosis of the disease is required for better prognosis.[17] Mehrotra et al present a case series of 100 patients where they compared buccal fat pad graft, tongue flap, nasolabial fold flap, and split skin graft for correction of mucosal defect created after incising the fibrous bands. Esthetics and function achieved with split skin graft were good but showed some degree of relapse due to contracture of the graft. They found that buccal fat pad rotation was superior to other procedures.[18] But according to Lai et al, Excision of the lesion, with reconstruction using single-staged pedicle flap followed by antioxidants therapy, achieved a better success rate especially in the management of trismus and in the prevention of development of invasive carcinoma. The OSMF is a crippling disease of unknown etiology and is a legacy of the sub-continent. Although there are various modalities of treatments, pedicled tongue flap surgery has given comparatively promising results.[19],[7] The study done by Fazil et al, showed that there are also comparatively less chances of infection, necrosis, wound healing problems and shrinkage of flap in reconstruction with radial free forearm flap but the

problems associated with donor site are more with the use of naso labial flap.[20]

Buccal Fat Reconstruction – A Better Choice

The buccal fat pad on comparing with other surgical treatment modalities for the management of oral sub mucous fibrosis has proved to be a better choice. Full thickness skin graft[21] and Split skin graft, although has many advantages, requires more vascularity to heal and may end up in production of hair follicles on the grafted site. The complication with the bilateral nasolabial flaps and forearm flap[22] is that there is poor donor morbidity. The temporalis muscle flap offers less donor site aesthethics.[23] Thus, the buccal fat pad is preferred to be in use for the management of oral submucous fibrosis.

Disadvantages of Buccal Fat Pad

The possible disadvantage of the use of buccal fat pad in reconstructive procedures is that it shows slight increase in swelling when compared with reconstructive procedures.[24]

Conclusion

The buccal fat pad has thus been preferred as a better option for the treatment of oral sub mucous fibrosis as it has good vascular supply and compatibility. The easy way of use to reconstruct defects of the oral cavity is provided by the buccal fat pad. It shows quick healing and provides better function and aesthetics. Hence it seems to be an appropriate choice of treatment in the surgical management of oral sub mucous fibrosis.

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