Original Article

# PREVALENCE OF NON-SPECIFIC CHIEF COMPLAINTS IN PATIENTS WITH ORAL SUBMUCOUS FIBROSIS

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**ABSTRACT**

The diagnosis of Oral submucous fibrosis [OSMF] is easier when patients report in later stages of the disease after becoming symptomatic and therefore early detection by skillful clinicians is crucial when asymptomatic. This study aimed to assess the prevalence of non-specific chief complaints [CC] in OSMF patients who reported to a dental institution. The objective was to evaluate the association of non-specific OSMF chief complaints with its grading of disease progression. One-year data of OSMF patients (N = 155) were collected retrospectively from the department for analysis. The prevalence of the non-specific CC lesion was assessed using SPSS software. A Chi-square test was used to measure the association between gender and Non-specific Chief complaints and OSMF grading with non-specific chief complaints. 94.07% of males and 5.93% of females had non-specific chief complaints unrelated to OSMF. Among the complaints, toothache [63%] was the predominant followed by stains on teeth [24%], Missing teeth [11%], and tooth mobility [2%]. The asymptomatic cases were exclusively seen in Grade 1 [Kerr *et al*. classification]. The association between gender and non-specificity of chief complaints was not statistically significant with a P-Value of 0.63 (P > 0.05). The association between the distribution of non-specific chief complaints and grading among OSMF patients was statistically significant with a P-Value of 0.0001 (P < 0.05). Lack of awareness among the public persists in OSMF patients who report to the dental hospital; hence, the clinician must look beyond the reported chief complaint for early diagnosis of OSMF.

**Key words:** Oral submucous fibrosis, OSMF, OSF, Chief complaints, Non-specific complaints.

## Introduction

Oral submucous fibrosis (OSMF) is a persistent, enfeebling collagen metabolic disorder distinguished by the presence of fibrosis of the connective tissue stroma in the oral mucosa. OSMF is induced by chewing areca nut/areca nut quid, which is very popular in Southeast Asian countries such as India [1]. It is available commercially in various concentrations with added sweeteners or could be self-prepared by milling the areca nut products with additional constituents. In India, the prevalence of Oral submucous fibrosis has been calculated to be 0.2-2.3% among males and 1.2–4.6% among females, ranging from 11 to 60 years [2]. Oral submucous fibrosis is increased by 32 to 109.6 times with a dose-dependent relationship among those who chewed betel nuts compared to non-chewers [3]. The frequency and duration of areca nut chewing majorly influence the disease progression. The escalated chewing of the areca nut is more common among individuals from low socioeconomic status [4], with ease of availability adjacent to educational institutions [5], added with catchy advertisements [6], and peer pressure [7].

Paymaster first reported the precancerous nature of Oral submucous fibrosis in 1956 [8]. Oral submucous fibrosis is now one of the well-recognized potentially premalignant oral epithelial lesions (PPOELs). The worldwide rate of transmission to malignancy is 2.3–7.6% [9]. and in India, the malignant potential rate is 7 to 30% [10]. The prevalence rate of oral squamous cell carcinoma progressed from oral submucous fibrosis patients is 13.7% [11]. Only 13 percent of the younger population are aware of the malignant nature of areca nut products and diagnosing the lesion is mostly incidental in a dental setting. Our study aimed to assess the prevalence of non-specific chief complaints in OSMF patients who report to dental institutions. The objective was also to evaluate if an association of non-specific chief complaints exists with OSMF Grading.

## Materials and Methods

The clinical data for this study was collected from the department of oral medicine in our dental institution, India for the period March 2021 to March 2022. Institutional ethical clearance (IHEC/SDC/OMED-2002/22/428) was obtained before data collection and the study fulfilled the ethical research standards and Declarations of Helsinki. The patients' data were gathered from our Dental Information Archiving Software [DIAS] that had stored comprehensive case details after obtaining informed consent. The collection of data from standardized databases and its replicability in exterior clinical settings under standard conditions establishes the internal and external validity of the study respectively.

The clinically diagnosed OSMF cases (N= 155) were chosen by convenience sampling and the chief complaint recorded was screened for non-specificity regarding OSMF. The

specific chief complaints to OSMF were removed and non-specific chief complaints were further grouped into toothache, missing teeth, mobility of teeth, and stains on teeth along with variables of age and gender of the patient. Kerr and Warnakulasuriya's classification [12] **(Table 1)** was followed for grading the OSMF which is broadly accepted in many countries because it represents combined clinical features, mouth opening, and histopathological grading. However, Grade 5 OSMF cases were excluded from our data collection as oral squamous cell carcinoma was mandatorily referred to oral oncology care for histopathological analysis and cancer management.

**Table 1.** Kerr and Warnakulasuriya's classification of Oral Submucous Fibrosis

| | |
|---|---|
| Grade 1 | Mild. Any features of Oral submucous fibrosis disease triad and interincisal opening of more than 35mm. |
| Grade 2 | Moderate. Above features of Oral submucous fibrosis with interincisal opening limited to 20-35mm. |
| Grade 3 | Severe. Clinical features of Oral submucous fibrosis with an interincisal opening less than 20 mm. |
| Grade 4A | Oral submucous fibrosis with other features of the oral potentially malignant disorder. |
| Grade 4B | Oral submucous fibrosis with any grade of epithelial dysplasia on biopsy |
| Grade 5 | Oral submucous fibrosis with oral squamous cell carcinoma |

The data gathered was entered into Microsoft Office Professional Plus 2019 excel sheet and formatted for importing into statistical software. The statistical data analysis was done using IBM Statistical Package for the Social Sciences [SPSS] 23.0 Version software (SPSS Inc., Chicago, IL., USA). The assessment of the significant difference in chief complaint distribution with OSMF grading was done using the Chi-square test and a P value < 0.05 was interpreted as statistically significant.

## Results and Discussion

The total number of patients reported in the one year was 155 [N] comprising 145 males [93.55%] and 10 females [6.452%] with a mean age of 42.5 years in males and 52.4 years in females respectively **(Table 2)**. **Figure 1** illustrates the grading of the OSMF lesions. The majority of the participants belonged to Grade 1 with 76%. Grade 2 comprised 7.74 %, and Grade 3 had 12.9% of the participants. The Grade 4 OSMF category had the least population with 3.2% of total patients.

**Table 2.** Age distribution according to gender

| Gender | Mean Age | Std. Deviation | Std. Error Mean |
|---|---|---|---|
| Male | 42.5931 | 11.73935 | .97490 |
| Female | 52.4000 | 9.43045 | 2.98217 |

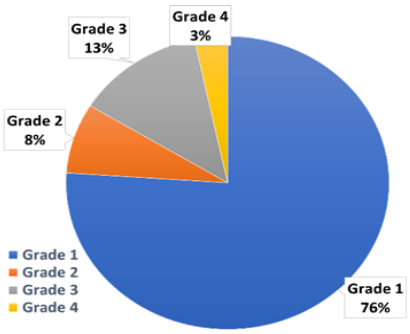


**Figure 1.** Distribution of grading of OSMF lesions in the study

The patients with chief complaints non-specific to OSMF were 76.13 % and symptomatic to OSMF was 23.87% **(Figure 2)**. In this retrospective study, 94.07% of males and 5.93% of females had non-specific dental chief complaints unrelated to clinical features of OSMF **(Figure 3)**. Among the non-specific chief complaints **(Figure 4)**, 63% had reported toothache followed by 24% of stains on teeth. 11% had complained of missing teeth and had come for prosthodontic management and 2% of the participants had reported teeth mobility.

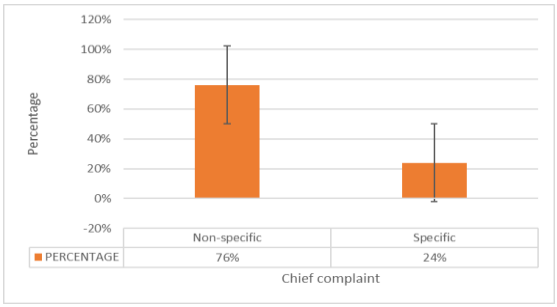


**Figure 2.** Graphical representation of specificity of complaints among OSMF patients. The majority of the study participants, 76.13% [2/3rd] of the patients had complaints non-specific to the clinical presentation of OSMF

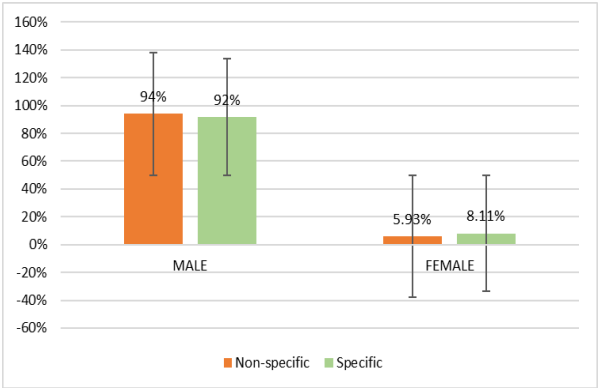


**Figure 3.** Gender distribution in the study with Non-specific complaints in relation to the lesions to OSF

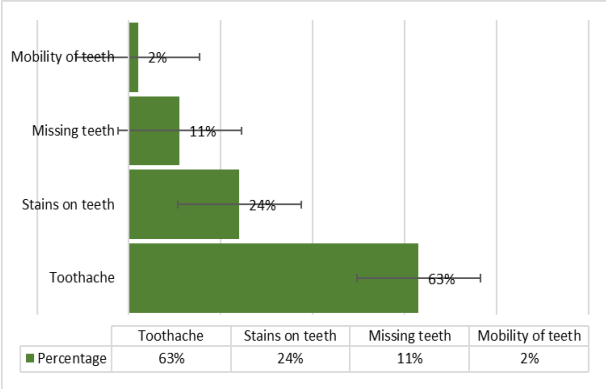


**Figure 4.** Graphical representation of the overall distribution of chief complaints categories in the study

detailed the Non-Specificity of the lesions to OSMF. Missing teeth, Mobility of teeth, Stains on teeth, and Toothache were predominantly seen in participants with non-specific chief complaints.

The Chi-Square ($X^2$) test was used to compare the data groups to find the associations between parameters **(Table 3)**. The association between gender and non-specificity of chief complaints was not considered statistically significant with a *P-Value* of 0.63 ($P > 0.05$). The association between the distribution of chief complaints and grading among OSMF patients was interpreted as statistically significant with a *P-Value* of 0.0001 ($P < 0.05$). The non-specific complaint was completely seen in Grade 1 OSMF patients [100%].

**Table 3.** Chi-square test shows that there is a significant difference in the distribution of complaints and grading among OSMF patients

| Variable | Response | Not Specific to OSMF | | Specific to OSMF | | P value |
|---|---|---|---|---|---|---|
| | | Frequency | Percent | Frequency | Percent | |
| **Gender** | Male | 111 | 94.1 | 34 | 91.9 | 0.63 |
| | Female | 7 | 5.9 | 3 | 8.1 | |
| | Total | 118 | 100.0 | 37 | 100.0 | |
| **Complaints** | Missing teeth | 13 | 11.0 | 0 | 0 | 0.0001 |
| | Mobility of teeth | 2 | 1.7 | 0 | 0 | |
| | Stains on teeth | 29 | 24.6 | 0 | 0 | |
| | Toothache | 74 | 62.7 | 0 | 0 | |
| | Burning sensation | 0 | 0 | 13 | 35.1 | |
| | Pain in cheeks | 0 | 0 | 7 | 18.9 | |
| | Reduced mouth opening | 0 | 0 | 13 | 35.1 | |
| | Ulcers in mouth | 0 | 0 | 4 | 10.8 | |
| | Total | 118 | 100.0 | 37 | 100.0 | |
| **Grading of OSMF** | Grade I | 118 | 100.0 | 0 | 0 | 0.0001 |
| | Grade II | 0 | 0 | 12 | 32.4 | |
| | Grade III | 0 | 0 | 20 | 54.1 | |
| | Grade IV | 0 | 0 | 5 | 13.5 | |
| | Total | 118 | 100.0 | 37 | 100.0 | |

Oral submucous fibrosis remains a public health concern because of its malignant transformation potential over some time [13]. The pathogenesis of OSMF is still not completely understood, but it is presumed to be multifactorial based on available research. The primary causative agent is areca nut chewing in the form of betel quid [14] along with precipitating factors like nutrient deficiencies of zinc, vitamin, and Iron and increased capsaicin intake from chilies [3]. The prevalence of OSMF in India varies among zones with 0.6% in the south, 30–42% in the north, 2.7% in the east, and 0.03–0.2% in the west [15] because of the exponential increase in younger generations among migrant workers. In the olden days, among the countries of the Pacific belt and of south-eastern Asia, areca nut chewing was a part of traditional, cultural, and religious ceremonies as part of socialization and harmony.

During colonial rule, areca nut was exported and introduced into the western world for its therapeutic potential in curing indigestion, halitosis, and deworming [16]. Over the ages, these customary offerings of areca nut faded from household practices and commercialization increased. The areca nut was milled into different forms at various concentrations with the addition of sweeteners and mouth fresheners. It was vigorously promoted to the general public with ease of availability even in petty shops. Of late, Chronic chewers had increased among the younger populations of the psychoactive nature of areca nut products. The acute effects

are neuroexcitatory and pleasure inducer with a sense of euphoria, heightened alertness, a sense of well-being, and warmness over the body surface with improved work capacity [17].

In most situations, the diagnosis of OSMF has become an additional finding in public dental screening camps or among those who report to clinics for tooth-related complaints [18]. It has therefore become important to understand those non-specific complaints observed in OSMF patients which motivate them to approach dental settings for treatment care. Hence this study was designed to assess the non-specific chief complaint among those who reported to our dental institution for one year. The data was collected retrospectively and statistical analyses were performed.

Among the 155 OSMF cases, 93.55% were males, and 6.452% were females with a mean age of 42.5 ± 11.8 and 52.4 ± 9.4 years respectively. The gender prevalence is similar to previous studies where OSMF males were more predominant chronic tobacco chewers than females [19, 20]. In OSMF grading using Kerr *et al*. classification [12], 76% were Grade-1, 7.74 % were Grade-2, 12.9% were Grade-3, and 3.2% were Grade-4. Interestingly, the patients with non-specific chief complaints unrelated to OSMF clinical presentation were the majority of 76.13 % comprising both males [94.07%] and females [5.93%]. Toothache [63%] was the most common non-specific complaint followed by stains on teeth [24%], missing teeth [11%], and mobility [2%]. This signifies that the patients are completely unaware of their existing precancerous lesion in the oral cavity and are focused more on dental complaints in the early stages of oral submucous fibrosis.

The association between gender and non-specificity of chief complaints was interpreted as statistically not significant [P-Value 0.63] implying that gender does not influence the patients to report chief complaint nature. But there was a statistically significant association between non-specific OSMF complaints and grading [P-Value of 0.0001]. This signifies the fact that asymptomatic cases reported in the early stages of OSMF for toothache are made aware of the lesion only after counseling and while presenting the formulated comprehensive treatment plan. Had they reported later, the progression of OSMF would complicate treatment further with an extended period of pharmacotherapy and follow-up care posing as a burden to the patient financially and emotionally [21]. Also, the quality of life [QoL] gets affected when reported at later stages of OSMF involving inferiority complex, weight loss, loss of appetite, sleep disturbances, nutritional deficiencies, and social isolation [22].

Very few studies have been done in assessing non-specific chief complaints in OSMF and ours is one among them. The result of our study was similar to the previous study done by Sachdev *et al*. [23] where 72.41% of stage 1 OSMF patients had non-specific dental complaints, and tooth pain in the third molar region [33.15%] was the most common complaint followed by stains on teeth [10.32%] and mobility of teeth [3.804%]. Another notable study was done by Gadbail *et al*. [24] in which 73.41% of OSMF cases reported to the dental hospital had non-specific chief complaints in the early stages [stage I comprising 47.05% and stage II comprising 22.5%] and 30.37% of the complaint was toothache in the third molar region. The reason attributed was negligence in maintaining adequate oral hygiene that had precipitated dental caries.

Our study had a few limitations that need to be taken into account while viewing this result. As it was a retrospective data collection study, the clinical cases included only those who reported to our dental institution. The possibility that a vast population has yet not been accounted for persists in our society who are beyond the accessibility of this institution spanning across rural areas and also among migrant workers with shifting demographics. To overcome this, larger-scale multicentric studies have to be devised engulfing diverse populations of various ethnicities to appreciate the malignant nature of the lesion and its variable clinical presentation. The predominant gender prevalence in OSMF was inclined towards males as per our analyses, which also has to be viewed in a broader aspect. This also could be understood as the significant number of the female population might have not reported to the dental hospitals due to barriers in health care such as social stigma, lack of financial independence, lack of accessibility to hospitals, and negligence towards self-care leading to procrastination in diagnosis.

A comprehensive clinical examination and correlation are vital for the early detection of oral submucous fibrosis which leads to designing the required treatment plan. Long-term multicentre studies with samples spanning major regions and provinces will be a better study design to understand OSMF patients who continue or discontinue treatment care. Routine screening and follow-up are still recommended, and OSMF patients should be regularly monitored with scheduled visits. This is crucial for health promotion among the public where health policies are drafted based on community needs and financial burdens thereby reducing comorbidities among people.

**Conclusion**

The findings of this study suggest that most OSMF diagnoses are incidental, especially in the early stages which brings into focus the abundant negligence by chronic tobacco chewers. Unless and until there is gravitated incapacitation of masticatory or speech functions, OSMF individuals do not visit dentists. Grade 1 OSMF patients have a predominant non-specific dental complaint of toothache only, as OSMF are asymptomatic in that stage. This study highlights that even if OSMF had been diagnosed as an ancillary finding, histopathological grading followed

by therapeutic interventions is needed irrespective of the chief complaint reported by the patient.

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**Conflict of interest:** None

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**Ethics statement:** This study was approved in its ethical and methodological aspects by the Institutional ethical clearance committee under the protocol number: IHEC/SDC/OMED-2002/22/428

**References**

1. Passi D, Bhanot P, Kacker D, Chahal D, Atri M, Panwar Y. Oral submucous fibrosis: Newer proposed classification with critical updates in pathogenesis and management strategies. Natl J Maxillofac Surg. 2017;8(2):89-94.
2. Rao NR, Villa A, More CB, Jayasinghe RD, Kerr AR, Johnson NW. Oral submucous fibrosis: a contemporary narrative review with a proposed inter-professional approach for an early diagnosis and clinical management. J Otolaryngol Head Neck Surg. 2020;49(1):3.
3. Tilakaratne WM, Klinikowski MF, Saku T, Peters TJ, Warnakulasuriya S. Oral submucous fibrosis: review on aetiology and pathogenesis. Oral Oncol. 2006;42(6):561-8.
4. Auluck A, Hislop G, Poh C, Zhang L. Areca nut and betel quid chewing among South Asian immigrants to Western countries and its implications for oral cancer screening. Rural Remote Health. 2009;9(2):1118.
5. Bedi R. What is gutkha. BDA News. 1999;12:20-1.
6. Chadda R, Sengupta S. Tobacco use by Indian adolescents. Tob Induc Dis. 2002;1(2):111-9.
7. Patel DR. Smoking and children. Indian J Pediatr. 1999;66(6):817-24.
8. Yardimci G, Kutlubay Z, Engin B, Tuzun Y. Precancerous lesions of oral mucosa. World J Clin Cases. 2014;2(12):866-72.
9. Vibha S, Roop G. Evaluation of herbal preparation in management of oral submucous fibrosis. Int J Oral Maxillofac Surg. 2019;48:162.
10. Bari S, Metgud R, Vyas Z, Tak A. An update on studies on etiological factors, disease progression, and malignant transformation in oral submucous fibrosis. J Cancer Res Ther. 2017;13(3):399-405.
11. Saalim M, Sansare K, Karjodkar F, Johaley S, Ali I, Sharma S, et al. The prevalence of oral squamous cell carcinoma with oral submucous fibrosis. J Cancer Res Ther. 2021;17(6):1510-4.
12. Kerr AR, Warnakulasuriya S, Mighell AJ, Dietrich T, Nasser M, Rimal J, et al. A systematic review of medical interventions for oral submucous fibrosis and future research opportunities. Oral Dis. 2011;17 Suppl 1:42-57.
13. Shih YH, Wang TH, Shieh TM, Tseng YH. Oral Submucous Fibrosis: A Review on Etiopathogenesis, Diagnosis, and Therapy. Int J Mol Sci. 2019;20(12):2940.
14. Pant I, Rao SG, Kondaiah P. Role of areca nut induced JNK/ATF2/Jun axis in the activation of TGF-β pathway in precancerous Oral Submucous Fibrosis. Sci Rep. 2016;6:34314.
15. Das M, Manjunath C, Srivastava A, Malavika J. Epidemiology of oral submucous fibrosis: a review. Int J Oral Health Med Res. 2017;3(6):126-9.
16. Prabhu RV, Prabhu V, Chatra L, Shenai P, Suvarna N, Dandekeri S. Areca nut and its role in oral submucous fibrosis. J Clin Exp Dent. 2014;6(1):e569-75.
17. Chu NS. Neurological aspects of areca and betel chewing. Addict Biol. 2002;7(1):111-4.
18. Northridge ME, Kumar A, Kaur R. Disparities in Access to Oral Health Care. Annu Rev Public Health. 2020;41:513-35.
19. Flora MS, Mascie-Taylor CGN, Rahman M. Gender and locality differences in tobacco prevalence among adult Bangladeshis. Tob Control. 2009;18(6):445-50.
20. Chandra PS, Carey MP, Carey KB, Jairam KR, Girish NS, Rudresh HP. Prevalence and correlates of tobacco use and nicotine dependence among psychiatric patients in India. Addict Behav. 2005;30(7):1290-9.
21. Ridgeway JL, Egginton JS, Tiedje K, Linzer M, Boehm D, Poplau S, et al. Factors that lessen the burden of treatment in complex patients with chronic conditions: a qualitative study. Patient Prefer Adherence. 2014;8:339-51.
22. Memon AB, Rahman AAU, Channar KA, Zafar MS, Kumar N. Assessing the Quality of Life of Oral Submucous Fibrosis Patients: A Cross-Sectional Study Using the WHOQOL-BREF Tool. Int J Environ Res Public Health. 2021;18(18):9498.
23. Sachdev R, Garg K, Shwetam S, Srivastava A. Non-specific Chief Complaints Among Oral Submucous Fibrosis Patients at Outpatient Department and Pan Shop at Rural Region in India. J Int Soc Prev Community Dent. 2021;11(4):382-8.
24. Gadbail AR, Dande R, Sarode SC, Gondivkar S, Belekar L, Mankar-Gadbail M, et al. Patients with oral submucous fibrosis who visit dental hospitals have nonspecific chief complaints. Transl Res Oral Oncol. 2019;4:2057178X19858453.