PREVALENCE OF OSMF AMONGST FACTORY WORKERS IN DELHI NCR: A CROSS-SECTIONAL STUDY

Nitin Patwardhan[1], Sahil Thakar,[2] Ishan Prabhakar,[3] Vaibhav Motghare,[4] Monica Chaudhry,[5] Sumedha Kushwaha [6]

Professor, [1] Post Graduate Students[2-6]

1. Department of Public Health Dentistry, Teerthanker Mahaveer Dental College & Research Centre

2-6 Department of Public Health Dentistry, I.T.S Dental College, Hospital and Research Centre, Greater Noida

Abstract

Aim: To assess the prevalence of Oral Submucous Fibrosis (OSMF) in factory workers of three small-scale factories in the region of Delhi NCR

Methodology: A total of 405 factory workers were interviewed and examined for OSMF and associated lesions with the help of a preformed, pre-tested questionnaire. The population was divided according to six age groups (15- 24 years, 25- 34 years, 35- 44 years, 45-54 years and >55 years). Descriptive statistics was applied and statistics was done using SPSS 21.0.

Result: Tobacco consumption in any form was seen in 215 subjects with OSMF being diagnosed in 36 (8.9%)subjects comprising of 33 males and 3 females. The majority of subjects having OSMF (15, 41.7%) were seen in the age group of 25-34 years, showing an upward trend in the disease formation as well as tobacco consumption in the younger generation.

Conclusion: Direction of preventive efforts by the concerned authorities and public health professionals in establishing tobacco cessation clinics and tobacco education in such areas is urgently advised to combat the increase in uptake of tobacco consumption in the younger generation as well as OSMF cases.

Key Words: Prevalence, OSMF, Cross Sectional

Introduction

OSMF (Oral Submucous Fibrosis) is a widely recognized precancerous condition which is also looked upon as a potentially malignant disorder of and is characterized by a reduction in mouth opening, having palpable circumoral fibrous bands either on one side or bilaterally along with the sensation of "burning mouth". Its history dates back to 1952, when it was first described by Schwatrzwho observed the condition in five Indian women from Kenya and termed it as "atrophica idiopathic mucosa oris"[1]. A year later, in 1953, It was termed as Oral Submucous fibrosis (OSMF) by Joshi[2,3]. The condition 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 fibroelastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa causing trismus and inability to eat".[2,3]

This disease has varying etiology with factors associated with this including capsaicin, betal nut alkaloids, hypersensitivity, autoimmunity, genetic predisposition (HLA-A_{10}, DR_3, DR_7 and halotypes A_{10}/DR_3, $B,_3/DR_3$ and $A_{10}/B_{8)}$,malnutrition, chronic candidiasis, tobacco, lime, betel quid, genetic abnormalities, Herpes simplex virus (HSV) infection, Human papilloma virus (HPV) infection and autoimmunity which have been predicated and are known to have either have direct effect in compromising the immune system and disease formation.[4-8]

Ramnathan *et al*. further suggested that OSMF may be a mucosal change secondary to chronic iron deficiency with terming it as an "Asian analogue" of sideropenic dysphagia.[9]OSMF was suggested that as a nonspecific inflammatory reaction to trauma, yet the exact aetiology is still unknown (Gupta *et al*.).[10]OSMF can be classified clinically into two phasesappearing in a cyclic manner- the forstand the fibrosis induction phase which appear in a cyclic manner.

The condition is well recognized for itsmalignant potential rate of 7.6% with was reported over longitudinal studies conducted over a period of ten years. The disease occurs in .02%- 1.2% of the Indian Population with a certain studies suggesting an overall presence of 0-4% in places such as Kerala[11].

The increased consumption of commercially prepared arecanut preparations (Gutkha, Pan masala) specially in the younger generation has led to such high incidence of this diseasein certain areas of India[12,13]. The factory workers of Delhi NCR also report a high incidence of consumption of arecanut preparations and/or having risk factors for developing this disease and hence, we try to assess the prevalence of OSMF among the factory workers population of Delhi NCR.

Materials and Methods

In a Cross- sectional study conducted among workers of three small-scale factories in Delhi NCR from January 2013 to March 2013, a total of 405 factory workers were examined and interviewed with the help of a preformed, pre-tested questionnaire that enquired the factory workers about their habits and their sign and symptoms. The factory workers were divided according to six age groups, that were, 15- 24 years, 25- 34 years, 35- 44 years, 45-54 years and more than 55 years. Patients having any systemic disease were excluded from the study. We took an informed, written consent from the factory workers and obtained a clearance and permission letter from the factory management for the same.

The examinations were carried out by six examiners with four recording clerks who entered the data in the questionnaire. The examiners and the instruments were standardized and calibrated according to the current norms. A diagnosis of OSMF was made when the subject showed tell-tale signs of OSMF, with those being blanching and stiffness of the oral mucosa, any presence of palpable bands in buccal and/or labial mucosa, and having discomfort in mouth opening and tongue protrusion. The armamentarium used for this were sterile mouth mirrors, explorers, tweezers, kidney trays, instrument pouches, disposable latex gloves, disposable mouth masks and questionnaires[10-13]. Statistical analysis was done using SPSS version 21.0[14].

Results

The total study population comprised of 405 individuals, out of which89% (360) were males and 11 % (45) were females, with a male to female ratio of8:1 (Figure 1). Out of the 215 individuals who were found to have any tobacco-related habit, a total of 36 (8.9%) of subjects were found to have OSMF in which, 33 were males and 3 were females (Figure 2) .The majority of subjects having OSMF (15, 3.7%) were seen in the age group of 25-34 years, followed by age groups 35-44(10, 2.5%), 45-54(7, 1.8%) and 2 people in the age groups of more than 55 (2,0.5%) and 15-24 years.(2,0.5%). (Figure 3)

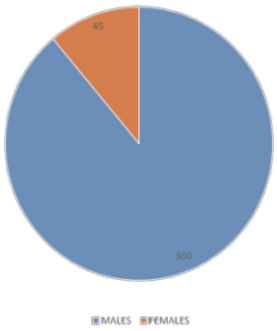

Figure 1: Distribution of study population

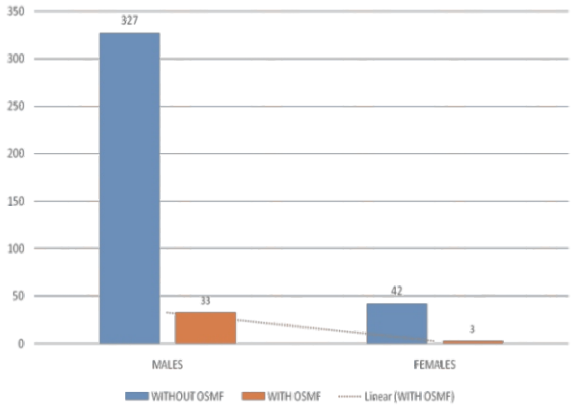

Figure 2: Prevalence of OSMF in population with respect to Gender

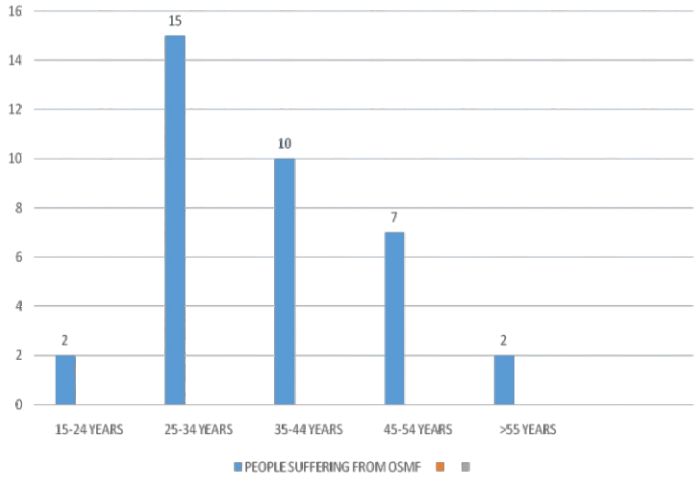

Figure 3: Percentage of population suffering from OSMF (Age-Wise)

Table 1 depicts the different kinds of habits in the study population. Out of the 215 people consuming tobacco, it was found out that a majority of the subjects (69.3%) chewed tobacco whereas 10.2% of the population consumed both smoke and smokeless tobacco. In 8 cases, OSMF was associated with other lesions of the oral cavity.

Table 1. Various types of tobacco habits in the study population

	HABIT		
AGE (In years)	SMOKELESS TOBACCO	SMOKED TOBACCO	BOTH
15-24	26	10	5
25-34	59	11	4
35-44	34	5	1
45-54	11	9	10
>55	19	9	2
TOTAL	**149**	**44**	**22**

Discussion

Our study puts the prevalence of OSMF in the factory workers population of Delhi NCR as8.9%, which is a high percentage as compared to previous studies conducted by Pindborg *et al*[7] (0 to .4%), Shear *et al*. (0.5%)[15] and Rajendran *et al*. (0.27%, 0.32%)[11]However, the prevalence rates of OSMF among factory workers varies from region to region as many authors have also documented the prevalence of OSMF as 3.39% [16] and 3.4%[17]respectively.

The habits of causing OSMF also vary accordingly. In our study, 69% of the population consumed tobacco, whereas other studies, majority of the subjects having OSMF consumed guthka (69%)[17,] (58.44%)[15]. 40% of the subjects in a particular study by Goel *et al*. (2010) primarily consumed tobacco and/or any by-product of areca nut.[15]

The prevalence affected male to female ratio was 12:1, which shower a greater male predominance of this disease among the factory workers of Delhi NCR. This ratio is quite high as compared to the male to female ratios of

various authors, namely, Pindborg *et al*. (1:2.9)[7], Afroz *et al*. (4:1)[19], and Vanaja Reddy *et al*. (2.3:1).[20]

Conclusion

It is important that preventive efforts be carried out by the concerned authorities and public health professionals in establishing tobacco cessation clinics and tobacco education in such masses (especially the young generation) along with a long standing and a close knit motivation program that enables our future generations to come to avoid the menace of tobacco and its subsequent health effects.

References

1. de Souza C, Pawar U, Chaturvedi P. Precancerous lesions of oral cavity. Otorhinolaryngology Clinics : An International J 2009;1(1):7-14
2. Schwartz J. Atrophiaidiopathicatropica mucosa oris. 11th Int Dent Congress. London 1952.
3. Joshy SG. Submucous fibrosis of the palate and pillars. Indian J Otolaryngology 1952; 4: 110-3
4. Aziz SR. Oral submucous fibrosis: an unusual disease. JNJ Dent Assoc 1997;68(2):17–9
5. Sunil MK, Sodhi SPS. Oral Submusous fibrosis: A review. BFUDJ 2010; 1(1): 30-4.
6. Paissat DK. Oralsubmucous fibrosis. Int J Oral Surg 1981; (10): 310-12
7. Pindborg JJ, Mehta FS, Gupta PC, Daftary DK. Prevalence of oral sub mucous fibrosis among 50915 Indian villagers. Br J Cancer 1968; 22: 646-54.C
8. hen HM, Hseih RP, Yang H, Kuo YS, Kuo M, Chiang CP. HLA typing in Taiwanese patients with oral submucous fibrosis. J Oral pathol Med 2004;33:191-99.
9. Ramanthan K. OSMF – an alternative hypothesis to its cause. *Medalay* 1981, 36(4)**:**243-45.
10. Gupta Soma, Reddy MVR, Harinath BC. Role of oxidative stress and antioxidants in aetiopathogenesis and management of oral submucous fibrosis. Indian Journal of Clinical Biochemistry 2004;19:138-41.
11. Rajendran R, *et al*. Prevalence of oral submucous fibrosis in the high natural radiation belt of Kerala, South India. Bull of WHO 1992;70(6):783-89.
12. Shafer, Hine, Levy. Shafer's textbook of oral pathology, (5th ed), Philadelphia, Elsevier publication 2006;136-39.
13. Sharma R, Raj SS, Mishra G, Reddy YG, Shenava S, Narang P. Prevalence of Oral Submucous Fibrosis in Patients visiting Dental College in Rural Area of Jaipur, Rajasthan. J Indian Aca Oral Med Radiol 2012; 24(1):1-4.
14. IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp
15. Shear M, Lemmer J, Dockrat IS. Oral submucous fibrosis in South African Indians: an epidemiological study. S AfrMedSci 1967; 32: 41-6.
16. Ahmad MS, Ali SA, Ali AS, Chaubey KK. Epidemiological and etiological study of oral submucous fibrosis among gutkhachewers of Patna, Bihar, India. J Indian SocPedodPrev Dent 2006;24:84-9.
17. Seedat HA, Vanwyk CW. Betelnut chewing and submucousfibrosis in Durban. South Africa Med Journal 1988;74(3): 568-71.
18. Goel S, Ahmed J, Singh MP, Nahar P. Oral submucousfibrosis: A clinico-histopathological comparative study in population of Southern Rajasthan. J CarcinogeneMutagene2010; 1: 108.
19. Afroz N, Hasan SA, Naseem S. Oral submucous fibrosis: A distressing disease with malignant potential. Indian Journal of Community Medicine 2006;31(4):270-77.
20. Reddy V ,Wanjari PV, Banda NR, Reddy P. Oral Submucous Fibrosis: Correlation of Clinical Grading to various habit factors. International Journal Of Dental Clinics 2011;3(1):21-4.

Corresponding Address

Dr.Nitin Patwardhan
Professor
Department of Public Health Dentistry
Teerthanker Mahaveer Dental college & Research Centre, Moradabad.