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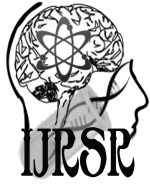
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**Dr.Adarsh Kudva., Dr.Abhay Kamath and
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"BEING SIMPLE" OUR EXPERIENCE IN THE USE OF BUCCAL PAD OF FATGRAFT FOR THE MANAGEMENT OF ORAL SUBMUCOUS FIBROSIS

Dr. Adarsh Kudva., Dr. Abhay Kamath and Dr. Anand Deep Shukla*

Department of Oral and Maxillofacial Surgery, M.C.O.D.S Manipal.576104

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ABSTRACT

Introduction: Oral submucous fibrosis is an insidious, chronic, disabling disease of obscure aetiology that affects the entire oral cavity, sometimes the pharynx, and rarely the larynx. It is characterized by blanching and stiffness of the oral mucosa, which causes progressive limitation of mouth opening and intolerance to hot and spicy food.

It is an established precancerous condition with increased prevalence in the Indian subcontinent. As the etiology is uncertain, its treatment has largely been symptomatic. Various surgical treatments have been described for improvement of mouth opening, but not yet standardized.

Materials and Methods: This article depicts few of the cases of oral submucous fibrosis that have been operated in our department. Following the release of fibrous bands collagen or buccal fat pad graft has been used for reconstruction of the defect. Patients were counselled for habit cessation and subjected to aggressive mouth opening post surgery.

Results: All the patients have recovered well from the surgery and have shown minimal postoperative complications.

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INTRODUCTION

“Oral submucous fibrosis is an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by and /or associated with vesicle formation, it is always associated with juxta-epithelial inflammatory reaction followed by a fibro-elastic change of the lamina propria with epithelial atrophy leading to stiffness of mucosa and causing trismus and inability to eat”. (1)

Worldwide, estimates of oral submucous fibrosis indicate that 2.5 million people are affected with this condition, with a higher incidence in the Indian subcontinent. The highest incidence is found in South India, with an overall prevalence rate of 2.5% in various states of the country. A 7.6% incidence of oral cancer in oral submucous fibrosis patients has been reported in a median 10-year follow-up period. The malignant transformation rate of O.S.M.F is 2.3%- 7.6% as per recent literature. (2)

In recent times, its treatment includes non-surgical and surgical modalities. Nonsurgical treatment modalities involve the

administration of various drugs and chemical substances and physiotherapy in the form of mouth opening exercises.

The surgical treatment essentially comprises bilateral sectioning of fibrous bands with or without coronoidectomy besides the use of other modalities as nasolabial flaps, split skin grafts, transposition of the buccal pad of fat, dorsal tongue flap, radial forearm flaps, flaps of the temporalis fascia/muscle or both, palatal island flaps, and mucosal grafts, to cover the surgical defect.(3)

This paper presents our experience in the use of Buccal fat pad as a graft to cover the surgical wounds following the release of fibrous bands.

MATERIALS AND METHODS

This study comprised of ten patients that were referred to the department of oral and maxillofacial surgery Manipal with the complaint of longstanding difficulty in mouth opening and a positive history of consumption of betel nut, guthka and supari chewing with or without lime. Diagnosis was confirmed by performing incisional biopsy under Local anesthesia. Patients suffering from chronic and debilitating disease (ASA IV) were excluded from the study. Classification system proposed by

*Corresponding author: Dr. Anand Deep Shukla

Department of Oral and Maxillofacial Surgery, M.C.O.D.S Manipal.576104

S.M Haider was used for the categorizing of the patients. (4) All patients were thoroughly examined and findings were recorded in a standardized format, all patients were counseled to quit all deleterious habits.

All procedure were carried out under general anesthesia. The surgical procedure consisted of release of fibrous bands, the fibrous bands were incised along the occlusal plane starting from the angle of the mouth to the pterygomandibular raphe. Hockey stick extension given to the maxillary tuberosity to facilitate buccal pad harvest. Incision depth was above buccinator muscle. The wounds created were further freed by manipulation. The mouth was then forced open using a mouth gag till acceptable mouth opening of approximately 35mm was achieved. The BFP was approached via the posterior- superior margin of the created buccal defect, and then dissected out with an index finger. The BFP was teased out gently until a sufficient amount was obtained to cover the defect. Care was taken that the graft was not under tension after suturing. The BFP was then secured in place with horizontal mattress sutures. The same procedure was performed on the other site. The BFP covered the buccal defects posteriorly to the soft palate, and anteriorly to the cuspid region. All patients received prophylactic antibiotics for 5 days and Ryle's tube feeding for a period of approximately two weeks. Post-operative mouth opening exercise and ultrasound therapy was started 24 hours post-surgery and intensive exercise was continued for a period of 3 months. Patients were also put on antioxidants for a period of one month and continued with nutritional diet as advised by the dietician. Mouth opening exercises were continued indefinitely.

RESULTS

The results were found to be satisfactory in all patients. The pre-operative mouth opening in all the patient was in the range of 12 to 15mm which after the successful surgery increased to the range of 35 to 40mm. All the patients were discharged after a period of 5 to 7 days. Epithelization of the graft took a period of 3 to 4 weeks. The minor complication that was seen in two of the patients was fibrosis of the buccal fat pad graft that was evident after a period of approximately one month. All patients maintained a mouth opening of 30-35mm

DISCUSSION

In India, the first mention of Oral Submucous Fibrosis in literature dates back to time of 'Shushruta' as 'Vedari'. There is no consensus on the management of oral submucous fibrosis. The treatment modalities are basically classified into conservative modalities and surgical.

Conservative Modalities (5)

1. **Steroids:** Steroids, and especially glucocorticoids, were first used in the treatment of OSF, They have been used extensively in past few years due to their anti-inflammatory properties Several glucocorticoids were used, such as short-acting drugs (hydrocortisone), intermediate-acting drugs (triamcinolone), and long-acting drugs (betamethasone and dexamethasone).
2. **Enzymes:** Collagenase is a lysosomal enzyme capable of degrading phosphate ester, proteins and

polysaccharides and commonly used for the management of oral submucous fibrosis. Clinical studies have found that intralesional injections of collagenase not only increase mouth opening but also resulted in reduction in sensitivity to spices, sour, cold and heat

3. **Cardiovascular drugs:** Pentoxifylline is a methylxanthine derivative and is commonly used for the management of O.S.M.F. The curative effect of pentoxifylline may be attributable to its properties of suppressing leukocyte function, altering fibroblast physiology, and stimulating fibrinolysis. In addition, it causes neutrophil degranulation, promotes natural killer cell activity, and inhibits T-cell and B-cell activation
4. **Antioxidants:** Lycopene is a very commonly used antioxidant for the management of O.S.M.F.
5. **Vitamins and minerals:** Vit A, Vit B and zinc are used commonly for the management of O.S.M.F.

Surgical Modalities(6)

Various surgical treatment modalities have been proposed by different authors with variable results. Merely cutting the fibrous band followed by aggressive mouth opening, and to allow secondary epithelization leaves an unsatisfactory rigid buccal surface.

The use of split thickness skin grafting after the release of fibrous bands has a high recurrence rate from contracture of the defect.

The bilateral tongue flaps cause severe dysphasia, disarticulation, and carry the risk of postoperative aspiration. The limited donor site and the reported involvement of tongue with oral submucosal fibrosis preclude its use for reconstruction. The stability of a tongue flap and dehiscence are the common post-operative complication of uncontrolled tongue movement. Bilateral radial forearm free flaps are hairy, and the facilities for free tissue transfer are not universally available.

Nasolabial flap carries risk of post-operative scar, distortion of alar base or upper lip. Partial or complete necrosis of the flap can be seen. Single staged procedure carry potential risk of vascular problems. In two staged procedure division of the pedicle is required after 3 weeks. Buccal fat pads have also be used to cover the defect in our study is well accepted graft for intraoral defects (7). The harvesting is simple and easily accessible from the same horizontal incision. Defects up to 3 x 5 mm can be closed without compromising the blood supply. Epithelization over the buccal pad of fat is evident by the 7th postoperative day and completed by the end of 4th week. The main limitation of the buccal fat pad graft is its limited size which makes it difficult to cover larger defects specially the defects in the anterior region.(8)

The main mass of the BFP occupies the buccal space and is bound medially by the buccinator muscle and laterally by the masseter muscle, and rests on the periosteum that covers the posterior buccal aspect of the maxilla. The BFP has a rich blood supply through the small branches of the facial artery, the internal maxillary artery, and the superficial temporal artery and vein by an abundant net of vascular anastomoses.



Fig A Blanching of buccal mucosa



Fig B Blanching of palate



Fig C Blanching of labial mucosa



Fig D Deviation of uvula.



Fig E Resection of the fibrous bands



Fig F Harvesting of buccal pad of fat

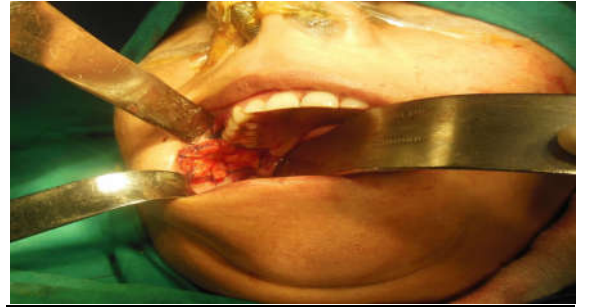


Fig G Buccal pad of fat sutured to the defect

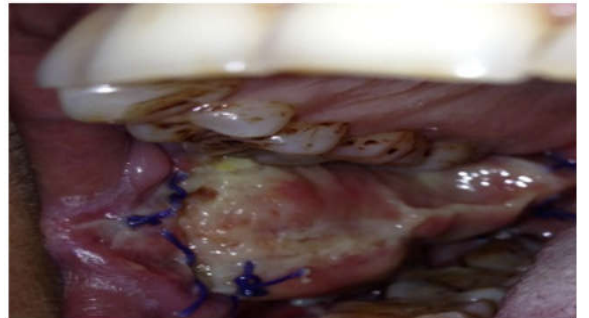


Fig H Epithelization of buccal pad of fat graft



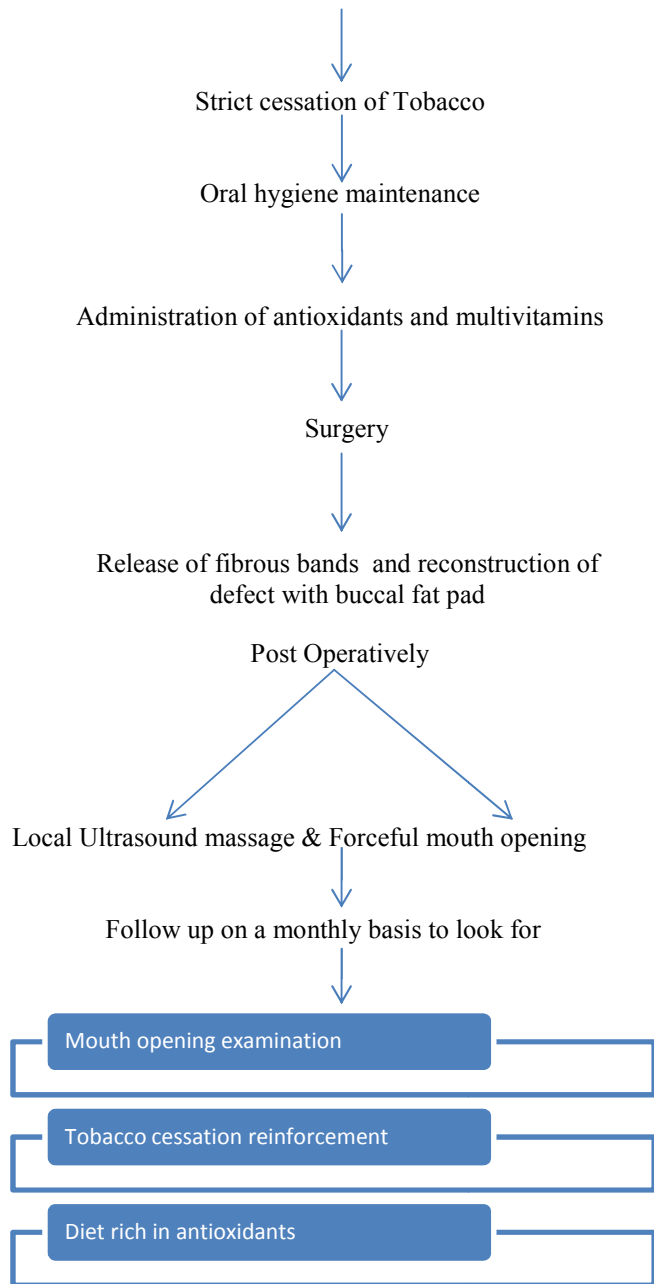
Fig I Healed buccal pad of fat graft



Fig J Postoperative mouth opening

Manipal Protocol for management of Oral Submucous Fibrosis

Biopsy confirmation at multiple sites to rule out malignant transformation.



On average, the volume is 9.6 cc (range 8.3-11.9 cc) 1. Defects up to 3x5 cm can be closed with a BFP alone without compromising the blood supply. Early and intensive postoperative mouth-opening exercises are very important to achieve adequate mouth opening afterward. Postoperative administration of antioxidants is also beneficial in patients.

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Postoperatively the softness and elasticity of the buccal mucosa had improved in all the patients.

The only problem observed in case of buccal fat pad graft is the fibrosis of buccal mucosa in the grafted site if excessive buccal fat pad graft is taken. This fibrosis is normally evident at the junction of normal mucosa and the buccal fat pad graft region. Symptoms such as painful ulcerations, burning sensation and intolerance to spices have been improved in all the patients in whom the buccal fat pad graft has been used.

CONCLUSION

Different treatment methods for oral sub mucous fibrosis have been evaluated over a period of time, but in our experience buccal fat pad served as the best substitute as it is reliable, technically less demanding, locally available, well vascularized option which will epithelize to native squamous epithelium with minimal morbidity and fibrosis and results in acceptable mouth opening with adequate postoperative mouth opening if supplemented by adequate postoperative mouth opening exercises, nutritious diet, ultrasound therapy and habit cessation.

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