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## **Prevalence and treatment of Oral Submucous Fibrosis in a known population**

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**Abstract**

**Background:** This study was conducted to assess the prevalence and treatment of Oral Submucous Fibrosis in a known population.

**Material and methods:** This study comprised of 100 subjects in a known population. The subjects had been informed about the procedure and had been asked for consent. The subjects who were willing to participate in the study and who were ready to give consent had been included in the study while those who were not willing to participate had been excluded. The subjects underwent intraoral examination. The findings were noted. Statistical analysis had been conducted using SPSS software.

**Results:** In this study there were 100 subjects out of which 40 were females and 60 were males. OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%.

**Conclusion:** The prevalence of OSMF in this study was 17% and the treatment included dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

**Keywords:** OSMF, prevalence, treatment

**Introduction**

In ancient medicine, Shushruta described a condition, “vidari” under mouth and throat diseases. He noted progressive narrowing of mouth, depigmentation of oral mucosa, and pain on taking food. These features precisely fit in with the symptomatology of oral submucous fibrosis.<sup>1</sup> Schwartz (1952) for the first time reported a case of “atrophica idiopathica tropica mucosae oris” occurring in Indians in East Africa. Lal and Joshi (1953) first described this condition in India. Joshi coined the term “oral submucous fibrosis (OSMF).”<sup>2</sup> Pindborg and Sirsat (1966) described histologically, the four consecutive stages of the OSMF.<sup>3</sup> Seedat and Van Wyk (1988) have reported about irreversible nature of the disease, that is, once OSMF induced by the habit of chewing betel nut, the reversal of the disease after cessation of the habit could not occur.<sup>4</sup>

The magnitude of the situation can be gauged by facts stated in a 2004 review that India ranks the highest among all the registries in the world for incidence of oral cancer with 75,000--80,000 cases reported each year. For many years, this condition had been confined to countries like India, Pakistan, Bangladesh, etc., but now due to higher rates of immigration this condition is being reported from Western countries as well.<sup>5-7</sup>

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## Material and methods

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## Results

**Table 1: Gender-wise distribution of subjects**

Gender	Number of subjects	Percentage
Males	60	60%
Females	40	40%
Total	100	100%

In this study there were 100 subjects out of which 40 were females and 60 were males.

**Table 2: Prevalence of OSMF**

Prevalence	Number of subjects	Percentage
Absent	83	83%
Present	17	17%
Total	100	100%

OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%.

The main treatment of this condition was dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

## Discussion

Blanching and stiffness of the oral mucosa is the most common clinical characteristic of oral submucous fibrosis. Histologically, the oral connective tissue becomes hyalinized and the overlying epithelium markedly atrophic.<sup>8</sup> Various studies have reported areca nut/betel quid

to be the most important etiological factor for the causation of OSMF. Various epidemiological, observational, case control, experimental and interventional studies have strongly shown the association between OSMF and areca nut.<sup>9-14</sup> Collagen synthesis and proliferation of fibroblasts stimulated by the alkaloids and flavonoids (arecoline, arecaidine, tannins and catechins) can act both as a chemical and physical irritant to oral mucosa.

The most common initial symptoms are burning sensation due to dry mouth, blanched oral mucosa and frequent ulceration. Increased fibrosis in this condition results in blanching of mucosa and marble like appearance.

In the later stages, fibrous bands are formed which causes trismus, difficulty in mastication, speech, swallowing and maintaining oral hygiene. Long-term follow-up studies over a period of 17 years shows a rate of malignant transformation of OSMF in the range of 7–13%.<sup>15,16</sup>

Medical management is the treatment of choice in early stages of this chronic precancerous condition. A patient has to undergo dietary habit counselling and stop intaking arecanut, tobacco and spicy food. Patient's diet should include proteins, vitamin D, E and B complex and micronutrients.

Intralesional steroids such as dexamethasone are the main treatment modality. These are injected submucosally into the fibrotic bands weekly for 6 to 8 weeks with regular monitoring of mouth opening. They are commonly used with hyaluronidase, a proteolytic enzyme.

Antioxidants like alpha lipoic acid and lycopene are also commonly used as first line of treatment. Lycopene is anti-proliferative, anti-inflammatory and anti-oxidant. Antioxidants restrict the damage caused by reactive free radicals to cells and cellular components.<sup>17,18</sup>

Novel therapies include zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily, with regular follow-up at an interval of 1 month.<sup>19</sup> Also, Salvianolic acid B, an antifibrotic, which is used with triamcinolone acetonide represents the promising newest mode of management. Salvianolic acid B has antifibrosis, anticoagulation, antitumor activities.<sup>20</sup> Turmeric, immunomodulatory drug levamisole, vasodilator pentoxifylline, placental extract, interferon gamma, spirulina, colchicine, herbal antioxidants oxitard and Aloe vera are also promising in the management of this chronic disease.<sup>21-23</sup>

Antioxidant property of spirulina is attributed to high amount of beta carotene and superoxide dismutase. Colchicine has antifibrotic and anti-inflammatory properties.<sup>23</sup>

This study was conducted to assess the prevalence and treatment of Oral Submucous Fibrosis in a known population.

In this study there were 100 subjects of which 40 were females and 60 were males. OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%. The main treatment of this condition was dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

**Srivastava R et al (2019)<sup>24</sup>** evaluated the prevalence of OSMF among betel nut chewers in different age groups in patients visiting Dental College and Hospital Kanpur city, India. A total of 860 patients of OSMF visiting the dental outpatient clinic of the Department of Oral Medicine and Radiology Rama Dental College Hospital and research center, Kanpur over a period of 24 months (1 January 2016 to 31 December 2018) were selected for the study. A detailed case history and clinical examination was carried out under visible light. The diagnosis of OSMF was based on difficulty in opening the mouth and associated blanched oral mucosa, with palpable fibrous bands. Other diagnostic features included burning sensation, salivation, tongue protrusion, habits, and associated malignant changes. Study was done on the basis of age group, habit duration, frequency of habit, and type of habit. Simple correlation analysis was performed. Of the 860 cases of OSF studied, 390 (46.42%) cases were stage II, 290 (34.52%) were stage III, 90 (10.73%) stage I, and 70 (8.33%) stage IV. Based upon age group, group III (30--40 years) showed more prevalence than the others. Areca nut (gutkha) was a significant etiological factor (55.8%) as compared with other etiological factors. The high prevalence of OSMF requires significant awareness and management of these lesions among general population. Primary healthcare professionals and dentists should be knowledgeable and familiar with the etiopathogenesis, clinical presentation, diagnosis, and management of these lesions.

## **Conclusion**

The prevalence of OSMF in this study was 17% and the treatment included dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

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