

Surgical management of oral submucous fibrosis in an edentulous patient: A procedural challenge

Department of Oral and Maxillofacial Surgery, K.M.Shah Dental College and Hospital, Sumandeep Vidyapeeth, Piparia, Vadodara, Gujarat

Amit D. Mahajan, Rohit J. Tatu, Nithin A. Shenoy, Vaibhav S. Sharma

ABSTRACT

Prosthetic rehabilitation of patients with oral submucous fibrosis (OSMF) offers a formidable challenge due to restricted mouth opening. Physiotherapy via interocclusal force application is the mainstay for surgical treatment. Herein, we report a case of a man with OSMF requiring construction of dentures. The main objective was to deliver intra-operative and post operative inter occlusal forces without fracturing the mandible and thus providing rehabilitation to the patient prosthetically. An edentulous male patient reported with grade IVA OSMF to our department to improve his mouth opening for denture construction. The patient was managed successfully using surgical sectioning of the fibrous bands. Inter occlusal force application for mouth opening during the operation and post operative physiotherapy were facilitated using custom-made occlusal splints. Satisfactory mouth opening was achieved, with good healing and no event of infection or fracture. Here, we propose an easy method to achieve adequate mouth opening in an edentulous patient of OSMF, with atrophic ridges; without the chances of fracture of either jaw.

Key words: Edentulous patient, fibrous bands, inter-occlusal force, mouth opening, occlusal splints, oral submucous fibrosis

Address for correspondence:

Dr. Amit D Mahajan
Department of Oral and Maxillofacial Surgery, K.M. Shah Dental College and Hospital, Sumandeep Vidyapeeth, Waghodia Road, Piparia-391760, Vadodara, Gujarat
E mail: dramitmahajan@indiatimes.com

INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, debilitating disease, characterized by inflammation and progressive fibrosis of the submucosal tissues. It results in marked rigidity and an eventual inability to open the mouth.^[1,2] The buccal mucosa is the most commonly involved site, but any part of the oral cavity can be involved, including the pharynx.^[3]

Good mouth opening is a pre requisite for prosthetic rehabilitation in any patient. Because of the varying degrees of restriction in mouth opening, edentulous patients with OSMF present a formidable challenge to treatment. Application of inter-occlusal forces to achieve adequate mouth opening forms an integral part of treatment of OSMF. Patients with good dentition are amenable to application of such forces but in edentulous patients the forces will directly get transmitted to the atrophic ridges rendering them vulnerable to fracture and soft tissue injury. Post operative physiotherapy will also be hampered in such patients.

CASE REPORT

A 61 year old, completely edentulous male patient reported to the Oral and Maxillofacial Surgery

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Department of K.M. Shah Dental College and Hospital, Piparia, India, with a complaint of inability to get dentures constructed due to reduced mouth opening. The patient had history of paan masala (mixture of areca, slaked lime and tobacco) chewing for about 10 years duration. He had noticed a gradual decrease in mouth opening since the last 3–4 years. He reported to have discontinued the habit due to severe burning sensation of the oral mucosa and inability to eat hot and spicy food, since the past 2 years. There was no significant medical history. The patient was diagnosed as having Grade IVA OSMF according to Khanna *et al.* [4]

Impressions of both arches were made with customized plastic perforated trays. Study casts were then made and occlusal splints were constructed by the heat cure method so that the splints had adequate strength while delivering the inter-occlusal forces. The splints were made such that they had an occlusal table on which the working ends of the mouth gag could be placed. Grooves were made on the splints to facilitate fixation of the splints with wires. Additional holes were drilled in the occlusal table to accommodate the free ends of the twisted wires.



Figure 1: Intra-operative photograph showing application of inter-occlusal force with the occlusal splints in place



Figure 3: Application of brisement force post operative

The surgery was performed under general anesthesia with nasal intubation. The standard incision was made with a surgical knife. Standard dissection was performed with the help of an artery and finger dissection.

The maxillary occlusal splint was placed and secured with per alveolar wiring followed by fixation of the mandibular occlusal splint with circum mandibular wiring. The mouth was then forced open with a mouth gag to achieve a splint to splint distance of 35 mm [Figure 1]. This was considered to be adequate mouth opening for future prosthetic rehabilitation. Bilateral buccal defects of 3.5 cm x 2.0 cm were covered by BFP grafts using the standard technique [5] [Figure 2].

The patient was hospitalized for 15 days post-operatively. Ryle's tube feeding was instituted for 1 week post-operatively to maintain oral-hygiene while the grafted buccal fat pad was being epithelized. The post-operative mouth-opening exercise was started as soon as the patient was hemo-dynamically stabilized [Figure 3]. A mouth opening of 30 mm was maintained. By the second post-operative week the patient was trained and motivated to perform mouth opening exercises with the help of the Heister's mouth gag. Parenteral medications

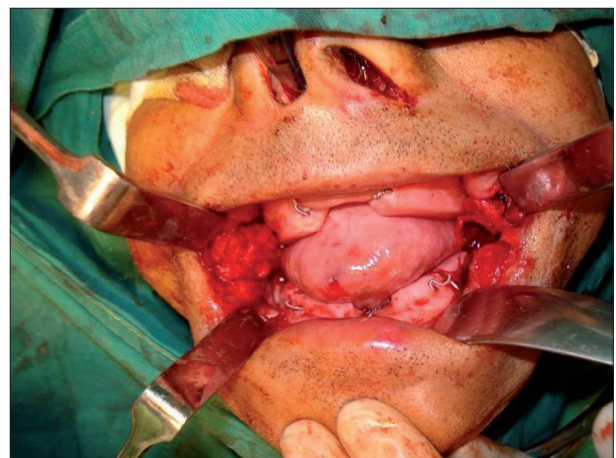


Figure 2: Intraoperative photograph showing the buccal fat pad



Figure 4: Photograph showing improved mouth opening 4 weeks post operatively.

were given for 7 days post-operatively followed by oral medications for 5 days. Daily intra-oral irrigation was performed with normal saline. The occlusal splints were removed after 4 weeks of surgery. Mouth opening after 4 weeks is shown in Figure 4. After that, the patient was referred for construction of complete dentures.

DISCUSSION

Oral submucosal fibrosis is a well known clinical entity since the time of Sushruta when it was called "vidari". Joshi, in 1953, was the first person to describe this entity in India.^[6] Although the exact etiology is not known, chronic irritation due to the habit of chewing betel nut in various forms is a major contributory factor. The onset of the condition is insidious and the most common initial symptom is a burning sensation experienced on eating spicy, hot food or on the intake of hot beverages. Early symptoms are blisters, ulcerations, or recurrent stomatitis. Restricted tongue movements are seen in advanced cases.^[7]

Various treatment modalities have been suggested and are being practiced including both medicinal and surgical modalities. Medicinal agents like hydrocortisone, hyaluronidase, triamcinalone and a combination thereof have also been used, but without significant results.^[8] Extensive research over half of the past century has suggested use of curcumin in precancerous conditions due its anti-inflammatory, anti-oxidant and proapoptotic activities.^[9]

Surgical treatment includes excision of fibrous bands and reconstruction of the resultant defects using skin grafts and local, regional and distant flaps such as oral mucosal flaps, myomucosal island flaps, tongue flaps, local muscular flaps like temporalis or temporalis fascia transfer and buccal fat pad.^[10] Temporalis myotomy with coronoidectomy has also been advocated.^[4]

It is very difficult to apply inter occlusal forces in severely resorbed, atrophic, edentulous ridges as there is an ever-imminent risk of fracture of the jaws. Soft tissue injury can also occur due to placement of the blades of the gag on them.^[11]

A worldwide web search of databases with the key words OSMF and edentulous patient resulted in no research articles published on surgical management in edentulous patients till date.

Use of occlusal splints and gunning splints is widespread in the management of maxillofacial trauma in edentulous patients. As in the present case occlusal splints can be successfully used to gain adequate

mouth opening by delivering satisfactory inter occlusal forces. This technique can also be useful in patients with severely compromised periodontal status where the teeth might not be able to withstand the forces of physiotherapy. Apart from these situations, partially dentulous patients also are potential candidates for this technique. Patients who have existing dentures can have them wired to the jaws to be used as splints.

CONCLUSION

Here, we propose an easy method to achieve normal mouth opening in an edentulous patient of OSMF. The technique is fairly simple which eliminates the chances of fracture of either jaw, while providing the scope for post-operative physiotherapy, which is the mainstay for maintaining surgically achieved mouth opening.

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