

**Case Report**

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## **Intralesional injections in the management of the grade III oral submucous fibrosis- A tremendous case report**

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### **Abstract**

#### **Keywords**

Oral submucous fibrosis, malignant transformation, trismus, areca nut, intralesional injections.

Oral submucous fibrosis is a potentially invasive condition which leads to lockjaw and inability to eat. The pervasiveness rate of oral submucous fibrosis in India is 0.2-2.3% in males and 1.2-4.6% in females <sup>[1]</sup>. Timely diagnosis and appropriate treatment is necessary to cease the advancement. A case of oral submucous fibrosis occurring in 38year old male patient is presented in this paper. The patient was advocated on the ill-effects of areca nut and chances of malignant transformation and treatment was given for the same.

#### **List of abbreviations**

OSMF- Oral submucous fibrosis

VAS – Visual analog scale.

## Introduction

Sushruta- a distinguished Indian physician, in his book “mouth and throat diseases” described about a condition “Vidari”, the features simulated that of Oral submucous fibrosis [14]. Oral submucous fibrosis (OSMF) is a potentially malignant condition termed by Schwartz in 1952 as “*Atropicaidiopathica mucosae oris*” and thereafter by Jens J. Pindborg in 1966 as “an insidious, chronic disease that affects any part of oral cavity and sometimes pharynx [1]. Although occasionally preceded by, or associated with, the formation of vesicles, it is always associated with a juxtaepithelial inflammatory reaction followed by fibroelastic changes of lamina propria and epithelial atrophy that leads to stiffness of oral mucosa and causes trismus and inability to eat” [1]. It is also characterized by reduced movement and depapillation of tongue, blanching and leathery texture of oral mucosa, progressive reduction of mouth opening, and shrunken uvula [1]. Despite of multifactorial etiology proposed earlier, recent studies have confirmed the role of areca nut inducing the disease. Arecoline, Arecaidine, Guvacoline and Guvacine are areca alkaloids, amidst them Arecoline is chief causative agent, and is amenable for fibroblast proliferation [2]. Other predisposing factors are chilly consumption, nutritional deficiency, genetic susceptibility and auto-immunity [14]. South and Southeast Asia is popular for production and availability of commercial preparation of areca nut, hence OSMF is predominately seen here [2]. OSMF is reported highly from India, and also from Sri Lanka, Malaysia, Nepal, South Vietnam and Thailand. Majority of cases reported are between 20-40 year age group having male predominance. OSMF cases occur usually in lower socio-economic groups [14]. The malignancy rate of OSMF is as high as 7.6% [3]. The present case report describes a case of OSMF in a 38 year old male patient.

## Materials and Methods

Vernier caliper was used to assess the mouth opening and tongue protrusion of the patient.

Tongue protrusion was measured from mesioincisal angle of upper left central incisor to tip of the tongue.

Mouth opening was measured from the center of incisal edges of maxillary central incisor to incisal edge of mandibular right lateral incisor.

The treatment consisted of 10 doses of intralesional injections given for a period of 10 weeks on alternate buccal mucosa (right and left buccal mucosa 5 doses each).

## Results

The measurements were taken for every 4 weeks for a period of 3 months. Burning sensation was reduced and mouth opening was improved with treatment. Patient had mouth opening of 39.7mm, tongue protrusion of 39 mm and cheek flexibility of 10mm on right and left sides, VAS score of 0 after 3 months.

## Case Report

A 38-year old male patient reported to the department of Oral Medicine and Radiology with the chief complaint of burning mouth since 2 years. Patient gave the history of betel quid chewing since 3 years, 3-4 times a day and quit the habit 4 months ago.

On extraoral examination, patient had sunken cheeks with thinning of lips, loss of nasolabial fold. Patient faced difficulty in swallowing, blowing out and whistling. Cheek flexibility [4] was 8mm on left side and 5mm on right side. VAS score was 8. Rinne and Webster test for hearing was normal.

On intraoral examination, the mucosa was pale, stiff with marble stone appearance. Blanching was present on buccal mucosa, labial mucosa [fig 1], retromolar area, vestibule, floor of the mouth [fig 2], hard and soft palate. Depapillation of tongue was noted [fig 3]. Multiple vertical fibrotic bands were palpable extending mediolaterally from second molar area to retromolar region on left

side and second premolar area to retromolar region on the right side [fig 4]. Superoinferiorly, the bands were 5cm above and below the occlusal plane. Circumoral bands were noted. Eversion of lips and retraction of cheeks was difficult. Mouth opening was reduced to 16mm [fig 5] and tongue protrusion was 13.1mm [fig 6]. Provisional diagnosis of Group III oral submucous fibrosis was given according to Khanna JN and Andrade NN classification [5,6,7]. The patient was conservatively managed with CAZIQ- buccal paste [10] (Triamcinolone acetonide 0.1%) and intralesional injections [8,9]. Injection CORTS (hydrocortisone) 100mg and Injection HYALASE (hyaluronidase) 1500 IU were administered intralesionally once a week on alternate buccal mucosa. Habit counselling was done.

Mouth opening exercises were suggested. The measurements were taken for every 4 weeks for a period of 3 months. Burning sensation was reduced and mouth opening was improved with treatment. Patient had mouth opening of 39.7mm [fig 7], tongue protrusion of 39mm [fig 8], cheek flexibility of 10mm on right and left sides, VAS score of 0 after 3 months.

## Discussion

Oral submucous fibrosis is a collagen metabolic disorder which comprises of increased production and decreased degradation of collagen leading to fibrosis [3]. Arecoline, the main causative agent is responsible for increased fibroblast proliferation followed by fibrosis. Mechanical and chemical trauma to oral mucosa caused by chewing of areca nut leads to chronic inflammation. Increased collagen formation is by activation of procollagen genes and upregulation of lysyl oxidase enzyme activity. Decreased collagen degradation is through inactivation of collagenase enzyme [2]. Longitudinal cohort study demonstrated that OSMF occurred only among the people who had chewed areca nut in one or the other form [13]. Other aetiological factors suggested are lime, tobacco, chillies, immunological disorders, nutritional deficiencies [8]. These factors derange the remodelling of inflamed oral mucosa leading

to scarring and defective healing [8]. Here, in the present case, 38-year old male patient had the habit of areca nut chewing since 3 years. The peak incidence of this condition is usually seen in the 35-54 year age group [13].

Early symptoms of Oral submucous fibrosis are burning sensation of mouth on consumption of spicy food, palatal vesicles, ulcers on oral mucosa, increased salivation, and defective gustatory sensation. Petechiae are seen over tongue, buccal and labial mucosa. Clinical test demonstrates pain over areas of submucosal bands [11]. Similarly this patient presented with burning sensation in the mouth since 2 years.

In the advanced stages of OSMF blanching and white fibrotic bands is noted. There is symmetric involvement of oral mucosa. Uvula and soft palate are fixed and deviated with the disease progression. Fibrous bands usually run in vertical direction on buccal mucosa, but they may also extend into faucial pillars leading to strangulation of tonsils. Limited mouth opening is due to fibrosis around pterygomandibular raphe. Impaired tongue movement with depapillation and circumoral bands is also seen in advanced OSMF. Referred pain with nasal voice is observed with nasopharyngeal involvement [11]. Even this patient showed the classical features of OSMF like difficulty in mouth opening, stiffness of cheeks, difficulty in tongue movement and swallowing, blanching of oral mucosa, depapillation of tongue and circumoral bands.

The provisional diagnosis for the case was Grade III OSMF based on Khanna JN and Andrade classification [Fig 9].

The possible differential diagnosis for this case was anemic stomatitis, Scleroderma, Radiation fibrosis and Vertical scar band. But these possibilities were ruled out with hematological investigations. Patient had normal hemoglobin and RBC count. Patient gave negative history of nutritional deficiency, radiation therapy and surgical procedures. Based on the following findings, Final diagnosis of OSMF was made.

Malignant transformation rate of OSMF is 4.5-7.6%. Paymaster observed occurrence of squamous cell carcinoma in one-third of his patients suffering from OSMF<sup>[13]</sup>. This accounts for the immediate attention to make comprehensive treatment plan to treat the condition<sup>[13]</sup>. In the recent case after motivating and counseling the patient to quit the habit, combination of conservative management with CAZIQ buccal paste and intralesional injections CORTS and HYALASE were administered and mouth opening exercises were advocated for tissue remodeling to increase the mouth opening.

The treatment modality of OSMF depends on degree of disease progression and clinical involvement. Various treatment modalities for Oral submucous fibrosis are Patient education for cessation of the habit, Nutritional support with

high protein and calorie diet, vitamin B complex and other vitamins and minerals<sup>[11]</sup>. Local or systemic delivery of immunomodulatory drugs like glucocorticoids and placental extracts can suppress inflammatory reaction and prevent fibrosis. Breakdown of intercellular cement substances and reduces collagen production is also seen. Physiotherapy measures like forceful mouth opening and heat therapy can be attempted for satisfactory results. Surgical resection of bands by conventional method or CO<sub>2</sub> laser is done in advanced stages<sup>[11]</sup>. Lycopene, an antioxidant with chemopreventive properties and Placentare are useful to improve mouth opening, burning sensation and reduce fibrotic bands. Turmeric can be used for non-invasive herbal therapy due to its anti-inflammatory and antioxidant properties<sup>[8]</sup>.

### **Tables and Figures**



**Fig 1: Blanching noted on labial mucosa**



**Fig 2: Blanching noted on floor of the mouth**



Fig 3: Depapillation of tongue



Fig 4: fibrotic bands noted on buccal mucosa



Fig 5: Initial mouth opening of 16mm



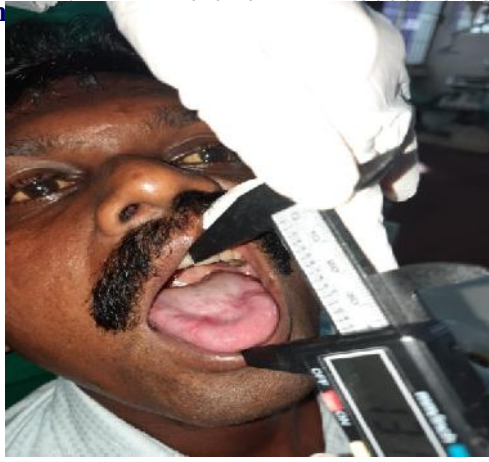


Fig 6 : Initial tongue protrusion of 13.1mm



Fig 7: Final mouth opening of 39.7mm

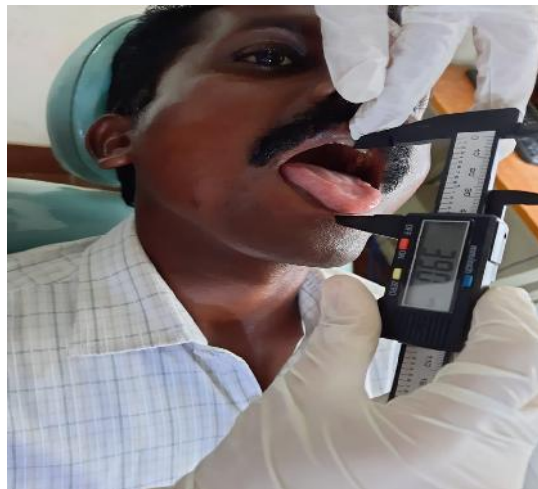


Fig 8: Final tongue protrusion of 39mm

Stage	Functional staging	Clinical staging
Stage 1	Interincisal openings of 35 mm and above	<ul style="list-style-type: none"> <li>• Burning sensation in the mouth,</li> <li>• Acute ulceration and recurrent stomatitis</li> <li>• No associated mouth opening limitation</li> </ul>
Stage 2	Interincisal openings of 26-35 mm	<ul style="list-style-type: none"> <li>• Mottled and marble-like buccal mucosa</li> <li>• Dense, pale, depigmented fibrosed areas alternated with pink normal mucosa</li> <li>• Occasional red erythroplakic patches</li> <li>• Widespread sheets of fibrosis</li> </ul>
Stage 3	Interincisal opening of 15-25 mm	<ul style="list-style-type: none"> <li>• Pale buccal mucosa firmly attached to the underlying tissues</li> <li>• Palpable vertical fibrous bands in the premolar area</li> <li>• Unable to blow out cheeks and whistle</li> <li>• In the soft palate, the fibrous bands were seen to radiate from the pterygomandibular raphe or the anterior faucial pillar in a scar-like appearance</li> <li>• The lips may be affected with atrophy of the vermilion border</li> </ul>
Stage 4 (4a and 4b)	Interincisal opening of 15 mm and below	<ul style="list-style-type: none"> <li>• Thickened, shortened, and firm fauces, with the tonsils compressed between the fibrosed pillars</li> <li>• Small, shrunken, fibrous bud uvula</li> <li>• Narrowed isthmus, presence of circular band around entire lip and mouth</li> <li>• Restricted tongue movement, diffuse papillary atrophy</li> <li>• Atrophy of the vermilion border.</li> <li>• Premalignant and malignant changes</li> </ul>

Fig 9: Khanna JN and Andrade classification for OSMF

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