

**ORIGINAL ARTICLE**

## **Epidemiology of Oral Submucous Fibrosis in District Hospital Peddapalli, Telangana state**

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### **Abstract**

*Oral submucous fibrosis (OSMF) is a chronic inflammatory disease of oral mucosa now accepted globally as having the potential for malignant transformation. It is characterized by limited ability to open the mouth and burning sensations in the mouth with intake of spicy foods. We in this article tried to examine the number of patients with this disease those who report to Dental OPD of District Hospital, Peddapalli District of Telangana State. Methods: This cross-sectional prospective study was conducted in the Dental Department of District Hospital Peddapalli. All the patients were examined for the presence of OSMF the clinical criteria for the diagnosis of OSMF were blanched and atrophic oral mucosa, varying degrees of trismus and reduced IID distance, the presence of burning sensations in mouth and presence of fibrotic bands in oral and peri-oral mucosa. Results: A total of 904 patients were examined out of which 69 were clinically diagnosed with Oral Submucous fibrosis however out of 69 only 56 reported back with the confirmed diagnosis of OSMF by histopathological examination. The Inter-Incisal Distance [IID], which is a measure of maximum mouth opening was done the mean value was 3.96 cms in male patients and 4.1 cms in female patients. Clinical symptoms out of 56 patients all the patients (100%) were having the burning sensation. the common symptom was limited mouth opening/ Jaw movements noted in 43(76.79%) of the patients although no patient was found with complete trismus 0 cms IID. Increased salivation was noted in 19(33.92%) of the patients and dry mouth in 7(12.5%) of the case. Dysphagia (difficulty in swallowing) was noted in 16(28.57%) of the patients. Conclusion: There is a presence of adverse habits like Gutka chewing, Pan masala chewing, Arecanut chewing and smoking among patients with OSMF. Although some people are aware of the adverse effects they are unable to quit the habit. Therefore, efforts must be made to educate the patients regarding deleterious effects of these habits and must be encouraged to quit these habits. Prompt recognition of the existing cases and treatment is likely to reduce the cost burden of disease on health care resources.*

**Keywords:** Oral Submucous Fibrosis, Epidemiology, District Hospital Peddapalli

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### **Introduction**

OSMF is a chronic progressive inflammatory condition of mucosa often leading to scarring affecting any part of the oral cavity seen predominantly in the Indian subcontinent [1]. OSMF seems to satisfy the WHO definition for an oral precancerous condition because there appears to be a significantly increased risk of cancer [2]. It is associated with vesicle formation and often associated with juxtaepithelial

inflammatory reaction leading to fibrotic changes in lamina propria and associated with epithelial atrophy and loss of elasticity of mucosa thereby causing trismus and inability to open the mouth and protrusion of tongue causing difficulties in eating speaking and swallowing [3, 4]. The disease often in chronic stages affects most parts of oral cavity, pharynx and also esophagus [5]. Various studies have suggested that there is an increased expression of fibrogenic cytokines namely TGF  $\beta$ -1, PDGF and  $\beta$ -FGF in OSF tissues compared to normal

[6]. The polymorphism of the genes coding the TNF- $\alpha$  is reported as an important risk factor for OSMF. The TNF-  $\alpha$  is known to stimulate fibroblastic proliferation in vitro. The cause of changes in collagen-related genes is due to ingredients of quid. The transcriptional activation of procollagen genes by TGF- $\beta$  is seen to increase collagen levels in OSMF [7]. Although the first description of the condition was by Sushrutha who described a condition called “vidari” under mouth and throat diseases. He reported progressive narrowing of opening of mouth with loss of pigmentation and pain on intake of food, these features were precise description of symptoms of oral submucous fibrosis [8]. In 1953 it was Lal and Joshi who described the condition in India and Joshi coined the term oral submucous fibrosis based on the predominant histological nature [9]. Recent epidemiological studies regarding OSMF has shown an increase in cases of oral submucous fibrosis in India and it was estimated to be 250,000 cases in 1980 to increase of 2 million cases in 1993 and has crossed 10 million mark in the year 2013 [10]. In south India the hospital-based cross-sectional studies have found 4.1% presence of soft tissue lesions in subjects of study. The prevalence of OSMF has been up to 0.55%. A similar study in Manipal Karnataka has shown the presence of one or more mucosal lesions in (41.2%) of the population. The prevalence of oral submucous fibrosis was 2.01% [11]. With this background we in the present study tried to evaluate the prevalence of oral submucous fibrosis in Dental OPD visitors of our District Hospital Peddapalli as no data from this area is available so far.

### Materials and Methods

This study was conducted in the Dental OPD of District Hospital, Peddapalli District of Telangana State. Ethical committee permission was obtained from the Hospital Ethical Committee. The purpose of the study was explained to the patients in their local language and written consent was obtained for the study. Those willing to participate in the study were only included for the study. All the patients were examined for the presence of OSMF the clinical criteria for the diagnosis of OSMF were blanched and atrophic oral mucosa, varying degrees of trismus and reduced IID distance, the

presence of burning sensations in mouth and presence of fibrotic bands in oral and peri-oral mucosa. Those with clinical suspicion of OSMF were further referred to the higher center for Biopsy and confirmation of diagnosis and those patients who were confirmed by biopsy were only included in this study. A brief questionnaire was prepared and all the relevant data was recorded regarding the presence of habits, details of habits including type, frequency, and duration of this habit, oral hygiene methods, and residential status including educational background was also recorded. Patients Knowledge regarding the tobacco chewing/smoking habit was assessed and also whether they made any effort to quit this habit was recorded. Based on this a total of 904 patients were examined out of which 69 were clinically diagnosed with Oral Submucous fibrosis however out of 69 only 56 reported back with the confirmed diagnosis of OSMF by histopathological examination. Those who had confirmed diagnosis were included in the study.

### Results

**Table 1:** age wise and sex wise distribution of the cases involved in the study

Age group [Years]	Male	Female	Total	Percentage
10 – 20	00	00	0	00
21 – 30	09	03	12	21.42
31 – 40	13	12	25	44.64
41 – 50	10	03	13	23.22
51 – 60	03	02	05	8.93
> 60	01	00	01	1.79
Total	36	20	56	100

The age and sex distributions of the study is projected in the (table 1) the mean age of the patients was  $35.5 \pm 5.5$  years the most common age group was 31 – 40 years with 44.64% of patients in this category, followed by 41 – 50 years having 23.22% of patients and 21 – 30 years having 21.42% of the patients. A total of 904 patients were examined out of which 56 were diagnosed with Oral Submucous fibrosis. It gives an incidence of 6.1% of cases of Dental OPD patients in this study. Out of the 56 involved 48 patients had bilateral involvement

of buccal mucosa, the lower lip was involved in 27 patients, and palatal mucosa was involved in 12 patients and 4 patients had involvement of tongue and floor of the mouth was involved in 2 patients. Most of the patients showed multiple sites of the lesion.

The Inter-Incisal Distance [IID], which is a measure of maximum mouth opening was done the mean value was 3.96 cms in male patients and 4.1 cms in female patients. The minimum distance was 1.25 cms and the maximum value was 6.5 cms. No case of total trismus was detected during the duration of the study. In this study, the history of habits was recorded from the patients. The maximum numbers of patients had the habit of Gutka chewing 34 (60.71%) and the frequency ranged from 2 pouches per day to 8 pouches per day. The next common habit found was pan masala in 9(16.07%) patients and 8(14.29%) patients had Areca nut chewing habit followed by 4(10.71%) had smoking habits. The OSMF was graded into mild, moderate and severe categories based on the duration and presence of fibrosis and severity of lesions. In male patients, 11(30.55%) out of 36 were with a mild degree of fibrosis whereas 17(47.22%) were found with moderate lesions and 8(22.22%) of patients had severe lesions. In females, out of the total 20 patients, 12(60%) were with mild lesions and 5(25%) had moderate lesions and 3(15%) were with severe lesions given in table 2.

**Table 2:** Etiological factors for OSMF in the cases

Tobacco usage	Grade 1 (mild)		Grade 2 (moderate)		Grade 3 (severe)	
	Male	Female	Male	Female	Male	Female
No habits	00	00	00	01	00	00
Gutka chewing	09	04	11	02	06	02
Pan masala	01	01	05	01	01	00
Areca nut chewing	00	05	01	00	01	01
Tobacco smokers	01	02	00	01	00	00
<b>Total</b>	<b>11</b>	<b>12</b>	<b>17</b>	<b>05</b>	<b>08</b>	<b>03</b>

The most common reason for seeking dental care was burning sensation present in the mouth. Out of 56 patients, all the patients (100%) were having the burning sensation in the mouth although the degree of burning sensation varied widely never the less some degree of burning

was noted in all the patients on history and examination. The second most common symptom was limited mouth opening/ Jaw movements noted in 43(76.79%) of the patients although no patient was found with complete trismus 0 cms IID. Increased salivation was noted in 19(33.92%) of the patients and dry mouth in 7(12.5%) of the case. Dysphagia (difficulty in swallowing) was noted in 16(28.57%) of the patients shown in table 3.

**Table 3:** showing the symptoms found in the patients with OSMF

Symptom	Male	Female	Total	%
Pain/Burning sensation in the mouth	36	20	56	100
Limited mouth opening/ Jaw Movements	29	14	43	76.79
Dry mouth	05	02	07	12.5
Increased Salivation	13	06	19	33.92
Dysphagia	10	06	16	28.57

Out of 56 patients 48(85.71%) belonged to low socio-economic status had very low incomes and mostly not much aware of harmful effects of tobacco chewing 4(7.14%) belonged to lower-middle-class group and with little awareness and 4(7.14%) belonged to middle class family were working in jobs like drivers although they were aware of harmful effects of chewing tobacco but were unable to give up the habit due to nature of the job as they felt that chewing gutka helps them to keep awake during long hours of driving especially at night.

## Discussion

OSMF is known to occur at any age but most commonly seen in young adults and in between 2<sup>nd</sup> to 4<sup>th</sup> decade. The onset is generally insidious and if often of duration of 2-5 years. There is a potential for malignant transformation of OSMF the rate has been found to be 7.6% [12]. In the present study the mean age of the patients was 35.5 ± 5.5 years some earlier studies have reported the incidence of OSMF within the age group of 30 - 40 years [10]. Other studies have reported the incidence of OSMF mostly in young population age ranging from 20-30 years [13 -15]. Some studies have reported the presence

of OSMF in children as young as 14-19 years<sup>[16-17]</sup>. In this study the youngest patient was 22 years and the oldest patient was 63 years. The present study also found the male to the female presence of OSMF to be 1.8:1 showing male preponderance. Other similar studies have shown similar male preponderance in the cases of OSMF<sup>[18-21]</sup>. OSMF was initially thought to be an idiopathic disorder and the term atrophica idopathica (Tropica) mucosae oris was used by Schwartz in 1952<sup>[22]</sup>. However now it is considered to be of multifactorial origin and the common etiological factors Areca Nut, tobacco, capsaicin in chilli. There is also accompanying deficiency of micronutrients like iron, zinc, and essential vitamins. There is a suggestion of involvement of various auto-antibodies with a strong association of HLA antigen<sup>[23]</sup>. We in the present study used the Pindborg's Clinical Staging<sup>[24]</sup>. The OSMF is classified into three stages. The first stage is the mild stage where there are mild blanching and no restriction to the opening of the mouth and burning sensation to intake to spicy foods and hot liquids. In this study in the male patients, 11(30.55%) out of 36 were with a mild stage and 17(47.22%) were found with moderate stage lesions and 8(22.22%) of patients had severe lesions. In females, out of the total 20 patients, 12(60%) were with mild lesions and 5(25%) had moderate lesions and 3(15%) were with severe lesions. whereas in females out of the total 20 patients 12(60%) were with mild lesions and 5(25%) had moderate lesions and 3(15%) were with severe lesions given in table 2. In a similar study by T. Nandhini in Chennai found<sup>[25]</sup>42.5 percent developed grade I followed by grade II 38.8percent and grade III 20 percent in habitual gutka-chewers. In this study we had 60.71% of patients with the habit of Gutka chewing; followed by pan masala chewing in 16.07% patients and 14.29% patients had Areca nut chewing habit followed by 10.71% smoking habits. The common clinical symptom related to OSMF was burning sensation in the mouth, however, most investigators in this field have found trismus to be the main clinical presentation by patients<sup>[4, 26-28]</sup>. Some reports have shown the presence of marked vertical fibrous ridge formation in the cheeks and stiffening of buccal mucosa with difficulty in blowing cheeks<sup>[29]</sup>. The diagnosis of OSMF is

mostly clinical although histopathology can confirm the diagnosis and is helpful in grading the lesion; however, it is not compulsory for diagnosis of OSMF. In certain low resource settings it is not possible to have histopathological correlations where there is lack of this facility. Certain studies have also found no correlations between the histopathology and clinical grading of OSMF patients. However histopathology is very useful in finding out whether there is any malignant transformation of OSMF. The management of OSMF is therapeutic and surgical but no definitive and accepted treatment is available. Medical treatment included placental extracts, steroids or surgical removal using the laser, however, each therapy is with its own adverse effects most of the treatment efforts are directed to removal of the etiologic factors and relief of symptoms.

## Conclusion

Within the limitations of the present study, it can be concluded that oral submucous fibrosis (OSMF) is commonly prevalent in the dental OPD patients of Peddapalli district hospital. There is a presence of adverse habits like Gutka chewing, Pan masala chewing, Arecanut chewing and smoking among patients with OSMF. Although some people are aware of the adverse effects they are unable to quit the habit. Therefore, efforts must be made to educate the patients regarding deleterious effects of these habits and must be encouraged to quit these habits. Prompt recognition of the existing cases and treatment is likely to reduce the cost burden of disease on health care.

**Conflict of Interest:** None declared

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