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

Nitin Patwardhan, Sahil Thakar, Ishan Prabhakar, Vaibhav Motghare, Monica Chaudhry, Sumedha Kushwaha

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 circumsoral 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 Schwatrz who 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, betel nut alkaloids, hypersensitivity, autoimmunity, genetic predisposition (HLA-A\(^10\), DR\(^3\), DR\(^7\) and halotypes A\(^10\)/DR\(^3\), B\(^3\)/DR\(^7\) and A\(^10\)/B\(^3\), 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.\(^4,5\)

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.\(^6\) OSMF was suggested that as a nonspecific inflammatory reaction to trauma, yet the exact aetiology is still unknown (Gupta et al.).\(^7\) OSMF can be classified clinically into two phases appearing in a cyclic manner- the forstand the fibrosis induction phase which appear in a cyclic manner.

The condition is well recognized for its malignant potential rate of 7.6% with was reported over longitudinal studies conducted over a period of ten years. The disease occurs in 0.2%-1.2% of the Indian Population with a certain studies suggesting an overall presence of 0-4% in places such as Kerala.\(^8\)

The increased consumption of commercially prepared arecanut preparations (Gutkha, Pan masala) specially in the younger generation has led to such high incidence of this disease in 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. Statistical analysis was done using SPSS version 21.0.

Results

The total study population comprised of 405 individuals, out of which 89% (360) were males and 11% (45) were females, with a male to female ratio of 8:1 (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)

Discussion

Our study puts the prevalence of OSMF in the factory workers population of Delhi NCR at 8.9%, which is a high percentage as compared to previous studies conducted by Pindborg et al (0 to 0.4%), Shear et al. (0.5%) and Rajendran et al. (0.27%, 0.32%) 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% and 3.4% 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%) (58.44%) and Goel et al. (2010) primarily consumed tobacco and/or any by-product of areca nut. The prevalence affected male to female ratio was 12:1, which showed 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), Afroz et al. (4:1), and Vanaja Reddy et al. (2:3:1).

**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**


**Corresponding Address**

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