

Original Research Article

Surgical management of advanced oral submucous fibrosis: our experience

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ABSTRACT

Background: Severe oral submucous fibrosis (OSMF) poses problem with maintenance of oral hygiene, detection of malignancies and maintenance of nutrition. Surgical treatment includes release of fibrous bands with or without reconstruction for the raw area and postoperative physiotherapy.

Methods: All cases with OSMF who underwent surgical management at our institute were included in our study. The demographic data, preoperative interincisor distance, local examination was recorded. All patients underwent contrast enhanced computed tomography scan of head and neck to rule out hidden malignancy. All cases underwent OSMF band release with or without reconstruction. All patients were instructed for vigorous mouth opening exercise. All patients were followed upto 6 months and further divided into two groups depending upon whether they followed physiotherapy advice or not.

Results: 13 patients of age group 18-47 years were included in our study. Male to female ratio was 1.6:1. Pre-operative mean interincisor distance was 7.5 mm whereas post-operative it was 19.5 mm. Patients who had followed mouth opening exercise were having a mean increase of 15 mm more as compared to those who did not.

Conclusions: Even after surgical management of severe OSMF, mouth opening exercise remains the key factor for maintenance of mouth opening.

Keywords: Oral submucous fibrosis, Surgical management of advanced oral submucous fibrosis, Mouth opening exercise

INTRODUCTION

Oral submucous fibrosis (OSMF) is an insidious onset chronic disease that involves any part of oral mucosa and occasionally the pharynx and upper third of oesophagus. It is characterized by a juxtaepithelial inflammatory reaction followed by fibroelastic changes in the submucosa and epithelial atrophy, which leads to stiffness of the oral mucosa causing trismus, burning sensation in oral cavity, oral discomfort leading to inability to eat.¹ OSMF is a very old disease.

The great Indian surgeon-Shushruta had mentioned about disease called "Vidari", the symptoms and signs of which had close resemblance to OSMF. In 1952, Schwartz described the clinical features and named it as "atrophia idiopathica mucosa oris." In 1953, Joshi named it as "oral submucous fibrosis." Prevalence of OSMF in India is estimated to be approximately 5 million.² Known etiological factors include habitual areca nut chewing specifically those using lime. Tobacco which has been contemplated as one of the causes is associated more so with squamous cell carcinoma. Nutritional deficiencies like chronic iron and vitamin B complex deficiency have also been suggested.¹ OSMF also has a significant

mortality rate because it is a premalignant condition and malignant transformation has been noticed to be around 3-7.6% of cases.³ Many medical and surgical modalities are available for treatment. But in severe trismus, surgical intervention is the only answer. Surgery consists of bilateral fibrotic band release with/without bilateral coronoidectomy with/without reconstruction modalities.⁴

The role of mouth opening exercises cannot be overemphasized. Insufficient physiotherapy accounts for one of the major causes for the recurrence of OSMF after surgery or after other treatment modalities along with non-stoppage of the habit. Insufficient physiotherapy, mainly resulting from negligence and postoperative pain, hampers effective postoperative effectiveness and beneficial results.

Although a number of studies have been performed to assess the effectiveness of operative management for treatment of OSMF, very limited studies have been done to assess the effectiveness of operative intervention along with postoperative physiotherapy in adjunct to it. The purpose of our study was to emphasize the importance of mouth opening exercises in the treatment of OSMF.

METHODS

Patients with mouth opening of less than 15 mm (advanced OSMF), who underwent surgical management, were included in our study between September 2015 to September 2017 in the Department of ENT and Head and Neck Surgery at Shri Krishna Hospital, Karamsad. Patients with coexisting oral malignancy were excluded from our study. Patient's demographic data, habit of areca nut and tobacco chewing, preoperative mouth opening and CECT of head and neck to rule out hidden malignancies were documented.

Patients were subjected to surgical intervention and followed by mouth opening exercise. Patients were followed up to 6 months and inter-incisor distance was measured by vernier caliper and noted.

Surgical intervention included bilateral release of fibrotic bands and bilateral coronoidectomy with or without flap reconstruction. Surgery was done in general anaesthesia with fiberoptic assisted nasal intubation. Fibrous bands were incised from angle of mouth up to retromolar trigone by use of knife and haemostasis was achieved with the use of electrocautery. Mouth was forced open up to maximum possible width. Coronoid process was exposed from posterior end of incision and removed with the help of chisel and hammer. Interincisor distance was measured after coronoidectomy peroperatively. In few patients, raw area was kept to epithelize secondarily and in few patients we used flap to cover the raw area. Patients were given Ryle's tube feeding and it was continued for 7 days.

After the oral mucosa healed, the patients were given oral feeding. Wooden block or jaw key or rubber block or bunch of wooden spoons of ice-cream was used to keep the mouth open. The entire study population was followed up at regular intervals for 6 months and further divided into two groups depending upon whether they followed physiotherapy advice or not. The interincisor distance was measured during follow up.

RESULTS

Total 13 patients of age group between 18-47 years were studied. 8 were males and 5 were females and male to female ratio was 1.6:1. Six patients were in the age group between 18-27 years and 4 patients belonged to age group between 28-37 years and the rest 3 belonged to age group between 38-47 years. Among them three patients underwent excision of fibrous band with coronoidectomy and raw area was covered by bilateral nasolabial flap. Four patients underwent excision of fibrous band with coronoidectomy and bilateral buccal pad fat was used to cover raw area. Six patients underwent excision of fibrous band with coronoidectomy and raw area was kept uncovered (Table 1).

Table 1: Reconstructive methods used in two groups.

Reconstruction	Group A	Group B	Total
Bilateral nasolabial flap	1	2	3
Bilateral buccal pad of fat	3	1	4
Allowed to heal by secondary intention	5	1	6
Total	9	4	13

Table 2: Mean interincisor distance in two groups.

	Pre-operative (mm)	Intra-operative (mm)	Post-operative (mm)
Group A	8	30	27
Group B	7	31	12

All patients were advised mouth opening exercise and close follow up maintained for 1 year. Amongst 13 patients, 9 patients had followed mouth opening exercise and 4 did not follow mouth opening exercise. Group A included those patients who followed mouth opening exercise. Group B included those patients who did not follow mouth opening exercise. In group A, mean preoperative interincisor distance was 8 mm, mean intraoperative interincisor distance was 30 mm and mean postoperative inter incisor distance at the end of 1 year was 27 mm. In group B mean preoperative interincisor distance was 7 mm, mean intraoperative interincisor

distance was 31 mm and mean postoperative inter incisor distance at the end of 1 year was 12 mm.



Figure 1: Preoperative image.



Figure 2: Intraoperative image.



Figure 3: Postoperative image.

DISCUSSION

Treatment for oral submucous fibrosis is mainly symptomatic, because the aetiology of the disease is not fully understood, and it is progressive. Conservative treatment includes multivitamins, intralesional injections of steroids and hyaluronidase.⁴ Such treatment will give temporary relief from symptoms like burning sensation. In a study performed by Borle et al it was stated that intralesional injections can aggravate the process of fibrosis formations.⁵

Severe OSMF causes severe trismus and it affects the oral hygiene and even makes early diagnosis of

malignancy difficult. It will not respond to conservative management. Surgical treatment OSMF is advisable in these patients. Surgical treatment includes surgical excision of fibrous bands with coronoideotomy. Majority surgeons prefer to cover this raw area by use of flaps like nasolabial flap, buccal pad of fat, free radial forearm free flap, collagen sheet, or full thickness skin graft.⁶⁻¹⁰ Almost all studies have mentioned the advantages of different flaps over others. OSMF is a chronic disease and chances of recurrence of trismus are very high. Epithelization of raw area takes few weeks. To maintain mouth opening, patient requires vigorous mouth opening exercise until epithelization takes place. Due to pain, majority of patients do not follow mouth opening exercise and fibrosis again takes place. Most studies are focused on the type of flap they have used to cover the raw area. Importance of role of post-operative mouth opening physiotherapy exercise has not been addressed.

In our study, a total of 13 patients with severe OSMF underwent surgical excision of fibrous bands with coronoideotomy with a variety of different reconstructive measures and we found that average preoperative interincisor distance was 8 mm and even intraoperatively we could achieve 31 mm. But in follow up upto 1 year, in 4 patients who did not follow mouth opening exercise, mean interincisor distance was 12 mm which is again near to preoperative interincisor distance. In contrast, those patients who followed mouth opening exercise were able to maintain the interincisor distance of 27 mm which is near to intraoperative mouth opening.

Our study is intended to emphasize the importance of vigorous postoperative mouth opening physiotherapy in order to maximize the outcomes and benefit of the patient which is irrespective of the type of reconstructive method used. But due to inadequate number of cases, statistical significance of this objective could not be satisfied.

The following studies have results in comparison to the present study, thereby reemphasizing the importance of physiotherapy in patients with oral submucosal fibrosis.

Vijayakumar et al conducted a prospective clinical trial on 15 patients with OSMF grade 2 and 3 in which they found that a statistically significant increase in mouth opening by 6.26 mm after regular mouth opening exercise and ultrasound therapy.¹¹

In a study done on 64 patients by Thakur et al in which adjunct mouth opening exercises and micronutrient supplementation were prescribed for OSMF and noted that both should be given as first line treatment of OSMF.¹²

In a study done by Cox et al, they compared the outcomes of physiotherapy exercise, local injection of hyaluronidase with steroids, in which they found that physiotherapy improved oral opening ($p < 0.0005$), but not oral pain, while no clear improvement was seen in

untreated patients as well as patients managed by injection.¹³ They suggested that physiotherapy can be readily used to improve OSF in communities with otherwise limited health resources.

In a study done by Kale et al, they found that adequate mouth opening of 43 mm at 6 months was achieved by surgical intervention followed by vigorous mouth opening physiotherapy exercise in the single patient that was included in their case report.¹⁴

CONCLUSION

Whatever be the surgical approach of managing severe OSMF, physiotherapy in the postoperative period remains the integral part of maintaining the mouth opening achieved preoperative.

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