

# Epidemiological Study of Oral Submucous Fibrosis in Yavatmal District

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## Research Article

**Abstract: Introduction:** Oral submucous fibrosis (OSF) is now accepted globally as an Indian disease, having highest malignant potential than any other oral premalignant lesions. The understanding of the exact role of alkaloids and other etiological agents with respect to pathogenesis will help the management and treatment modalities. **Material & Methods:** 370 patients of Oral Submucous Fibrosis attending the Dental out-patient clinic of S.V.N. Govt. Medical College, Yavatmal, over a period of one year, were selected for study. A detailed case history and clinical examination was done in visible light. The diagnosis of OSMF was difficulty in opening the mouth and associated blanched oral mucosa with palpable fibrous bands. **Results:** Of the 370 cases of OSMF studied, 223 (60.3%) cases were males and 147 (39.7%) cases were females. 547 (39.9%) patients chewed gutkha, 30% chewed betel nut and the remaining 27% chewed betel quid.

**Keywords:** Oral submucous fibrosis, gutkha.

### Introduction

Oral submucosal fibrosis (OSMF) is a chronic, premalignant condition of the oral mucosa which was first described by Schwartz 1952.<sup>1</sup> Pindborg (1966) defined OSMF as, "an insidious, chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by and/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 causing trismus and inability to eat".<sup>2, 3</sup> Worldwide, estimates of OSMF shows a confinement to Indians and Southeast Asians, with overall prevalence rate in India to be about 0.2% to 0.5 % and prevalence by gender varying from 0.2-2.3% in males and 1.2-4.57% in females.<sup>4</sup> The reasons for the rapid increase of the disease are reported to be due to an upsurge in the popularity of commercially prepared areca nut preparations (panmasala) in India<sup>5</sup> and an increased uptake of this habit by young people due to easy access, effective price changes and marketing strategies. Epidemiological data and intervention studies suggest that areca nut is the main aetiological factor for OSF. It has been suggested that ingestion of chillies, genetic susceptibility, nutritional deficiencies, altered salivary constituents, autoimmunity and collagen disorders may be involved in the pathogenesis of this condition.<sup>3</sup> The condition is well recognized for its malignant potential

rate of 7.6% and is particularly associated with use of areca nut in various forms with significant duration and frequency of chewing habits.<sup>(6, 7)</sup> Over the past several decades, dental researchers reported different aspects of OSMF. Yet, there is a big lacunae in the present scenario of evidence based dentistry which correlates the role of critical components of a habit such as duration, frequency, chewing time to the clinical grading of OSMF. Hence the present study was carried out to correlate these variables of the habit to the clinical grading of OSMF.

**Table 1:** Demographic Characteristics of study subjects

Characteristic of Subjects	No.	%	
Age (Years)	<20	6	1.6
	21-30	137	37.0
	31-40	193	52.3
	41-50	33	8.9
	>50	1	0.2
Gender	Male	223	60.3
	Female	147	39.7
Total	370	100	

### Material & Methods

The study was conducted at Shri Vasantnao Naik Govt. Medical College & Hospital, Yavatmal Patients attending the Dental out-patient clinic of S.V.N. Govt. Medical College, Yavatmal for oral diseases (disorders) were screened for OSMF over a period of one year. 370 patients of Oral Submucous Fibrosis were selected for study. A detailed case history and clinical examination was done in visible light. The diagnosis of OSMF was difficulty in opening the mouth and associated blanched oral mucosa with palpable fibrous bands. Cases complaining of difficulty in opening the mouth due to other reasons like inflammation etc were excluded from the study. The distance between the inter-incisal edges was measured in mm for assessing the ability to open the mouth. OSMF cases were clinically categorized into three clinical stages according to their ability to open the mouth.

Stage I – Mouth opening > 45 mm

Stage II - Restricted mouth opening 20-44 mm

Stage III - Mouth opening < 20 mm

**Table 2:** Personal Habits among study subjects

Personal Habits	No	%
None	0	0
Gutkha	270	72.9
Betel quid	203	54.9
Arecanut	137	37.0

An appropriate proforma was designed after pre testing, to collect detailed information of all the subjects such as sex, age, socioeconomic status, residential status, oral hygiene condition, amount of spices and chillies use, nutritional value of diet, any chewing habits of gutkha and other arecanut product, duration of chewing, duration of keeping in the mouth, frequency of chewing and style of chewing were recorded. Patients' chewing habits were categorized as: Betel nut

Betel quid: Use of betel leaf, lime and betel nut along with tobacco.

Panmasala: Various commercial brands in which the main ingredient is areca nut, to which sweetening and flavouring agents are added.

Clinical examination of the subjects was performed examining the factors such as burning sensation of mouth and tongue, irritation of mouth with chillies and spicy food, dryness of mouth or hyper salivation, difficulty or inability in opening mouth, blanched or opaque appearance of mucosa, loss of tongue papillae, atrophy of the tongue, soft palate movement restriction, inability to protrude tongue, presence of palpable fibrous band. The data were analyzed by SPSS (Statistical Package for Social Services version 16) and statistics such as frequency, percentage and mean values were used.

**Table 3:** Clinical Staging of study subjects

Clinical Staging	No	%
Grade I	111	30.1
Grade II	223	60.2
Grade III	36	9.7
Total	370	100

## Results and Discussion

In the present study, the age of the patient was ranging from 20-49 years with a peak at 21 to 40 years of age (Table 1). Half of the study population was in the age group of 20-29 years. The mean age in our study was 29.3 years. This changing trend of the disease presently indicates that involvement of more number of younger age group and this could be because of increased social encounters and economic liberty they get at this age in a rapidly developing nation like India. Therefore, during this age they indulge in various chewing habits such as betel nut, betel quid and panmasala etc, either to relieve stress or as a fashion. Of the 370 cases of OSMF studied, 223 (60.3%) cases were males and 147 (39.7%) cases were females (Table 1). In our study we observed that male to female ratio was 1.5:1. In an earlier study conducted in Indian city of Mumbai by Sirsat and Khanolkar<sup>6</sup> it was found that the male: female ratio was 1:1. Similarly Wahi et al<sup>7</sup> reported a male to female

ratio of 2:1. Later on Shah and Sharma<sup>8</sup> in their study in All India Institute of Medical Sciences, New Delhi reported

a male to female ratio of 1.8:1, which is quite similar to that found in the present study. A male predominance in OSMF cases was shown by Sinor et al<sup>9</sup> 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 and changing lifestyles of the youngsters. In the present study, patients had one or the other habit of chewing panmasala, betel quid alone or in combination, of which areca nut was one of the major constituents. In our study group, the patients had the habit of chewing either raw areca nut or the commercial areca nut products. Out of 370 patients, 547 (39.9%) patients chewed gutkha, 30% chewed betel nut and the remaining 27% chewed betel quid (Table 2). Excessive use of Chillies and spices were observed as one of the predisposing factors of OSMF. Several workers like Sirsat and Khanolkar<sup>6</sup>, Shiau and Kwan<sup>10</sup>, McGurk and Crag<sup>11</sup>, Rajendran et. al.<sup>3</sup>, Pillai et. al.<sup>12</sup> and Van Wyk<sup>13</sup> have reported that heavy use of spices and chillies as one of the predisposing factors of OSMF. "Capsiacin", an active extract from capsicum has been proven to act as an irritant. It is reported that the average mouth opening was 47.5 mm and 44.6 mm in males and females respectively, based on inter-incisal distance. Out of 370 cases, 111 (30.1%) were found to be in stage I, 223 (60.2%) in stage II and 36 (9.7%) in stage III. Clinically maximum numbers of cases were found in stage I.

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