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A Demographic Study on Oral Submucous Fibrosis in a Tertiary Care Hospital in Chennai

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Abstract:
Background: *Oral Submucous Fibrosis (OSF) is a premalignant disorder, mainly caused by arecanut chewing in various forms. OSF is predominantly seen in Indian Sub continent due to the habit of arecanut chewing. OSF is a chronic, progressive premalignant disorder which can lead to Squamous Cell Carcinoma.*
Aim: *The purpose of the study was to retrospectively evaluate the epidemiologic profile of patients with OSF.*
Materials and Methods*: OSF cases were retrospectively analyzed for a period of one year from December 2015 to 2016, for age, gender, habits, duration, symptoms, stage, interincisal mouth opening and associated oral lesions like squamous cell carcinoma and leukoplakia. The findings were formulated to chart the trends in patients reported to Department of Dental Surgery, Stanley Medical College & Hospital.*
Results: *Total of 115 OSF patients were analyzed with a male to female ratio of 5:1 with the mean age of 36 years. Restricted mouth opening was present in 34.78%. 32.17% had the symptom of burning sensation. 53.04% were mawa chewers with 39.13% had the habit for 1 to 5 years. Mouth opening was reduced to 26-35mm in 34.78% and 4 patients had Squamous cell carcinoma.*
Conclusion: *OSF is one of the major public health problem. Therefore oral health care professionals should create awareness among the public regarding the risk habits and its cessation.*
Key words*: Oral Submucous Fibrosis, areca nut, chewing habits.*

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I. Introduction

Oral Submucous Fibrosis (OSF) is a premalignant disorder which was first described by Schwartz 1952[1].OSF is defined 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" by Pindborg in 1966 [2].The prevalence of OSF in India is between 0.03% and 6.42% [3]. OSF has male predominance around the age group of 20 and 40 years. Excessive chilly consumption, areca nut chewing, vitamin B complex deficiency, iron deficiency, autoimmunity, genetic and environmental factors are considered to be the major etiological factors. The pathogenesis of OSF is multifactorial [4]. However, epidemiological studies and in vitro experimental studies have shown that the major etiological factor is areca nut chewing [5].OSF is predominantly seen in India, Bangladesh, Srilanka, Pakistan, Taiwan, and China and among other Asian, since the habit of areca nut chewing is prevalent among these population. Areca nut is either consumed alone or in combination with other constituents like tobacco. The reasons for the increase in the habit of chewing areca nut are attaining euphoria, satiation and thus the habit becomes addictive [6]. Buccal mucosa, palate, retro molar region, faucial pillars and pharynx are the commonly involved sites [7]. Early symptoms include burning sensation, hypersalivation/ hyposalivation , restricted mouth opening, difficulty in swallowing[4]. Areca nut chewing habit is increasing among the population of Chennai. The purpose of this retrospective study was to evaluate the epidemiological factors and clinical profile of patients with OSF in a tertiary care hospital in Chennai.

II. Material And Methods

The present retrospective study was carried out in the department of Dental Surgery Stanley Medical College and Hospital. Clinical details were retrieved from the department records over a period of one year. After proper evaluation a total number of 115 cases of clinically diagnosed OSF were considered for the study. Clinical details included name, age, gender, habits like chewing tobacco, pan, gutkha, arecanut and mawa. Duration and frequency of habits per day was recorded. Symptoms like burning sensation, restricted mouth opening, dryness of mouth, excessive salivation, presence of vesicles, ulcers, difficulty in speech, swallowing, hearing and changes in taste were noted.

Interincisal mouth opening were measured in millimeters. Patients were examined for blanching of mucosa, ,presence of fibrous bands, ulcers, vesicles, erosions, status of uvula , movement of tongue and concurrent presence of the premalignant and malignant conditions.

OSF subjects were divided into 4 groups according to Aziz [8],

Group 1: Early OSF without trismus (maximum inter incisal opening (MIO) > 35mm)

Group 2: Mild to moderate disease (MIO 26-35mm)

Group 3 : Moderate to severe disease (MIO 15-25mm)

Group 4a: Severe disease (MIO<15mm)

Group 4b: Extremely severe, malignant, premalignant lesion noted/ involving.

III. Result

In the present study 115 patients were included in the study out of which 95 (82.60%) were males and 20 (17.39%) were females (Table:1), with a male to female ratio of 5:1.

Table 1: Prevalence of OSF according to sex distribution

Cases	No.of cases (n=115)(%)
Male	95(82.60%)
Female	20(17.39%)

The youngest patient was 17 years old and the eldest was 63 years old with the mean age of 36years.Table 2 shows the age distribution of the patients with OSF. Maximum number of 50 (43.47%) patient were in the age group of 31-40 years, followed by 29 (25.21%) in the age group of 21-30 years. 24 (20.86%) and7 (6.08%) in the age groups of 41-50 years and above 51 years respectively. The least of 5 (4.34%) were in the age group of 11-20 years.

Table 2: Prevalence of OSF according to age distribution:

Age	No. of cases	Percentage
11-20	5	4.34%
21-30	29	25.21%
31-40	50	43.47%
41-50	24	20.86%
>50	7	6.08%

Patients of OSF had various symptoms mentioned in Table 3. Of the 115 patients 40 (34.78%) suffered from restricted mouth opening, followed by 37 (32.17%) with burning sensation of the oral mucosa. 11 (9.56%) had both burning sensation and restricted mouth opening.9 (7.82%) had ulcers and vesicles in the oral cavity. Difficulty in swallowing was present in 8 (6.95%) patients. 6 (5.21%) reported with excessive salivation and 4 (3.47%) had dryness of mouth.

Table3: Distribution of various symptoms in OSF patients:

Symptoms	No. of cases	Percentage
Burning sensation (BS)	37	32.17%
Restricted mouth opening (RMO)	40	34.78%
Difficulty in swallowing	8	6.95%
Ulcers and vesicles	9	7.82%
Dryness in mouth	4	3.47%
Excessive salivation	6	5.21%
BS and RMO	11	9.56%

The habit of mawa chewing was present in 61 (53.04%) patients, followed by pan chewing in 23 (20%) patients. Areca nut chewing was present in 22 (19.1%) patients. 4 patients (3.47%) had gutkha chewing and plain tobacco chewing habit respectively. Only one (0.86%) had the habit of eating chilly. The habit associated with the patients of OSF is given in Table 4.

Table 4: Prevalence of habits in OSF patients:

Type of habit	No. of	Percentage
Chilly	1	0.86%
Gutkha	4	3.47%
Areca nut	22	19.1%
Pan	23	20%
Plain tobacco	4	3.41%
Mawa	61	53.04%

The duration of the associated habits in OSF patients is given in Table 5. 45 patients (39.13%) had the habit for a period of 1 to 5 years. 43 (37.39%) had the habit around 6 to 10 years. 24 patients (20.86%) had the habit for more than 10 years. 3 (2.60%) had the habit for less than a year.

Table 5: Duration of the associated habits in OSF patients:

Duration	Number	Percentage
> than a year	3	2.60%
1-5 years	45	39.13%
6-10 years	43	37.39%
More than 10 years	24	20.86%

The minimum MIO possible was 5 mm and the maximum was 46mm. MIO of patients with OSF is given in Table 6. 40 (34.78%) patient had MIO around 26-35 mm followed by 33 (28.69%) with15-25mm. More than 36mm of MIO was possible in 26 patients and less than 15 mm in 16 patients (13.91%).

Table 6: Maximum Interincisal Opening (MIO) in OSF patients:

MIO (mm)	Number	Percentage
>35	26	22.60%
26-35mm	40	34.78%
15-25mm	33	28.69%
<15mm	16	13.91%

Table 7 shows the group of OSF patients according to Aziz, Group 2 had maximum of 40 (34.78%) patients. Group 3 had 33 patients (28.69%), Group 1 had 26 patients (22.60%). Group 4a had 10 patients (8.69%) and 6 (5.21%) in Group 4b. Among the 6 patients in Group 4b 2 had leukoplakia and 4 had malignant changes.

Table 7: Group of OSF patients according to Aziz :

Group	Number	Percentage
Group 1	26	22.60%
Group 2	40	34.78%
Group 3	33	28.69%
Group 4a	10	8.69%
Group 4b	6	5.21%

IV. Discussion

OSF is a chronic, progressive precancerous condition of the oral mucosa which was first termed as 'atrophica idiopathica mucosae oris' by Schwartz in 1952[1]. In the present retrospective study, the age of the patient was ranging from 17 to 63 years with the mean of 36 years. 43.47% of patients were in the third decade which was in accordance with Borle et al[9]. In the recent years there is a significant increase in the incidence of OSF among young generation[4]. Young individuals have an easy access to the various forms of commercially prepared arecanut. Areca nut is consumed either alone or in combination with other constituents. The male to female ratio in the present

study was 5:1. The male predominance was observed in the study of Gupta et al[10],Mahawar et al[11], Joshi et al[12]. According to the study of Sirsat et al[13] the male to female ratio was 1:1. Increased incidence of tobacco related habits among the male population compared to that of female is the reason behind the male predominance of OSF.
In the present study it was observed that 53.04 % of patients with OSF had mawa chewing. This was in accordance with Sinor et al[14]. 20% were pan chewers, 19.1% were areca nut chewers and 3.47% were gutkha chewers. Rangnathan et al[15] reported that 69% of their OSF patients were gutkha chewers. 115 (100%) OSF patients in the present study were habitual chewers of arecanut in a variety of forms. In the recent years, there is an increase in the incidence of OSF among the patient reports to our hospital. The increase in the incidence of OSF is due to the increase in the popularity and practice of habitual chewing of arecanut in a variety of commercially available forms. Murthi et al[16] reported that 98% of patients with OSF were chewers of arecanut either alone or in combination.

In the present study 34.78% of patients interincisal mouth opening had reduced to 26-35mm followed by 28.65% with 15-25mm. 5.21% among 115 OSF patients had leukoplakia and 3.47% had malignancy. 26% of patients with OSF had leukoplakia according to Pindborg et al[17]. Murthi et al[16] reported the malignant transformation to be 7.6%. 3.5% of OSF patients had malignant transformation in the present study. Pindborg[18] suggested that this may be due to the state of atrophic epithelium predisposing it to the action of chemical carcinogens.

V. Conclusion

In the recent years there is a significant increase in the incidence of OSF among the young adults, this may be attributed to the increase in the popularity and practice of habitual chewing of arecanut in the variable commercial forms available. Our study strongly suggests that there is association of OSF-a premalignant disorder and the chewing habit. We the diagnostician play a major role in diagnosing the disease earlier. Prevention of this premalignant disorder can be achieved by creating awareness among the public.

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K.Ramkumar "A Demographic Study on Oral Submucous Fibrosis in a Tertiary Care Hospital in Chennai.". "IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), Volume 17, Issue 2 (2018), PP 16-19.