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Surgical management of recurrent oral submucous fibrosis (a collagen metabolic disorder due to the continuation of habitual factor) by split thickness skin graft from thigh: A clinical challenge

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Abstract:

Usage of betel quid with areca nut is commonly seen in South Asian population. Most important premalignant condition, oral submucous fibrosis, arises due to this habit. The pathognomonic feature is characterized by higher intensity of submucosal collagen, inflammatory process, and palpable fibrotic bands intraorally, restricting the mouth opening. Management of this condition is of either medical or surgical means. Various grafts in surgical method are palatal island flaps, temporalis muscle flap graft, split-thickness skin graft, buccal fat pad graft, bilateral nasolabial flap, and tongue flap. Most serious complication of oral submucous fibrosis is oral carcinoma. Common site of involvement is of buccal mucosa which sometimes might extend up to pharynx. In our case report, we present a 35-year-old male with oral submucous fibrosis, previously treated by buccal fat pad and coronoidectomy, which recurred due to habits, currently managed by split-thickness graft from thigh. Postoperative outcome was good.

Key words: Betel quid, oral submucous fibrosis, premalignant condition, split-thickness skin graft

Oral submucous fibrosis, a premalignant condition, characterized by inflammation, rigidity of the oral mucosa, palpable fibrotic bands intraorally, with possible extension up to pharynx, is commonly witnessed in the South Asian population due to the habit of betel quid containing areca nut. This condition which has a pathognomonic feature of restricted mouth opening, sometimes, may lead to oral carcinoma.^[1] The severity of the disease is characterized by the nature, frequency, and duration of the habit. Treatment methods may include medical, surgical, or a combination. In case of surgical method, various modalities include tongue flap, temporalis muscle flap, buccal fat pad flap, split-thickness skin graft, bilateral nasolabial flap, and palatal island flap. Irrespective of the procedure, ultimate aim is to restore the impaired function such as limited mouth opening.^[2] In this article, we present a case of a 35-year-old male with oral submucous fibrosis, previously treated surgically by means of buccal fat pad and coronoidectomy. We managed this clinical challenge by surgical

alternative means of split-thickness skin graft from thigh and also patient counselling which was emphasized on discontinuation of the habit. The patient had also highlighted that the recurrence was due to continuation of the habit, irrespective of the treatment done.

CASE REPORT

A 35-year-old male presented to our Department of Dentistry and Faciomaxillary Surgery with a complaint of burning sensation in the buccal mucosa during spicy food intake for the last

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1 year. Patient was conscious, oriented, and afebrile. Vitals were stable. The absence of systemic problems was reported. On eliciting history, the patient had the habit of chewing powdered areca nut four to six times a day for the past 3–4 years. Clinical examination revealed inflammation, fibrosis, palpable fibrotic bands in buccal mucosa, paleness, rigidity, absence of tongue papillae, erosion of the angle of mouth, thickened lips, limited mouth opening of <20 mm, and blanching [Figures 1 and 2]. An incisional biopsy was performed and the specimen was sent for histopathological examination which revealed increased vascularity, edema, increased fibroblasts, and inflammatory infiltrate comprising eosinophils and neutrophils, suggesting oral submucous fibrosis. Previous surgical history implied that the patient had undergone surgical correction of the same condition before 5 years by means of buccal fat pad and coronoidectomy. Even after the procedure, the patient has continued the habit of chewing areca nut. The treatment plan included preoperative counseling, surgery, and postoperative counseling so that patient might be educated about the possible complications such as oral carcinoma, arising due to the absence of discontinuation of habit. Oral prophylaxis was done. Under general anesthesia, patient was placed in supine position under nasotracheal intubation. Extraoral and intraoral painting was done with 5% povidone iodine solution. Patient draped sterile. Infiltration 2% lignocaine with adrenaline was administered. Protection of underlying structures was of much importance during planning for excision of fibrotic bands with surgical blade number 15 transorally. Bleeding was controlled after the surgical dissection at the level of buccinator muscle, and the edges of the wound were prepared for placement of the graft [Figure 3]. Graft harvest was planned from left thigh, of which 5 cm × 5 cm split-thickness skin graft was planned [Figure 4]. At the level of subcutaneous fat, sharp dissection was done. Hemostasis was achieved through electrocautery and appropriate pressure. To minimize the occurrence of hematoma and to promote the vascularization, perforations were made in the graft. The graft was sutured to the specific site with 4-0 vicryl sutures [Figure 5]. Hemostasis was achieved. Soon after the procedure, irrigation was followed by extubation and thorough monitoring of the patient in the intensive care unit. Postoperative mouth opening was of 35 mm [Figure 6]. Recovery was uneventful. The supportive therapy consists of appropriate diet, oral physiotherapy comprising jaw opening exercises and counseling regarding quitting the habit.

DISCUSSION

Inflammation and fibrosis are the two main characteristic features of the chronic debilitating disease, oral submucous fibrosis. This multifactorial disorder affects 0.5% of Indian population targeting males at the ratio of 4.9:1. Usually seen in South Asian population, it leads to limited mouth opening by involving buccal mucosa. Increased concentrations of areca nut are found in mawa, pan masala, and gutkha.^[3] Symptoms include burning sensation during spicy or hot food

intake, marble-like appearance of buccal mucosa, blisters, blanching, ulcers, restricted tongue, difficulty in speech, mastication, swallowing (esophageal fibrosis), rubbery or



Figure 1: Preoperative extraoral view depicting restricted mouth opening



Figure 2: Preoperative intraoral view depicting fibrotic white bands (arrowhead)

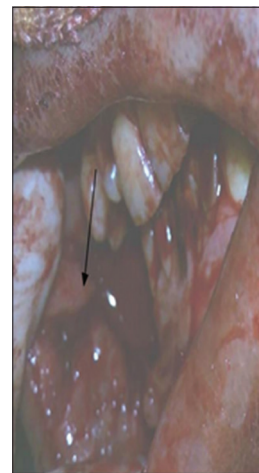


Figure 3: Intraoperative view depicting release of fibrous bands (arrowhead)

thickened lips which are difficult to retract or evert, thickened, and rigid cheeks which fail to give the puffy appearance, depapillation of the tip and lateral margins of the tongue, floor of the mouth, sometimes shrunken uvula, absence of normal

gingival stippling, in rare cases - hearing impairment due to Eustachian tube blockage and jaw movements.^[4-6] Three stages of this condition are of stomatitis, fibrosis, and sequelae. Appearance of erythema and vesicles is seen in stomatitis stage. Fibrosis is observed during healing of ulcers which are formed due to rupture of vesicles. Severity of the disorder determines the treatment plan. Upregulation of collagen synthesis and downregulation of collagenase production are facilitated by fibroblast proliferation, which in turn promoted by fibrosis during formation of growth factors and cytokines by inflammatory cells. Mild stage might be reversible depending on the patient habits. Mild to moderate stage includes cessation of habit, restoration of the lost function, and surveillance of malignancy.^[1,6-8] Histopathological features include chronic inflammatory infiltrate comprising lymphocytes, plasma cells, and macrophages along with epithelial thinning (juxta-epithelial inflammation), saw tooth rete ridges, liquefaction degeneration of basal layer, hyperkeratosis, fibrosis and inflammation of minor salivary glands, followed by muscle degeneration, hyalinization of subepithelial stroma and sometimes loss of rete ridges.^[1,9-12] Medical therapy consists of hyaluronidase, hydrocortisone, collagenase, chymotrypsin, triamcinolone and a combination of placental extracts, micronutrients, minerals, carbon dioxide laser, lycopene, interferon gamma, hyalase, turmeric, immunized milk, pentoxifylline steroids, vitamins, and iron supplements. Even though the usage of glucocorticosteroids was effective in minimizing the inflammatory factors by their apoptotic property, relapse was evident in the later stages. Due to antioxidant, anti-inflammatory, and proapoptotic properties, curcumin usage had been witnessed.^[5,13-15] Surgical modalities are of excision of the fibrotic bands and replacement with temporalis muscle flap, tongue flap, split-thickness skin graft, buccal fat pad, bilateral nasolabial flaps, and palatal flaps.^[1,16-18] In our case, recurrence was a major challenge to be dealt surgically. Early detection and management of the malignant transformation are facilitated by surgical correction of this condition, thereby relieving trismus. Complication such as intraoral hair might be observed which can be gradually minimized by frequent shaving. After 1 year postoperative period, mouth opening was of predictable accuracy. Oral physiotherapy helps a lot in the active and passive range of motion jaw opening exercises using ice cream sticks and acrylic carrots and also local heat therapy and oral stent.^[1,19,20] If this condition is untreated, it may progress to squamous cell carcinoma at a later stage.



Figure 4: Split-thickness skin graft from right thigh

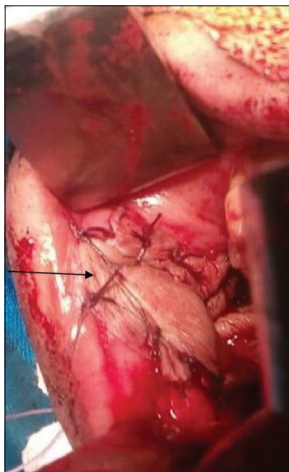


Figure 5: Intraoperative view depicting graft in place (arrowhead)



Figure 6: Postoperative clinical view

CONCLUSION

Diagnosis of oral submucous fibrosis depends on the combined habitual, clinical, and histopathological manner. Prevention of high-risk malignancy transformation can be monitored through periodic biopsies of suspected region. Most important role in the patient's education concerning the premalignant conditions and lesions is handled by the dental surgeon. General and

oral health are affected in oral submucous fibrosis due to difficulty in eating, thereby indirectly limiting the quality of life. More success and decreased patient discomfort are the two factors which decide the specific treatment plan. Initial stage is managed medically whereas advanced or recurrent stages are managed surgically in conjunction with appropriate patient counseling, awareness, and education. However, good prognosis and outcome are favored by early diagnosis of the disorder.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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