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2 Layered Closure by Buccal Fat Pad and Collagen Sheath in Severe OSMF: A Case Report

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ABSTRACT

Oral Submucous fibrosis is a disease common among developing countries of South-east Asia. The condition was first demonstrated by Schwartz in 1952, and Pindborg et al have done extensive research to explain the pathophysiology of the disease. This potentially malignant condition once initiated cannot be reversed completely and the long standing cases suffer from altered nutrition status, poor intraoral hygiene and disarticulation. Hence, this disease should be dealt with radical surgical intervention and reconstruction with the appropriate method to prevent recurrence and increase the quality of life for the patients.

Keywords: Oral Submucous fibrosis, potentially malignant condition, Reconstruction

INTRODUCTION

Oral Submucous fibrosis is a disease common among the Indian subcontinent. The condition was first demonstrated by Schwartz in 1952, and Pindborg et al found a prevalence of 0.2-0.5% in India. The most common factor that is isolated in the pathogenesis of this condition is the consumption of areca nut (the fruit of the Areca catechu) commonly known as betel nut or supari. The contents of this areca nut include Arecoline, tannins and alkaloids. This arecoline along with the tannins has been found to be involved in the fibroblast production (finally producing Collagen) which is resistant to collagenase ultimately leading to extensive fibrosis. Various surgical reconstructive methods have been employed in the treatment of severe OSMF which include the Buccal fat pad, Nasolabial flap, Platysma flap or distant flaps.

Here, we report a case of severe OSMF treated with fibrotomy and reconstruction with Buccal fat pad and collagen sheath.

CASE REPORT

A 48 year old patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of reduced mouth opening since 2 years. On further questioning, the patient gave a history of supari chewing since 20 years regularly (8 packets a day) in divided increments. Also, the patient noticed progressive reduction in mouth opening since 5 years which decreased to the present size.

On extraoral examination (fig 1), there were no gross changes seen in the face apart from mildly sunken cheeks and inability to open mouth wide.

On intraoral examination (fig2), the patient had a maximum mouth opening of 12 mm. The fibrotic bands were palpable extending from the Retromolar pad involving the anterior faucial pillar to the corner of mouth

bilaterally. The left side was involved more than the right side and confirmed by the patient's history of keeping the quid pouch on the same side.

The patient gave history of treatment with Triamcinolone injections, Lycopene tablets and also injections of placental extracts but that did not significantly help in ameliorating these symptoms and hence a surgical plan of Fibrotomy with reconstruction was planned.

The choice of flap ranged from Nasolabial, Platysma and buccal fat pad but as the patient denied any extraoral incisions so, Buccal fat pad was chosen as the reconstructive strategy.

Fig 1: Extraoral photograph of the patient

Fig 2: Preoperative mouth opening of 12mm

SURGICAL TECHNIQUE

In the operating room, the patient was induced with fibre-optic Nasotracheal intubation. After proper scrubbing, painting and draping the patient, an incision was given 1 cm above the occlusal plane taking care not to damage the Parotid duct and the associated nerves and vessels. After layerwise dissection, fibrotomy was done bilaterally along with extraction of all the third molars. The intraoperative mouth opening of 40mm (fig 4) was achieved with the help of jaw stretchers and coronoidectomy was done. After achieving haemostasis and taking care of the buccal vessels, buccal fat pad was harvested (fig 3) with blunt dissection and brought into the surgical field. The buccal fat pad was sutured with the surrounding mucosa bilaterally with 3-0 resorbable polyglactin sutures. Also, to provide a 2 layered closure, a collagen sheath (fig 5) was used and placed over the primary buccal fat- mucosa interface and was sutured with the surrounding mucosa. A paraffin soaked gauze was placed bilaterally to secure these layers and to prevent the dead space formation.

Fig 3: Harvesting the buccal pad of fat

Fig 4: Mouth opening of 40mm intraoperatively

Fig 5: Placement of Collagen sheath

DISCUSSION

Oral Submucous Fibrosis is a severe, insidious, chronic, progressive disorder affecting the oral cavity and sometimes, oropharynx with the clinical manifestation of reduced mouth opening or trismus.[1,3]Clinically the disease is characterised by reduction in mouth opening, loss of pigmentation, blanching, fibrous bands palpable starting from the faucial pillars, soft palate, pterygomandibular raphe, progressing anteriorly to the buccal mucosa. In severe cases, it may progress to reduction in movements of the tongue or the ear tube abnormalities(Eustachian tube dysfunction).

This potentially malignant condition once initiated cannot be reversed completely, long standing cases suffer from altered nutrition status, poor intraoral hygiene and dysarticulation[1]. The malignant potential of OSMF ranges from 8–33%[2,7]. The malignancy associated with oral submucous fibrosis is mainly squamous cell carcinoma seen on buccal mucosa at the molar and retro molar region. This is due to secondary factors like chronic irritation of the genetically altered buccal mucosa and pericoronitis around third molar.

The etiology of OSMF is difficult to establish. However, a significant association is seen with areca nut(supari or betel nut) chewing. Moreover, factors like genetic etiology, capsaicin, deficiency of nutrients (macro and micronutrients like zinc and iron) may be some other etiological factors [7,8]. With that said, in developing countries like the Indian subcontinent, there are compelling evidences for areca nut chewing as the single most common etiology for this dreadful condition.

Many modalities have been tried for the reversal or rather treatment of this condition ranging from medical management to radical surgical treatment. The medical treatments are mainly symptomatic and help preventing further progression of the disease. The surgical treatment has remained the mainstay treatment of OSMF since time immemorial[10]. The surgical protocol includes fibrotomy, coronoidectomy and removal of all third molars[10]. As the excision of fibres and healing by secondary intention paves way for further fibrosis, reconstruction of the existing defect has become necessary to prevent recurrence of the existing condition. For the reconstruction of these defects, a number of interpositional flaps have been demonstrated which includes Bichat's buccal fat pad, nasolabial flap, platysma flap, tongue flap and palatal vault flap[2,9,10]. Apart from these regional flaps, various distant microvascular flaps have also been propagated like radial forearm flap and anterolateral thigh flaps[6,7].

The Buccal Pad of fat, also known as the Bichat fat pad(9) has become an accepted graft for covering intraoral defects in recent years in which there is no extraoral scar. The first published use was given by Egyedi as a pedicled graft for the closure of oral defects. Further, Yen[11] described the use of the BFP for OSMF. It is a lobulated mass that is easily accessible from the same incision and mobilized easily into the surgical site. Approximately, the volume of buccal fat pad is 9.6 mL(range 8.3 to 11.9 mL)[12] and closure of defects upto 5 cm with a BFP alone have been advocated without compromising the blood supply.

The BFP has adequate blood supply through the terminal branches of the facial artery (angular artery), deep(internal) maxillary artery, superficial temporal artery and venous drainage is by an abundant net of vascular anastomoses following the mentioned arteries. The only limitation of the flap is the inability of closure of anterior

defects in OSMF cases for which an additional strategy is required for coverage and hence in this case, collagen sheath was used.

Mehrotra et al[14] performed a study of 100 patients with OSMF. Group I used a BFP graft, group II used a tongue flap, group III a nasolabial flap, and group IV had a split skin graft for reconstruction of the mucosal defect. Statistically there was no relevant difference (p value > 0.05) among these 4 groups. The total score for esthetics, and function at 1 month after surgery was highest (11.29) in patients with Buccal fat pad reconstruction (group I), indicating better results than the other three methods.

CONCLUSION

This study highlights the importance of surgical line of treatment for improved mouth opening in severe cases of OSMF. The buccal flap proved a good option followed by placement of collagen sheath to act as a barrier to inner layer. However, long term studies and evaluation of different parameters will be crucial to establish a final decision regarding the use of various flaps.

Conflict of Interest: None

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