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Surgical Management of OSMF With Coronoidectomy and Buccal Fat Pad Replacement - A Case Report

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Oral submucous fibrosis is a chronic, progressive, disabling and scarring disease that affects the entire oral cavity, sometimes the pharynx, and rarely the larynx which predominantly affects the people of southeast Asia. It is characterized by blanching and stiffness of the oral mucosa, which causes progressive limitation of mouth opening and intolerance/ burning sensation to hot and spicy food and ulceration and pain. . Numerous non-surgical and surgical methods have been employed for treatment of this debiliting disease. In this article a case is being reported with severe oral submucous fibrosis which is surgically managed with coronoidectomy and buccal fat pad replacement.

Key words: Stiffness, surgical management, coronoidectomy,buccal fat pad replacement

Oral submucous fibrosis is a precancerous condition. Schwartz (1952) first described this condition[1]. Oral submucous fibrosis is a chronic, progressive, disabling and scarring that affects the entire oral cavity, sometimes the pharynx, and rarely the larynx which predominantly affects the people of southeast Asia.

It was Joshi from Bombay, India who coined the term Oral Submucous Fibrosis in 1953 for this precancerous condition. It is characterized by blanching and stiffness of the oral mucosa, which causes progressive limitation of mouth opening and intolerance/burning sensation to hot and spicy food and ulceration and pain. The main etiology is attributed to chronic use of betel nuts/ areca nuts along with betel leaves and gutkha and/ or pan masala.

Based on clinical and histological features JV Desa (1957) classified OSMF in three stages[2] namely Stage I – Stomatitis and vesiculation, Stage II – Fibrosis & Stage III – As its sequale. Pindborg JJ in 1989 also divided OSMF in three stages[3]. Lai DR divided OSMF into 4 groups in 1995 based on interincissal distance[4] where Group D consists of patients with mouth opening less than 20 mm.

The treatment being mostly symptomatic various surgical treatments have been described for improvement of mouth opening along with cessation of the habits and antioxidant therapy .In this article a case is reported where combined techniques of buccal fat pad graft and coronoidectomy are done to surgically treat a severe OSMF patient which can be classified as Stage II and Group D based on the amount of fibrosis & limited mouth opening.

Procedure

A 35 years old patient reported to Sree Balaji Dental College outpatient department with severe OSMF. Patient had a chronic history of using gutkha for past 15 years. He stopped the habbit for past 1 month.His chief complaint was burning sensation in the mouth while having hot/spicy food and limited mouth opening. On clinical examination passive mouth opening was found to be 10 mm and on palpation circumoral fibrous bands are appreciated. Vertical fibrous bands were present from the commisure of lips till the retromolar pad area and including the pterygomandibular raphe and anterior faucial pillars of tonsils bilaterally. Fibrosis was also found in the lower labial mucosa.

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Under general anaesthesia nasoendotracheal intubation was done using a fibreoptic bronchoscope. LA with adrenaline (1:200,000 epinephrine) was administered at the surgical site. Bilaterally incisions were placed on the buccal mucosa from the corner of the mouth anteriorly extending posteriorly upto the pterygomandibular raphe or anterior fauscial pillar depending on the location of fibrous bands present. To avoid injury to Stenson's duct incisions were placed at the level of occusal plane. Blunt dissection was carried out to relieve the fibrous bands and mouth opening was increased using a Fergusson mouth gag. Incision was placed on the labial mucosa and the fibrous bands were relieved. The coronoid processes were approached from the same incision and bilateral coronoidectomy was done. The Buccal fat pad was approached through the posterio superior part of the existing incision and was teased out gently and carefully until a

sufficient amount was obtained to cover the defect without tension. The buccal fat pad was secured to the wound by interrupted sutures using 3-0 vicryl.

Copious saline irrigation was done. Rest of the wound closure was done using 3-0 vicryl.

Postoperative condition

Post operative medication included intravenous administration of Cefixime(1000mg) twice daily, Metronidazole(500 mg) twice daily, Dexamethasone (8mg) twice daily in a tapering dose, Voveran (75mg) twice daily and Ranitidine (50mg) twice daily for the next 3 days. Following this the patient was prescribed oral administration of antibiotics and anti-inflammatory drugs and analgesics for 1 week. The patient was on liquid diet through Ryle's feeding tube for 3 days. Liquid diet was continued for 1 week. Oral hygiene was maintained by using metrogyl mouth wash for 2 postoperative days followed by chlorhexidine mouth wash from 3rd day onwards. From the 3rd postoperative day daily mouth opening exercises were adviced to patient. Upto 1 week Fergusson's

mouth gag was used to maintain the mouth opening every alternative days. After 1 week postoperative healing was found to be good. Patients passive mouth opening after 1 week of surgery was found to be 27 mm and active mouth opening with a mouth gag was 28mm.

Patient is under constant review at present and to be reviewed upto next 24 months.

DISCUSSION

Oral submucous fibrosis is a very common premalignant lesion. It was first described by "Sushruta" as 'vedari' in literature[5]. It is most common among the population of southeast asia. Several etiological factors are found. The main causative agent was attributed to betel nut chewing habit. Other etiological factors include gutkha chewing, pan chewing and use of tobacco. Lack of vitamins and use of spices poses risk factors for osmf. The initial clinical symptoms experienced by the patients are intolerance and irritation in the oral mucosa to hot and spicy foods. This is followed by chronic erosions and ulcerations. Followed by this the oral mucosa gets blanched and loses its elasticity. In next stage fibrosis takes place. Most commonly vertical fibrous bands appear in the buccal mucosa. The areas involved may be buccal mucosa,labial mucosa,tongue and it even extends upto the retromandibular pad,soft palate, pterygomandibular raphe and the anterior faucial pillars of the tonsil. Ultimately it forms a fibrotic ring around the entire rima oris leading to trismus. Ultimately it may lead to cancer[6].

Several treatment modalities are described for treating osmf. The early stage of osmf if diagnosed can be reversed by ceasation of the habits thus nullifying the etiological factor. Antioxidant therapy can also be used as described in literature. In the moderate state where fibrosis has begun the treatment option shifts to using medicines like glucocorticoids and corticosteroids which benefits the patient mostly because of their anti-inflammatory actions[10]. The conservative management also includes vitamins, iron supplements, intralesional injection of yaluronidase, placental extracts and steroids. But the disadvantages of these treatments are they give temporary relief, repeated injection and chemical irritation may lead to increased fibrosis. Surgery is opted only in the severe stage of osmf where due to fibrosis and trismus mouth opening has been reduced to <16 or 16-25mm.

Simple incision for releasing the fibrous bands is not sufficient because of scar formation and contracture. So several methods are found to fill the wound.

The buccal fat pad (BFP) is a supple and lobulated mass which is easily accessible and mobilized. It is a well accepted graft for defects after incision of fibrotic bands in the surgical management of oral submucous fibrosis (OSMF). Yeh[7] was the first to reort the use of BFP for the wound created during surgery of OSMF and got good results. Mehrotra *et al.,*[8] conducted a study on 100 patients with OSMF in the Indian population, randomly allocated to different surgical groups, with 25 patients per group. After incision of fibrotic bands, group I was treated with BFP graft, group II with tongue flap, group III with nasolabial fold flap, and group IV with split skin graft. They did not find any significant statistical data supporting buccal fat pad replacement being better than other surgical methods. Whereas Robit Sharma *et al.,*[9] conducted a clinical study in which they experienced better results with buccal fat pad graft with respect to postoperative mouth opening in a duration of one year post operative review.

BFP can be easily teased out and can be easily approached through the postero superior part of the same horizontal incision. The advantages of BFP is it is easily available, can be mobilized easily and the greatest advantage being no morbidity to secondary donor site and no second surgical procedures is necessary for debulking the graft as in full thickness skin grafts. Recurrence rate of BFP is less. The harvesting technique is simple since it is easily accessible from the same horizontal incision. Epithelization over the buccal pad of fat takes place by the 7th postoperative day and is completed by the end of 4th week[5]. But only disadvantage being sometimes it would not be sufucient for big wounds. Otherwise BFP proved a wide range of success in treating OSMF[15,16].

Several flaps can be used for the surgical management of osmf with their advantages and disadvantages. Nasolabial flaps can be used at the cost of compromising but acceptable facial scars. Palatal flaps can be used but wide area of raw palate is exposed during bilateral palatal flaps

and 2nd molars are needed to be extracted to fix the flap with buccal mucosa without tension. Full thickness skin grafts can also be used like Bilateral radial artery forearm free flaps and the bi-paddled radial forearm flap[11,12]. They need microvascular expertise and debulking of the grafts in a 2nd surgery. Several failures and recurrence have also been registered. Even superficial temporal fascia flap with split skin graft has been used with a good success rate but again debulking procedure is needed in a 2nd surgery. Intralesional Hyaluronidase injections showed good results but with short term effects.[13] Several reports are available supporting coronoidectomy and tempoaralis myotomy for surgically improving the mouth opening in osmf cases. [14]

CONCLUSION

All the management of osmf has found to be palliative treatment to treat the symptoms since once fibrosis takes place in osmf the condition becomes irreversible. Medical management of mild stage of osmf has a good prognosis. Surgery is only necessary when a severe stage of osmf with very less mouth opening is present. In this reported case considering the severity surgery was planned as the method of choice for treatment. Considering the failure rates and recurrence rates while treated with full thickness skin grafts or split skin grafts and the success rate of BFP , the technique of choice used for this case with coronoidectomy followed by buccal fat pad graft to get a successful result and the outcome proved to be good.

REFERENCES

1. J. Schwartz, "Atrophia idiopathicamucosa oris," in Proceedings of the 11th International Dental Congress, London, UK, 1952.
2. Tupkari JV, Bhavthankar JD, Mandale MS. Oral submucous Fibrosis (OSMF). A study of 101 cases. *Journal of Indian Academy of Oral Medicine and Radiology* 2007;**19**(2): 311-18
3. Pindborg JJ, Sirsat SM: Oral submucous fibrosis. *J Oral Surg* 1966; **22**:764.
4. Ranganathan K, Gauri Mishra. An overview of classification schemes for oral submucous fibrosis. *Journal of Oral and Maxillofacial pathology* , 2006;**10**(2):55-58
5. Agrawal Deepak , Shrivastava B M, Newaskar Vilas , Waskle Rajesh , Maheshwari Bharat, Rawat Amit Management of Oral Submucosal Fibrosis with Fibrous Release and Defect coverage with Buccal Pad of Fat and Collagen Sheeth; *National Journal of Medical and Dental Research,* 2012: **1**(1): 14-18
6. D. K. Daftary, "Oral precancerous lesions and conditions of tropical interest," in Oral Diseases in the Tropics, S. R. Prabhu, D. F. Wilson, D. K. Daftary, and N. W. Johnson, Eds., p. 119,Oxford University Press, Oxford, UK, 1992.
7. Yeh CJ. Application of the buccal fat pad to the surgical treatment of oral submucous fibrosis. *Int J Oral Maxillofac Surg* 1996; **25**:130.
8. Mehrotra D, Pradhan R, Gupta S: Retrospective comparison of surgical treatment modalities in 100 patients with oral submucous fibrosis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009; 107:e1.
9. Rohit Sharma, G. K. Thapliyal, Ramen Sinha, P. Suresh Menon; Use of Buccal Fat Pad for Treatment of Oral Submucous Fibrosis; *J Oral Maxillofac Surg* 2011.
10. S. R. Aziz, "Oral submucous fibrosis: case report and review of diagnosis and treatment," *Journal of Oral and Maxillofacial Surgery,* 2008; **66**(11): 2386–2389.
11. J. T. Lee, L. F. Cheng, P. R. Chen et al., "Bipaddled radial forearm flap for the reconstruction of bilateral buccal defects in oral submucous fibrosis," *International Journal of Oral and Maxillofacial Surgery,* 2007; **36**(7): 615–619.
12. S. F. Yang, Y. S. Hsieh, C. H. Tsai,M. Y.Chou, and Y.C.Chang, "The upregulation of type I plasminogen activator inhibitor in oral submucous fibrosis," *Oral Oncology*, 2003; **39**(4): 367-372.
13. X. Jiang and J. Hu, "Drug treatment of oral submucous fibrosis: a review of the literature," *Journal of Oral and Maxillofacial Surgery,* 2009; **67**(7): 1510-1515.
14. Canniff J.P., Harvey W., Harris M. "Oral submucous fibrosis: its pathogenesis and management". *Br Dent J,* 1986; **160**: 429-434.
15. Alkan A, Dolonmaz D, *et .al*,The reconstruction of oral defects with buccal fat Pad" Swiss med wkly; 2003; **133**(33-34): 465-70
16. Poeschl PW, Baumann A, Russmueller G, Poeschl E, Klug C,Ewers R. Closure of oroantral communications with Bichat'sbuccal fat pad. *J Oral Maxillofac Surg* 2009; **67**: 1460-6.