

Frequency and Clinical Presentation of Oral Submucous Fibrosis

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ABSTRACT

Background: Oral submucous fibrosis (OSMF) is a chronic, precancerous condition of oral mucosa characterized by juxta-epithelial inflammatory reaction along with hyalinization of lamina propria. These alterations causes fibrosis and stiffness of oral mucosa leading to limited mouth opening and related problems.¹

Objective: To evaluate the frequency and clinical forms of Oral Submucous fibrosis.

Methods: A retrospective study conducted on patients from Oral & Maxillofacial Surgery department of Dr. Ziauddin hospital Clifton, Kemari & North Nazimabad campus from 2009 till 2013. Patients with OSMF irrespective of age and gender were the inclusion criteria. The demographic information along with clinical presentation of patients was tabulated and analyzed by descriptive statistics.

Results: A total number of 70 patients with OSMF were evaluated. The most common age group was 11-20 years in the study. There were 42 male and 28 female patients with male female ratio. The most common complaint of OSMF patients was burning sensation in oral cavity followed by limited mouth opening and dryness of mouth. The majority of patients presented with an advanced stage of disease with grade 3 interincisal distance.

Conclusion: OSMF is becoming a disease of younger adults with a slight male predilection. The majority of patients presents with a progressive and advanced form of disease.

KEY WORDS: *OSMF, Precancerous Condition, Fibrosis, Interincisal Distance.*

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Cite as: Wahab N, Asifali S, Khan M, Khan S, Mehdi H, Sawani A. Frequency of clinical presentation of oral submucous fibrosis. Pak J Med Dent 2014; 4(4):48-53.

INTRODUCTION

Oral submucous fibrosis (OSMF) is a potentially debilitating condition of oral mucosa characterized by inflammatory reaction of epithelium along with fibrosis of submucosal tissues. The condition was first reported by Schwartz in early 1950s as an idiopathic disorder.¹ However, number of surveys and studies have been conducted since then that reflects on multiple etiological variables including areca nut, chillies, iron, and zinc and vitamin deficiency.² According to recent epidemiological studies, areca nut has been identified as the predominant etiological factor of OSF.³ It was evaluated through experimental studies that commercially available dried products such as pan masala, gutka and mawa contain higher concentration of areca nut and causes OSF more rapidly than by self-prepared betel quid which was found to contain lesser amounts of areca nut.⁴ It has been hypothesized that increase copper content in areca nut interfere with the synthesis of extracellular matrix molecules such as collagen leading to either increase collagen production or decrease collagen degradation. This mechanism subsequently leads to increase collagen production causing fibrosis of sub epithelial tissues which has been demonstrated on oral biopsies.⁴ The epidemiological studies reveal that the disease is predominantly seen in Asian countries including India, Bangladesh, Sri Lanka, Pakistan, Taiwan, and China where the prevalence of areca nut consumption has been reported to be significantly higher.⁵ The onset of OSF is insidious and early symptoms are burning sensation in the mouth with blister formation and ulceration. Moreover, in later stages of disease, the patient presents with limited mouth opening due to stiffening of oral mucosa leading to difficulty in eating, swallowing, speech and maintenance of oral hygiene. Clinically, the mucosa appears blanched and opaque and fibrous bands are palpable in the buccal mucosa.⁶ More et al. proposed a new classification to stage the

severity of the disease on basis of clinical presentation. According to his study, blanching of oral mucosa was categorized as stage 1, presence of palpable fibrous bands in buccal mucosa and pharynx was graded as stage 2 and palpable bands involving multiple oral sites was documented as stage 3. However, presentation of OSMF along with other malignant disorders or oral carcinoma was recorded as stage 4. Moreover, he further presented the functional staging of disease based on different mouth opening range. The interincisal mouth-opening range greater than 35 mm was marked as M1 stage followed by M2 and M3 stages with mouth opening range between 25-35mm and 15-25 mm respectively. However, the value less than 15mm was graded as M4 stage.⁷ With the advancement of disease, there is high risk of malignant transformation leading to poor prognosis.⁷

METHODOLOGY

This was a retrospective study conducted in Karachi, Pakistan. The cases were selected from Oral & Maxillofacial Surgery department of Dr. Ziauddin Hospital Clifton, Kemari and North Nazimabad campus from 2009 till 2013. An oral expressed consent was taken from the patients regarding participation and publication of data. The patients suffering from OSMF irrespective of age and gender were included in the study. The demographic data including age, gender, ethnicity and employment status were recorded in a specially designed proforma for the study. Clinically, the site and presentation of the lesion along with the associated features including mouth opening, burning sensation, dryness of mouth and speech difficulty were evaluated. The patient's record and the data was recorded in the proforma.

The collected data was entered and analyzed by SPSS statistic software version 20. Descriptive statistics was calculated for the variables.

RESULTS

A total of 70 patients with OSMF reported to Oral Maxillofacial Surgery department of Dr. Ziauddin hospital Clifton, Kemari and Nazimabad during the study period.

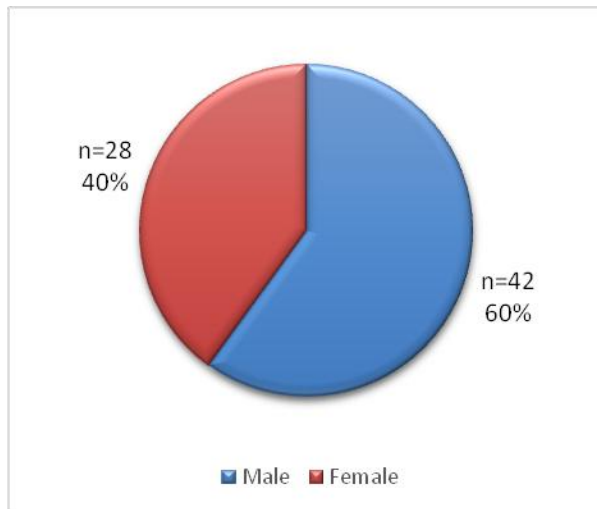
The patients were divided into 4 groups according to their age. The highest incidence was recorded in second decade of life which was about 73% (n=51) followed by 21% (n=15) of patients in 21-30 years of age group. However, only 3% (n=2) of patients were recorded in extremes of age including both 0-10 and 31-40 year age group. The average age of patients was 18 years. (Table 1)

Table 1. Age distribution of patients with Oral Submucous Fibrosis

Age	Number of Patients	Percentage
0-10 years	2	3%
11-20 years	51	73%
21-30 years	15	21%
31-40 years	2	3%
Total =70		

The data furthermore revealed that out of 70 patients in the study, 60% (n=42) were males and only 40% (n=28) were females. This suggests higher incidence of disease in males. The male to female ratio was 1.5:1 (Figure 1).

Figure 1. Age distribution of patients according to gender



Of all the patients reviewed, 97% (n=68) of patients presented with burning sensation followed by 93% (n=65) of patients with complaint of limited mouth opening (Figure 3)

and dryness of mouth. However, only 7% (n=5) presented with vesicles and none of the patients complained of difficulty in speech.

Figure 2. An OSMF patient with limited mouth opening

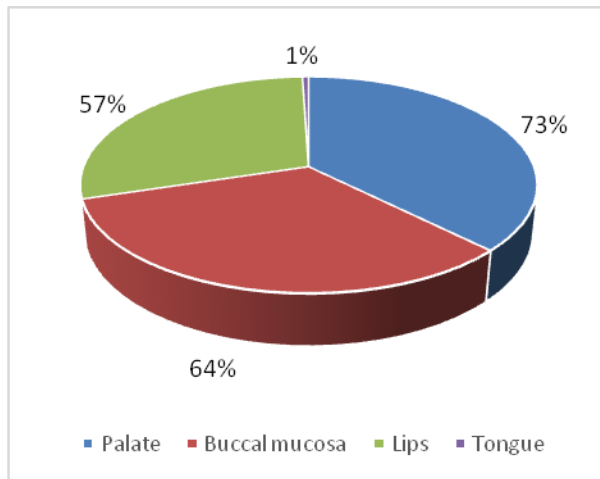


The lesion was predominantly encountered on palate with 73% (n=51) of patients evaluated for same (Figure 3). Moreover, 64% (n=45) and 57% (n=40) of patients were examined with lesion on buccal mucosa and lips respectively. Only 1 out of 70 patients presented with involvement of tongue as well. (Figure 4).

Figure 3. OSMF encountered on palate

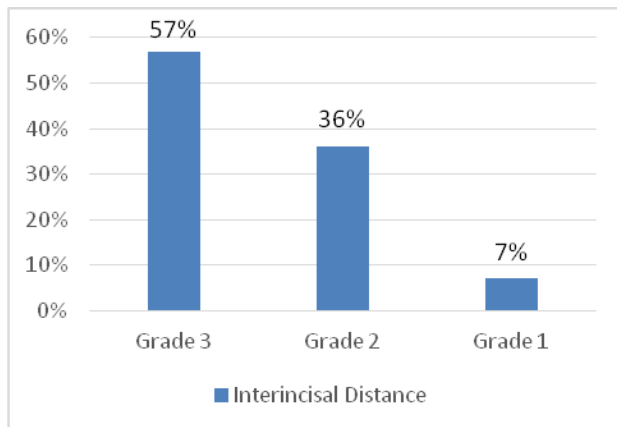


Figure 4. Site distribution for OSMF



The majority of patients around 57% (n=40) were recorded with grade 3 mouth opening followed by 36% (n=25) of patients with grade 2 inter incisal distance. However, only 7% (n=5) of patients presented with grade 1 mouth opening. (Figure 5).

Figure 5. Frequency of limited mouth opening in OSMF patients



DISCUSSION

Oral submucous fibrosis (OSMF) is a chronic precancerous condition of oral mucosa which is predominantly caused by excessive intake of areca nut.⁸ The data reveals that the disease is commonly found in younger age group i.e. from 11-20 years of age. In previous studies, OSMF was found to be more prevalent in a later age of life i.e. from 20-40 years of age.⁹ An eight fold

increase has been observed since 1980s in the prevalence of OSMF in younger age group which is strongly related to increase popularity and availability of areca nut containing products. The advertisement and marketing strategies of these products forces the youth to accept it as sign of modernity and fashion. Gupta et al found in his study that consumption of gutkha and tobacco to be popular among younger age group in Asian countries. He further supported his study by evaluating the Indian market of areca nut, tobacco, pan masala and gutkha which was rated for a worth of Rs. 25 billion.¹⁰ Furthermore, Oakley et al. in the region of Mariana Islands also found a higher rate of disease in teenagers which was correlated to increase consumption of areca nut preparation in their high school.¹¹

A conclusive evidence for the pathogenesis of OSMF states that the disease is caused by different chemical constituents of areca nut and genetic susceptibility of the disease. These chemical constituents have been found to enhance the upregulation and/or degradation of collagen in the oral epithelium which leads to distortion of lamina propria and submucosa of oral cavity.¹¹ Different in vitro studies carried out on human fibroblasts using areca extract explains the role of copper in areca nut as a strong mediator of fibrosis. Recent advances also support the development and pathogenesis of OSMF with collagen related genes.¹¹

In this study, most of the OSMF cases were observed with a male preponderance. This is in accordance with previous reports from Hazarey et al., Yuh-Yuan et al., Merchant et al., Ali SM et al., Reddy V et al., and Ahmad MS et al.¹²⁻¹⁷ All these authors favorably support this study with an evidence that the consumption of areca nut is greater in men than women. According to a study conducted in Indian state of Wardah, the prevalence of gutkha usage by men and women was documented to be 46.4% and 20% respectively.¹⁸ However, the studies reported by Joshi, Desa, and Sirsat and Khanolkar¹⁹⁻²¹ contradict these findings by documenting equal number of OSMF cases among both males and females. Moreover, Rao and Raju, Rao and Pindborg et al.²²⁻²⁴ reported a preponderance in females. These variations could be due to habit consumption of areca nut equally or predominantly by women in the tropical areas of study in that point of time.

The predominant complaint of OSMF patients in our study was burning sensation and limited mouth opening evaluated as 97% and 93% respectively. The results relates with previous studies of Shiau and Morawetz et al.²⁵⁻²⁶ who also concluded that majority of OSMF patients complaint of burning sensation followed by difficulty in mouth opening. The very first and significant feature of OSMF is stomatitis which results in epithelial atrophy of oral mucosa. The patient thus complains of burning sensation while eating hot and spicy food. Stomatitis can continue till all stages of OSMF.²⁷ with the advancement of disease, fibrous bands appear in the mucosa which gradually become palpable. The severity of OSMF depends upon the number of oral sites involved and the amount of thickness and rigidity of mucosa.²⁷ an important criteria in diagnosing the progression of the disease is by determining the interincisal mouth opening. Majority of the cases of OSMF reports with an increased severity.²⁷

CONCLUSION

Oral submucous fibrosis is a chronic debilitation disease that predominantly affects younger age group adults with male predilection. The condition is predominantly characterized by burning sensation and limited mouth opening. The majority of patients present with an increased severity of disease with grade 3 interincisal mouth opening which suggests lack of awareness among patients and delayed diagnosis. An advancement in diagnostic aids is required to arrest the disease in initial stages. Moreover, awareness campaigns must be carried out to educate the youth about the hazardous habits.

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