

EXTENDED NASOLABIAL FLAP - A VERSATILE RECONSTRUCTION MODALITY FOR ORAL SUBMUCOUS FIBROSIS

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ABSTRACT

The use of extended nasolabial flaps and coronoidotomy was evaluated in the management of 40 patients selected randomly with histological conformation of oral submucous fibrosis. All of them had initial interincisal opening of less than 22 mm. The patients were treated with bilateral release of fibrous bands, coronoidotomy, and grafting with extended nasolabial flap. Postoperative physiotherapy was given to all the patients, with 1 year follow up. Remarkable improvement in the interincisal opening from a mean of 12mm (range 4-22) to a mean of 38mm (range 24-42) was recorded. Apart from a disadvantage that it leaves extra oral scars, the procedure was effective and is credible in the management of patients with oral submucous fibrosis.

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INTRODUCTION

In 1966, OSMF was defined by Pindborg as “ An insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx;occasionally preceded by and/or associated with vesicle formation, it is always associated with juxta epithelial inflammatory reaction followed by a fibro elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa causing trismus and inability to eat”.¹ In the literature, this established pre-cancerous condition was first described by Schwartz in 1952. Hethen examined 5 women of Indian origin from Kenya, and called it ‘atrophidiopathica mucosa oris.’²

According to Shirsat *et al*, 2015, OSMF is globally accepted now as in Indian disease. According to their epidemiological data, there is an alarming increase in the reported cases in India from 250,000 in 1980 to 14 million cases in 2010. Based on the current scenario, the risk of developing SCC is very high, with a reported malignant transformation rate of 7-13%.³ The aetiology was previously considered to be idiopathic but later it was concluded to be of a multifactorial origin. The various causes include areca nut, capsaicin (chillies), zinc, iron and vitamin deficiencies, human leucocyte antigen. However overwhelming evidences from various studies suggests areca nut to be the main aetiological agent.^{4,5} Various treatment modalities have been described in the past with inconsistent results.

The current article describes the management of Oral submucous fibrosis, through a new treatment protocol highlighting the importance of coronoidotomy and extended naso labial flap providing long-term relapse free results with fewer complications.

PATIENTS AND METHOD

A retrospective study was carried out in the department of Oral and Maxillofacial Surgery. The sample size of 40 was selected randomly. (38 male and 2 female, in the age group of 19-42 years). The initial interincisal mouth opening of all the patients was less than 22mm.

All the patients were operated under general anaesthesia. Blind nasoendotracheal intubation was done in 28 patients and fibroptic bronchoscope was used in the remaining 12 patients. After infiltration of local anaesthesia intraorally, bilateral incisions were placed in the buccal mucosa extending from the corner of the mouth anteriorly to the retro molar pad/(soft palate) posteriorly, fibrous bands were released and interincisal mouth opening was recorded. The same incision was extended posteriorly and bilateral coronoidotomy was done. 3rd molars, when present were extracted from all the 4 quadrants. Extraorally, bilateral incisions were marked from the tip of the nasolabial fold extending upto the inferior border of mandible. A central pedicle was marked, 1cm in diameter and 1cm lateral to the corner of the mouth. Extended nasolabial flap was then raised in a plane which was superficial to the musculoaponeurotic system from both terminal points up to the central pedicle. A transbuccal tunnel was prepared on the medial side of the pedicle and the flap

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was transposed intraorally. Superior wing of the flap was placed at the posterior edge of the defect and the inferior wing was placed at the anterior edge of the defect, and was sutured with resorbable sutures. Extraorally, undermining was done in the subcutaneous tissue to release the tension. Primary closure was done in layers.

A temporomandibular joint trainer was placed 48 hours postoperatively for 15 days to prevent dehiscence of the flap as a result of occlusal trauma. 15 days post operatively, physiotherapy was started using Heister's mouth gag to prevent relapse of fibres. Counselling of patients was done regarding the need of post-operative physiotherapy for a period of minimum 6 months. 1 year follow up was done.

RESULTS

The average increase of interincisal mouth opening after the release of fibrous bands bilaterally was 20mm (range 16-40) with subsequent improvement of 42 mm(38-49) after coronoidotomy. The initial interincisal mouth opening of 12mm (4-22) markedly improved to 38mm(24-42) at the end of 1 year post operatively.

Table 1 Interincisal mouth opening

S.no	Time Period	Mouth opening(mm)
1.	Initial(pre operatively)	12 (4-22)
2.	After the release of fibres	20(16-40)
3.	After coronoidotomy	42(38-49)
4.	1 year post operatively	38(24-42)



Figure 1 Pre-operative extraoral photograph of the patient.



Figure 2 Pre-operative interincisal mouth opening mouth opening-14mm



Figure 3 Interincisal mouth opening of 35.55 mm after bilateral release of intraoral fibrous bands



Figure 4 Markings for Extended Nasolabial flap.

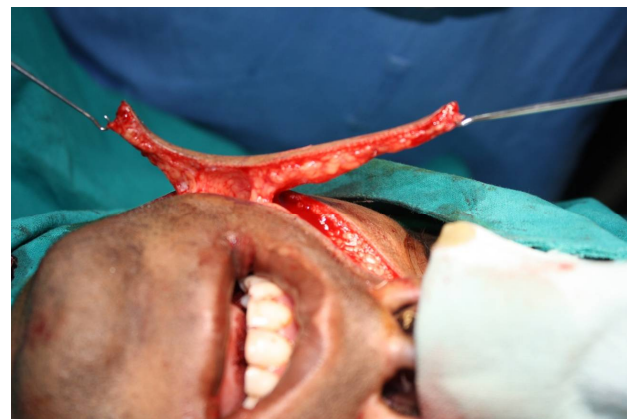


Figure 5 Extended Nasolabial flap

Widening of nasolabial flap was recorded from 11mm (9-15) preoperatively to 28 mm(21-30) post physiotherapy. Two patients had dissatisfying results due to nonconformity of post-operative physiotherapy. By the end of 1 year, flaps were covered with healthy mucosa with a appreciable decrease in hair growth intraorally. Other positive findings included reduction in burning sensation and recurrent ulceration.

Few complications were reported in the form of post-operative infection, flap necrosis, widening of oral

commissure, sub-luxation of mandible and relapse of fibrosis (non-compliance of patient, lack of exercise)



Figure 6 Bilateral Extended Nasolabial Flaps



Figure 7 Post-operative extraoral photograph, with scars at the nasolabial fold.



Figure 8 3 months follow up intra oral photograph, with flap placed in situ.



Figure 9 Interincisal mouth opening of 35.11 mm, 3 months post-operatively.

DISCUSSION

The treatment modalities of OSMF revolves around addressing the two distinctive complains i.e Stomatitis and limited mouth opening. Stomatitis is the initial and one of the most significant complaints in patients with OSMF. It may include ulcers, vesicles mucosal patechie, and/ or burning sensation on consumption of hot and spicy food.⁶ Limited mouth opening is due to fibrosis, often preceded/accompanied by blanching.

The objective of the treatment is to revert the signs and symptoms associated the condition, and to stop the progress so as to deprecate the risk of malignant transformation.⁷ By and large, management includes 3 modalities- Physical, medical and surgical. The aim of the physical approach is to remodel the tissue with dynamism. It includes physiotherapy and mouth opening exercises⁸ with the help of splints and other devices like histers mouth gag.⁹ It also includes local application of heat(microwave diathermy)¹⁰.

Medical modality includes Inflammatory modulators like placental extracts, steroids, interferon gamma.¹¹ Fibrinolytic and proteolytic agents like collagenase and hyluronidase. Dietary supplements including vitamins and lycopene.¹² These agents can be given orally, topically, submucosally at the site. Injection at the local site has its own disadvantages in the form of increased fibrosis, delayed trismus and morbidity at the local site due to needle injury and drug irritation.¹³ Surgical management is the treatment of choice for advanced cases of OSMF. Most often it is combined with other two modalities. The aim is to surgically excise the fibrous bands after forceful mouth opening and placement of suitable flap to restore the defect. Intra oral flaps includes tongue flap, palatal flap and placement of buccal pad of fat.¹⁴ Tongue flap placement bilaterally causes severe dysphagia and increases

the risk of aspiration post operatively.¹⁴ Palatal flap has the disadvantage of donor site fibrosis and require extraction of 2nd molar for the tension free closure of the flap.¹⁵ other disadvantage is the narrow reach of the flap which makes its use limited.

Placement of buccal fat pad is another option. The method is simple and quick. However anterior reach of the pad of fat is an issue. The fat pad undergoes atrophy and the remaining area heals by fibrosis further adding to trismus.¹⁶

Extraoral flaps include conventional split thickness skin graft, temporalis fascia and temporalis pedicled flap, platysmal flap.¹⁷ Free flaps are popular now a days but the facility are not readily available and requires second stage debulking procedures in 40% cases.¹⁸ Extended nasolabial flap is widely used these days and becoming the choice of clinicians worldwide. The disadvantage being extra oral scars, which eventually gets hidden in the nasolabial fold with age.

The present study suggests that the use of extended nasolabial flap in the reconstruction of OSMF is commendable. The technique is easy to master with limited post-operative sequela. None.

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Conflicts of interest: No conflicts of interest.

No external funds were required.

The ethical clearance was taken from Institutional Ethics Committee VSPM'S DCRC, Nagpur.

Consent: Signed, written and printed informed consent was taken from all the patients participating in the study.

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