

Effectiveness of Palatal Mucosal Graft In Surgical Treatment of Oral Sub-Mucous Fibrosis

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ABSTRACT

Background: Oral submucous fibrosis is a chronic debilitating disease characterized by gradually increasing fibrosis of the oral cavity and pharynx, mainly the buccal mucosa, resulting in trismus. Oral submucous fibrosis (OSMF) is a chronic, insidious, irreversible disease characterized mainly by two symptoms, burning sensation in the mouth while eating spicy hot food in early stages of the disease and trismus in the late stages of the disease. In spite of the numerous medical modalities employed in the management of oral submucous fibrosis, occasionally surgical intervention becomes inevitable. Various surgical approaches have been used to reconstruct the surgical defects following excision of fibrous bands. In the present study, we performed surgery on 10 patients with bilateral fibrous band and Palatal mucosal graft was used to fill the defect with stable functional result after one year of treatment. Active physiotherapy was advised to the patient for the 6 months and patient's satisfaction rate was high with no post-operative complications at donor site and recipient site.

Keywords: Oral submucous fibrosis, palatal mucosal graft, surgery, trismus.

INTRODUCTION

Oral submucous fibrosis (OSMF) is an insidious chronic progressive disease of the oral cavity. It is globally accepted as an Indian disease, has one of the highest rates of malignant transformation amongst potentially malignant oral lesions and conditions. The condition has also been described as idiopathic scleroderma of mouth, idiopathic palatal fibrosis and sclerosing stomatitis.[1] The hallmark of the disease is the oral submucosal layer which becomes stiff due to the formation of fibrotic bands in the cheek, ultimately leading to reduced mouth opening and trismus. The condition has a multi-factorial origin and it is commonly associated with chewing of areca nut (betel nut) causing juxtaepithelial hyalinisation and muscle fibrosis.[2] The early form of the disease can be treated by medicinal means, however, advance form needs

surgical excision of the fibrotic tissue bands. The defect created due to the excision needs to be repaired by various grafts including split thickness skin grafting, bilateral nasolabial flaps, palatal island flaps, tongue flaps, buccal fat pad graft and temporalis muscle flap graft.[3]

Mucosal free grafts can be successfully applied in many surgical approaches related to the oral cavity. Palatal graft is preferred in some surgical interventions due to contracture resistance and ease of use [4]. This study aims at investigating the effectiveness of palatal mucosal graft in oral submucous fibrosis, as an alternative to the conventional method.

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MATERIAL AND METHODS

A total of 10 patients of oral submucous fibrosis were surgically treated at Dr. Prit's cosmodent centre. All patients were informed about the procedure by the operator. All patients signed an informed consent form before surgery. All these patients had oral submucous fibrosis with interincisal distance not more than 20 mm. Patient's age, sex, etiology, history of tobacco chewing, and preoperative mouth opening were documented. Patients were followed regularly for one year and maximum interincisal distance was measured.

SURGICAL TECHNIQUE

The operation was performed under general anesthesia with nasal intubation. Under all aseptic condition and precaution, local anesthesia with 2% adrenaline was infiltrated in the buccal mucosa from corner of mouth to the retromandibular region. Then buccal mucosa was incised transversely with the help of electrocautery from the retromolar triangle region till the anterior part buccal mucosa depending upon the location of the fibrotic bands. Mouth opening was checked & intra-operative inter incisal distance was more than 30-35 mm in all patients immediately after release of bands. The maxillary and mandibular third molars were extracted. Then Palatal mucosal grafts were harvested from the hard palate using a BP handle and surgical blade no.15. Palatal mucosa with the underlying fat layer was removed exposing the periosteum of the palate and hemostasis was achieved with a unipolar electrocautery. Grafts were taken from the right and left sides of the hard palate, leaving the area at the mid-palatal raphe intact. Right and left grafts were removed from the donor site and sutured at the site of defect with 4-0 vicryl sutures. The graft was cut to the correct shape, sutured in place. The donor site was covered with antibiotic tulle dressing and a prosthetic stent was placed on palate to prevent any food lodgment and discomfort to the patient. Patients were advised to eat soft diet and to have plenty of fluids for 5-7 days after surgery. Proper antibiotic cover with analgesics was given to the patient. Intra-oral irrigation was done with Betadine 2% or Chlorhexidine 0.2 w/v mouthwash. Palatal stent was removed after 3 days.



Fig 1: [A] Pre-operative mouth opening, [B] Intra-operative mouth opening, [C] Mouth opening after 3 days of surgery.



Fig 2: After creation of surgical defect in OSMF surgery, filling the defect with palatal mucosal graft on right and left buccal mucosa with presence of dressing on the palatal donor site.



Fig 3: Post-operative mouth opening after active physiotherapy. [Result: After 12 months.]

Active Physiotherapy was started from the 5th postoperative day & patients were instructed to continue the physiotherapy themselves for up to 6 months to prevent relapse. Special attention was given on mouth exercises with the use of Hester's jaw opener and Ice-cream sticks. Targets were set for the patients to attain specific mouth openings till

certain days to encourage patient. Mouth opening was gradually increased and the wound was evaluated at regular intervals.[Figure-1,2.]

RESULTS

A total of 10 operations in 10 patients (2 women and 8 men; mean age 42.5 years, range 25 – 60 years). Adequate mouth opening was achieved & maintained with no intraoral scar. Healing was excellent without evidence of infection, dehiscence or necrosis. The palatal mucosal grafts were satisfactory in terms of mucosal color, contraction and ease in use. All the patients were satisfied with the resulting mouth opening, healing. No post operative complications were noticed at the donor site and the recipient site.[Figure-3.]

DISCUSSION

Oral submucosal fibrosis is a well known clinical entity since the time of Sushruta as 'vidari' [5]. This disease is predominantly found in the Indian subcontinent. Long standing oral sub mucous fibrosis is a debilitating disease. It presents with difficulty in mouth opening with poor oral hygiene and its complications. Conservative measures like local steroids, hyaluronidase injections, vitamin supplements and jaw exercises have poor results.[6] Simple release of fibrosis and skin grafting showed recurrence due to scarring and graft contraction. [7,8,9] Split-skin grafting has been tried but it has a high failure rate as fibrotic areas have less vascular supply. Skin is not suitable for grafting in elderly people due to atrophy and inelasticity.[10]. A mucosal graft is the best treatment for oral submucous fibrosis, as it is an ideal graft to cover the oral mucosa, but is limited by the quantity of oral mucosal available for grafting. However palatal mucosa graft has the ease of use and it is not losing its integrity during grafting due to its thickness [11]. Palatal mucosa is resistant to contracture [12,13,14]. Also it is rapidly vascularized after grafting as it has a keratinized epithelium [14]. Use of bilateral tongue flaps is a very morbidity associated procedure and requires flap division at a second stage.[9] Tongue flaps are bulky and when used bilaterally cause disarticulation, dysphagia and increased chances of aspiration. In addition, the tongue is involved with the disease process in 38% cases.[15] The use of bilateral, small, bipaddled radial forearm flaps for

reconstruction of bilateral buccal defects requires two flaps with two microsurgeries. The procedure is more time consuming and technically demanding. Island palatal flap based on the greater palatine artery is possible only in some cases.[16] Island palatal flaps again have limitation that they fail to reach posteriorly. [17] Buccal fat pad may also be used to cover the defects after excision of the fibrous bands. Harvesting of buccal pad fat is easy but the anterior reach of the flap is often inadequate and can not be used for larger defects.[18] It has been seen that palatal mucosa graft gives better results than buccal mucosa graft. We have noticed that after the use of buccal fat and other grafting materials in the defect created in the Oral Submucous Fibrosis surgery, after healing of the grafting material, it has to be slightly trimmed with surgical blade or electro-cautery as it interferes with the occlusion and leads to injury to the buccal mucosa. In a study, few authors used inferiorly based Nasolabial flaps for the reconstruction of mucosal defects after excision of fibrous bands but presence of extraoral scar after complete healing was a problem. [19]

In another study, the author used the reversed dermal grafts which had the closest appearance to mucosa, apart from palatal mucosal grafts. severe contraction was observed with the reversed dermal grafts; this may be the result of prolonged inflammation and delayed epithelialization.[20] In terms of mucosal appearance and functioning, the order from best to worst was palatal mucosal, reversed dermal, meshed skin, dermal, and full-thickness skin grafts. In terms of the smallest amount of contraction, the order was full-thickness skin, palatal mucosal, meshed skin, dermal, and reversed dermal grafts. [20]

CONCLUSION

Surgical correction of oral submucous fibrosis offer better outcome than conservative management. The choice of surgical procedure depends on patient profile. Free palatal mucosal grafts may be used in oral submucous fibrosis, due to ease of application and rapid vascularization but its availability is limited. In summary, proper removal of graft from palate and removal of the fibrotic bands followed by active physiotherapy for six months are the factors

which increase success in our surgical method used in treatment of Oral Submucous Fibrosis.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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