

To Study the Prevalence and Pattern of Oral Submucous Fibrosis in Jharkhand: An Overview

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ABSTRACT

Background: Oral submucous fibrosis (OSMF) is the most prevalent potentially malignant disorder that is associated with betel quid chewing frequently observed among Indian population

AIM: To study and determine the prevalence of oral submucous fibrosis and to evaluate its association with habitual Gutkha chewing, areca nut, betel nut and betel leaf and other associated adverse habits.

Material and methods: The Oral submucous fibrosis patients in the outpatient Department RIMS, Ranchi were examined. The study design was a cross sectional study. A total of 248 OSMF patients were recorded between October 2017 to March 2018. Complete clinical history, including demographic details, various oral habits – the frequency (number of times per day), duration (years of consumption) and type [Areca nut, Pan, Gutkha] were recorded in case record forms.

Result: A majority of patients belonged to Stage II with a mean $\pm$ SD (62.34 $\pm$ 2.13). Many patients were males of age group 36-40 yrs and females in the age group 31-35 yrs.

Conclusion: The present study reveals that OSMF is closely associated with the use of chewing tobacco like gutkha, pan and areca nut. Special efforts are needed to educate the public about the adverse effects of tobacco chewing.

Keywords: OSMF, tobacco, radiology.

INTRODUCTION

Oral submucous fibrosis (OSMF) is “an insidious, chronic disease which usually affects any part of the oral cavity and sometimes the pharynx. Though it is occasionally preceded by or associated with vesicle formation, it is always associated with juxta-epithelial inflammatory reaction followed by fibro-elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causes trismus and inability to eat.”[1,2] Worldwide, estimates of OSMF shows a confinement to Southeast Asians, with an overall prevalence rate of approximately 0.2–0.5% and a

gender prevalence of 0.2–2.3% in males and 1.2–4.57% in females.[3]

Oral Submucous Fibrosis has been reported almost exclusively among Asiatics, with a reported prevalence ranging up to 0.4% in the population.[4] The association with cancer is highly probable but not yet conclusive.[5] The use of tobacco and its various forms are one of the major risk factors of oral cancer. Although there are regional variations in the type of areca nut products used. The betel quid (BQ) was the most popular and prevalent habit in ancient culture. But in 1980, both areca quid products such as Pan masala and Gutkha were introduced in market as commercial preparations.

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Since then there has been an increase in the use of Pan Masala and Gutkha in the younger age groups, which had lead to increased incidence of OSMF.[6] Pan Masala includes areca nut, catechu, lime, flavours and spices. Recently, it has been documented that the habit of chewing Gutkha has gained considerable popularity among the younger men in this region. However, only a few reports have been published on the gender specificity in relation to the habit patterns and the severity of OSMF disease.[7] Hence the present study is conducted to evaluate the paucity of gender specificity prevalence and disease severity.

MATERIAL AND METHODS

The Oral submucous fibrosis patients in the outpatient Department RIMS Ranchi. A total of 32 patients reported of burning sensation complaint and were referred from Dept of Medicine who were also suffering from systemic ailment. The study design was a cross sectional study. The duration of the study was of six months between year 2017 to 2018. OSMF patients were divided according to gender. A total of 248 OSMF patients were recorded suffering from OSMF. Complete clinical history, including demographic details, various oral habits – the frequency (number of times per day), duration (years of consumption) and type [Areca nut, Pan, Gutkha] along with tobacco use were recorded in case record forms. The selected patients were divided into four groups according to their clinical stage.[7,8]

Stage I: Interincisal mouth opening up to or greater than 35 mm, stomatitis and blanching of oral mucosa.

Stage II: Interincisal mouth opening between 25 and 35 mm, presence of palpable fibrous band in buccal mucosa and/or oropharynx, with/without stomatitis.

RESULTS

Table 1. Distribution of the OSMF patients according to clinical stages of OSMF

Stage	N	%	Mean	SD
Stage I	84	33.87	62.34	2.13
Stage II	92	37.09		
Stage III	40	16.12		
Stage IV	32	12.9		

Stage III: Interincisal mouth opening between 15 and 25 mm; presence of palpable fibrous bands in buccal mucosa and/or oropharynx, and in any other parts of the oral cavity.

Stage IV: Interincisal mouth opening less than 15 mm. a. Any other stage along with other potentially malignant disorders, e.g., oral leukoplakia, oral erythroplakia, etc. b. Any other stage along with oral carcinoma.

The OSMF patients were divided in four categories on the basis of age groups: • Group I: 10–20 years • Group II: 20–30 years • Group III: 30–40 years • Group IV: 40–50 years.

Prevalence of OSMF was also recorded on the basis of habit duration and divided in three groups: • Group A: 2–5 years • Group B: 5–10 years • Group C: More than 10 years.

This study was conducted on the basis of the type of habit and divided in three groups [Table 2]:

• Group 1: Guthka Group 2: Pan 3: Arecanut. We also noted that if a person was taking a combination of Gutkha or areca nut or all the three, it was asked by the patient which tobacco product was taken the most and this was considered the most.

We excluded Children below the age of 10 years and Pregnant and lactating women.

Statistical Analysis

Data was precoded and a master chart was prepared. Descriptive statistics, Chi square test and t test were used for association between the variables. SPSS 16 was used for data analysis.

Out of the total OPD, 249 patients were diagnosed of OSMF. One of the patient did not gave consent and was excluded from the study, so total study population was 248. A total of 32 patients reported of burning sensation complaint and were referred from Dept of Medicine who were also suffering from systemic ailment. We made a separate data for patients with systemic ailments and suffering from OSMF.

Table 1. A majority of patients belonged to Stage II with a mean $\pm$ SD of 62.34 ± 2.13 . The prevalence was statistically significant

Most of the OSMF patients gave history of chewing Gutkha followed by Pan and areca nut. Majority of the patients reported in Stage II OSMF.(Table 2)

There was a statistically significant difference in the staging and adverse habit

Table 2 Distribution of OSMF patients suffering from systemic ailments

Age group	OSMF stage	Habit	n	Male	Female
11- 20	I	Gutkha	2	2	0
		Pan	0		
		Arecanut	0		
21-30	II	Gutkha	2	2	1
		Pan	1		
		Arecanut	0		
31-40	III	Gutkha	10	12	5
		Pan	2		
		Arecanut	5		
41-50	III	Gutkha	4	7	2
		Pan	2		
		Arecanut	3		
51-60	IV	Gutkha	1	1	0
		Pan	0		
		Arecanut	0		

Table 3. Distribution of the OSMF patients according to adverse habit

Stage	N	Habit	n	%(Out of total patients)
Stage I	78	Gutkha	42	53.8
		Pan	26	33.3
		Arecanut	10	12.8
Stage II	93	Gutkha	48	51.6
		Pan	24	25.8
		Arecanut	21	22.5
Stage III	49	Gutkha	22	44.8
		Pan	16	32.6
		Arecanut	11	22.4
Stage IV	28	Gutkha	11	39.2
		Pan	8	28.5
		Arecanut	9	32.14

P $\leq$ 0.05

Table 4. Gender based OSMF distribution

Age group	Males(n=187)	Females(n=61)	N(%)
11-15	4	0	4(1.6)
16-20	26	1	27(10.8)
21-25	32	0	32(12.9)
26-30	22	5	27(10.8)
31-35	49	52	101(40.7)
36-40	54	3	57(22.9)

Table 3 shows that the majority of the patients were males of age group 36-40 yrs and females in the age group 31-35 yrs.

Table 5. Duration of Habit

Duration of Habit	Total (N=248)	%	Stage	Number	%	Mean±SD
2-5 years	109	43.9	I	24	22.01	54.2±2.13
			II	37	33.9	
			III	41	37.6	
			IV	7	6.4	
5-10 yrs	97	39.1	I	0	0	47.13 ±2.6
			II	27	27.8	
			III	69	71.1	
			IV	1	1.03	
More than 10 yrs	42	16.9	I	0	0	21 ±3.2
			II	8	19.04	
			III	32	76.1	
			IV	2	4.7	

P≤ 0.05

Table 4 shows that the majority of patients have duration of habit 2-5 years with OSMF. There was a statistically significance in the duration of habit and staging of OSMF

DISCUSSION

Oral submucous fibrosis is a common lesion of the oral cavity which can be transformed into malignancy in a long duration. Early detection of it is important for which clear concept in etiopathogenesis is required.[9] Though this disease is common in India but there are few studies dealing with OSMF. Our attempt was to have basic idea of clinical profile of Ranchi and nearby population, Jharkhand. A habitat of people with diverse ethnicity is famous for consumption of pan, guthka and betel nuts. The ethnic group of Jharkhand also consume alcohol in the form of rice

beer (Hadiya) which also has a synergistic effect. The location of the present study is helpful to get maximum number of cases with different ethnic groups.

The proportion of this disease is more in male in our study which is in correlation with studies done in neighbouring countries [10-15] with similar life style and culture. This difference is probably due to more outdoor activities in male and more accessibility of preparations. However in another study done in south India it was more found in female.[16] Average age at presentation was 25.6 years which is similar to study done in India.[15] Occupation doesn't matter much; it can be seen in all different types of job holders and unemployed. Gutkha was the commonest preparation unlike in study by Pandya[11] where it was in less than 1/4th patients. This may be a preference of preparation in

that locality. The exact data of how many people consume these preparations is not available for Jharkhand but another study showed that over 10% of urban males and 8% of rural males use gutkha or pan with tobacco.[17]

Commercially freeze dried products such as pan and gutkha have high concentrates of areca nut per chew and appear to cause OSMF more rapidly than by self prepared conventional betel quid that contain smaller amounts of areca nut. In this study, gutkha chewing with alcohol and smoking (bidi) were causes of stage III and IV OSF and oral leukoplakia (6.16%), as well as oral cancer (3.57%). Alcohol consumption has been associated with elevated risks of oral leukoplakia,[18] OSF,[19] and erythroplakia.[19]. However no studies have been recorded for Hadiya consumption so far. Tobacco smoking involves the inhaling of smoke, which may have less contact with the mouth and more contact with the throat and lung compared to tobacco chewing. Smokeless tobacco is an important etiological factor in the cancer of the mouth, lip, tongue, and pharynx. The Indian subcontinent has one of the highest rates of oral cancer in the world. 65% of all cancer in men and 33% of all cancers in women are tobacco related. Annual incidence of oral cancer is said to be 10/10000 of males.[9] Smoking consumption alone has been found to have no effect in the development of OSMF, however, its addition to areca nut consumption can be a risk factor for OSMF.[18]

A male predominance in OSMF cases was reported by Sinor et al.[18] in India. Male predominance in our study can be due to easy accessibility for males to use areca nut and its products more frequently than females in our society along with the changing lifestyles of youngsters. In this study, male patients were more in comparison to females, with a prevalence of 95.42% compared to 4.47% in females.

One significant clinical finding noted was that the number of cases found of OSMF were between duration 2- 5 years. This can be explained by the fact that the tissue response and tissue changes to an irritant is more noted in this period with changes in the hyaline formation histologically. This clinical feature is not yet reported in any of the studies.

In the present study, majority of OSMF (37.09%) cases were in grade II (25–35 mm) severity with an average mouth opening of 28.62 mm, which is in contrast with Cox's study (35), who found an average mouth opening of 34 mm in the Indian OSMF cases.

CONCLUSION

The commercially available areca nut and tobacco (gutkha) by products have shown higher severity in terms of clinical staging. The current study found that although habit is variable in the form of duration, frequency; chewing for a longer duration and swallowing without spitting was found to correlate significantly with the severity of clinical staging. Special efforts are needed to educate the adolescent population using available modalities such as oral health exhibition and camps.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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