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Original Research

Prevalence of oral submucous fibrosis in labours: a cross-sectional study in Kota, Rajasthan

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ABSTRACT:

Aim and Objectives: Oral submucous fibrosis (OSMF) is a chronic disease that progressively restricts mouth opening due to fibrous bands in the oral mucosa. Oral submucous fibrosis, a premalignant condition is more common in economically weaker section of the population. This study explores the prevalence and reason for the presence of oral submucous fibrosis among construction labours. **Material & Methods:** Cross sectional study was conducted using cluster sampling method with 900 construction workers as samples taken from nine construction sites in and around Kota using Fagerstrom nicotine dependence scale- smokeless tobacco questionnaire translated in regional language with permission from the labours and mouth opening was measured using millimeter scale. **Results:** Among 900 construction labours, 574 construction labours had tobacco chewing habit in which 62% of labours had oral submucous fibrosis. Oral submucous fibrosis is more prevalent in assistants with 77%, 46% in masons and 30% in supervisors. **Conclusion:** Understanding the prevalence and distribution patterns of OSMF may assist in healthcare intervention planning and alleviate the oral cancer burden associated with OSMF. Stoppage of tobacco chewing habit leads to reduction in occurrence of oral submucous fibrosis which in turn reduces the occurrence of lethal carcinoma.

Key words: Fagerstrom nicotine dependence scale, Oral submucous fibrosis, Smokeless tobacco, Labours.

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INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic disease that progressively restricts mouth opening due to fibrous bands in the oral mucosa. This condition is commonly linked to betel quid chewing, especially prevalent in South and Southeast Asia. This leads to symptoms such as burning pain and lock jaw, which significantly impair various oral functions, thereby greatly affecting the patient's quality of life. OSMF is identified by the World Health Organization (WHO) as a high-risk precancerous condition for oral squamous cell carcinoma (OSCC), with reported malignant conversion rates of up to 6% in some studies. Hence, it poses a considerable threat to long-term health outcomes. Currently, due to its irreversibility, OSMF cannot be cured by any effective treatment method, despite ongoing clinical trials and various therapeutic approaches. Prevention remains the sole viable option for clinicians to address OSMF.[1]

Oral submucous fibrosis is a pre malignant condition in tobacco chewers. Tobacco chewing habit is quite common in construction labours and also in drivers who wants to overcome their hunger during working hours. In a study conducted by Adhithya Parashari found that prevalence of tobacco chewing is more in drivers and conductors who work in odd hours and long hours of duty and the stress while working in the night makes them alert in the night and reduces their stress. And most of them addicted to this habit after coming to the profession[2]. Most of them acquire these habits from peer groups. Once addicted to this habit, they continue throughout their life unless any morbidity occurs which cripple their functional activity. Oral submucous fibrosis is one such morbidity which reduces mouth opening range. Oral submucous fibrosis is lethal pre malignant lesion commonly seen in tobacco chewers as well as in other

forms of tobacco available in the market. Prevalence of oral submucous fibrosis in Indian villagers varies in different states with 0.2% (n = 10071) in Gujarat, 0.4% (n = 10287) in Kerala, 0.04% (n = 10169) in Andhra Pradesh, and 0.07% (n = 20338) in Bihar. The prevalence of oral submucous fibrosis among 101,761 villagers in Maharashtra was 0.03%.[3] Prevalence of this premalignant lesion is reduced in recent owing to constant awareness of government in curbing this habit, increased education standard of the general population, but pathetically this lethal habit still prevails in low socioeconomic population mainly in construction workers. In a study conducted by Mamta Parashar et al , found that 91 % among 172 workers were tobacco users with 49% using smokeless tobacco,29% using beedi/cigarette and 22% using both.97.4% of these workers using tobacco in workplace.[4] Mamta Parashar et al., found that smokeless tobacco usage was 3.042 times more than literates.

Oral lesions were 11.226 times greater in smokeless tobacco users than non users.[5] Morbidity like squamous cell carcinoma caused by this habitual chewing of this tobacco quid for prolonged time leads to irritation of oral submucous membrane leading to deposition of fibrous layer in the submucous membrane reducing the mouth opening range. In a study done byC. W .Van Wyk et al, found that person affected with oral carcinoma who chew tobacco was 95 women and 55 men,the ratio of 1,7:1. 143 had squamous cell carcinoma with 7 patients had salivary gland carcinoma.Mean age for women is55.2 +_ 10 and for men is 56.4+_ 8.8 years.[6] This study aims to bring out the awareness about the lethal effects of this habit by providing standard questionnaire to the workers and also provides various ways to get rid of this habit at an early stage.

MATERIAL AND METHODS

Cross sectional study was conducted using cluster sampling method with samples taken from nine construction sites. Study was approved by our Institutional Ethical Committee according to Helsinki guidelines for research (Number-004/04/2018/IEC/SMCH). Samples were nine hundred construction labours, both male and female genders, around Kota city selected using Fagerstrom nicotine dependence scale- smokeless tobacco questionnaire with permission from the labours and written consent form and information sheet was received from the labours. Samples were selected according to the inclusion criteria like construction workers who are Supervisors, Masons and Assistants with age of between 18 years and above, both male and female workers were selected with females in the Assistant category. It is hard to find female masons. Male labours are alcoholics, smokers apart from being a tobacco chewers. Supervisors are graduates while masons and assistants were school dropouts. Period of tobacco usage were taken which ranges from 2 years to 40 years. Assistants belong to poor socioeconomic status while Masons and supervisors have moderate socioeconomic status. Tobacco packets used per day ranges from 1 to 5 packets per day. Workers who are carpenters, electricians and painters were not included in the study and workers below the age of 18 years were excluded from the study. Out of 900 workers 574 workers had tobacco chewing habit (Table 1). Workers were given questionnaire, mouth opening was measured using millimeter scale. Most of the workers who scored more than 5 in Fagerstrom nicotine scale[6] had oral submucous fibrosis in various stages and awareness was given to curb this habit.

RESULTS

Present study found that, assistants are more affected with this habit of chewing the tobacco when compared to masons and contractors due to prolonged time of chewing tobacco during working hours. Existence of oral submucous fibrosis lesions is also more common in assistants when compared to masons.

Table 1 –Prevalence of oral submucous fibrosis

Construction Labours	Prevalence of tobacco chewers	Prevalence of oral submucous fibrosis	Education level	Average Income/ per month(Mean)	Duration of tobacco use(Mean)
Construction supervisors	7%	30%	Graduates	Rs 50,000	7 years
Masons	14%	46%	School dropouts	Rs 30,000	13 years
Assistants	40%	77%	School dropouts	Rs 12000	16 years

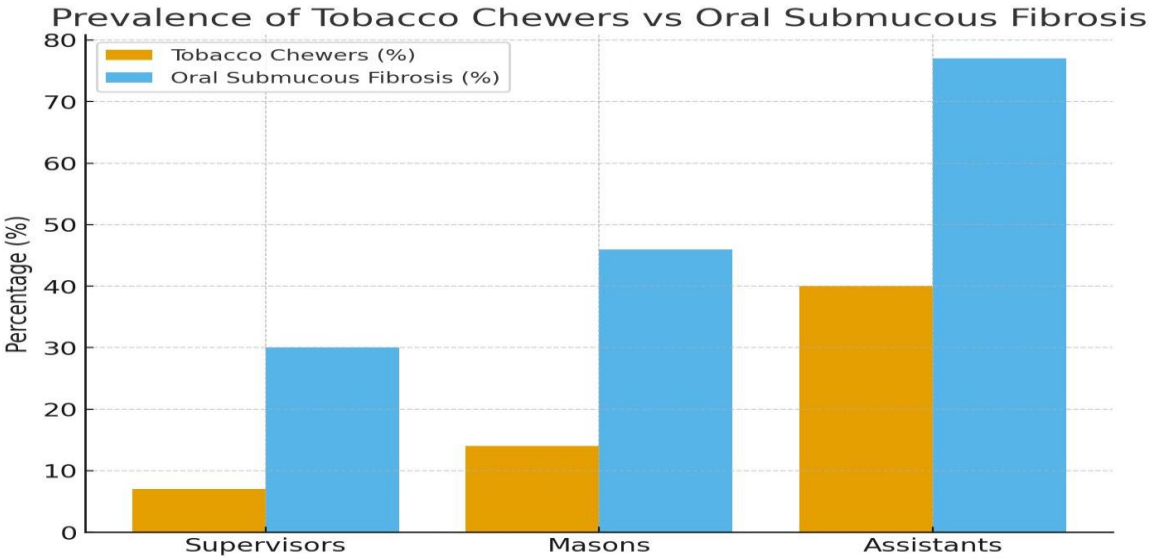

Figure 1: Bar Chart – Comparison of prevalence of tobacco chewers vs. oral submucous fibrosis among Supervisors, Masons, and Assistants.

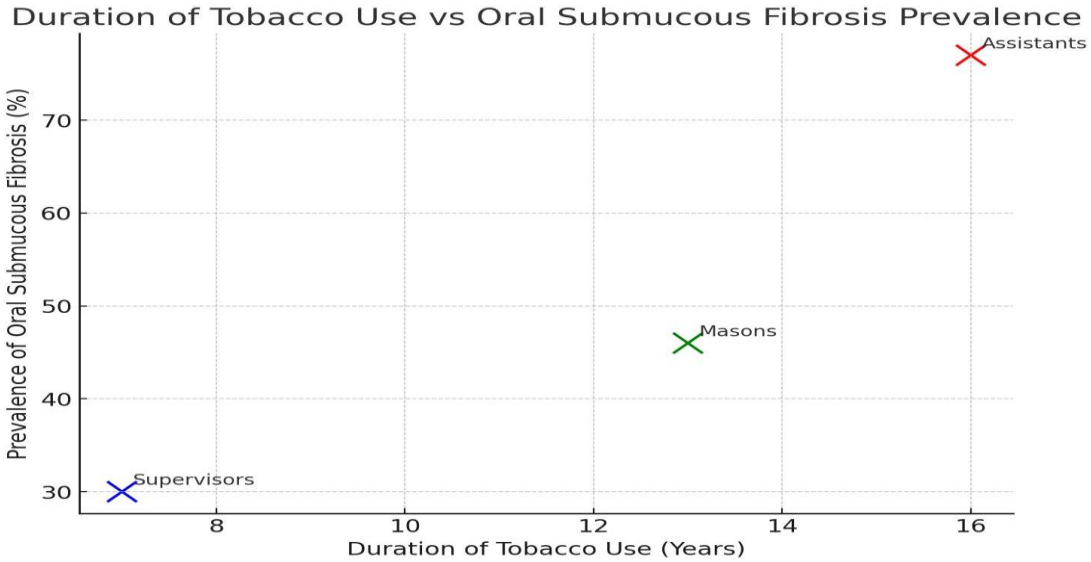

Figure 2: Scatter Plot – Relationship between duration of tobacco use (years) and prevalence of oral submucous fibrosis (%), showing Assistants as the most affected group.

DISCUSSION

Prevalence of oral submucous fibrosis is more common in persons who use tobacco quid for a prolonged time. Constant presence of tobacco quid irritates the oral mucous membrane for its alkalinity. Irritation leads to deposition of more fibrous layers of tissue in the submucous membrane leading to fibrosis. C W VanWyk., concluded that south African women of Indian origin who chews tobacco for prolonged period are more prone to get oral cancer. Changes which occurs in submucous membrane is permanent with presence of large fibroblasts producing large amounts of collagen[7,8]. Early and prolonged usage of tobacco leads to high incidence of oral submucous fibrosis which in turn increases the occurrence of oral squamous cell carcinoma in an early stage. Piyush Gandhi et al concluded that Oral submucous fibrosis is a abnormal healing response to irritation caused by areca nut with increased myofibroblast cells which has a potential to transfer into malignant carcinoma[9]. Prevalence of tobacco chewing is more common in men when compared to women. R.Sankara Narayanan stated that male patients ranks first when compared to female who are in third position with high association of formation of oral cancer in betel quid chewers[10]. In this study also, we found that tobacco chewing is more common in men when compared to women who used only betel nuts and tobacco along with betel leafs while men used various other products of tobacco available in the market. In contrast to this finding, study done by Gupta et al in 1980, found that 8 men and 19 women per one lakh population were affected with oral submucous fibrosis in Ernakulam district, Kerala for prevalence of oral

submucousfibrosis.[3] Drastic change in the prevalence of oral submucous fibrosis in female population is due to awareness of the morbidity caused by this lethal habit, education standard among female population, hesitation in using this tobacco, improved oral habits, intake of nutritious food with increased iron and vitamin B complex, lack of influence from the peer group and constant awareness from the government bodies which is lacking in the male population.

Men in low economic status have high prevalence of this tobacco chewing habit when compared to men in high economic status. Ridiculously men who engage in tobacco chewing have more interest in body building visiting the gymnasium regularly. This is commonly seen in urban men population. Prolonged usage of tobacco leads to more incidence of squamous cell carcinoma. Population who inhibits the habit of tobacco chewing after prolonged usage are not spared of from the occurrence of lethal carcinoma. Early stoppage of the habit prevents the occurrence of malignant carcinoma. Most advisable is to avoid chewing tobacco. Prevalence of mixed habits like alcohol drinking, cigarette smoking and tobacco chewing increases occurrence of malignant carcinoma due to the presence of oral submucous fibrosis which is a premalignant lesion.Subhapriya,et al found that betel quid chewing with tobacco, bidi smoking and alcohol drinking are high risk factors for oral cancer[11]. C-H Lee et al., concluded that cigarette smoking is a high risk factor in OSMF patients when compared to alcohol drinking to form oral leukoplakia[12]. HA Seedat et al,stated that chewing betel nuts will lead to pathological changes in the mucosa, neither frequency nor duration of habit are accurate predictors of the extent of changes or when they are likely to occur.[13] Oral submucous fibrosis has thick atrophic epithelium with inflammation. HA Seedat et al found following classical features in oral submucous fibrosis patients such as atrophic epithelium and very dense lamina propria with hyperkeratosis, atypia and signet cell – like degeneration of epithelium and chronic inflammation of lamina propria. A genetic predisposition may be reason for this OSF[14]. Seedat et al found atrophy of the oral epithelium and extensive fibrosis of the lamina propria which in some instances penetrated into submucosa also persisted.[15] H ASeedat et al concluded that Relationship between betel nut chewers chewing and submucous fibrosis exists but the mechanism by which disease develops is still obscure. A genetic predisposition may be important[16,17]. Due to the complexity of pathogenesis, there is no effective modality that provides precise therapy for OSF. The main purpose of treatment is to alleviate the symptoms of patients to the maximum extent, prevent the further progress of the disease and improve the patient's quality of life.[18]

Presence of betel and tobacco chewing in the women is less in the age of 18 to 65 years as these age group has not made it habit of chewing the tobacco or betel nut as a customary practice. Prevalence of tobacco chewing with presence of oral submucous fibrosis is more common in rural women population when compared to urban women population because women in urban population are well aware of the harmful effects of tobacco chewing Influence of the peer group has more contribution in initiation and continuation of the habit. Many workers are not aware of the bad prognosis of this oral submucous fibrosis. Chewing of betel quid along with tobacco which is alkaline in nature irritate the membrane to deposit fibrous layer. Although chewing of betel nut as religious custom was drastically reduced in Indian scenario owing to the increased awareness of this harmful habit and also due to increased literacy rate of individuals curb this social menace to a great extent. Still this lethal habit is prevalent among illiterates even after constant awareness and ban from the government. Manufacturers of these products encourage customers for prolonged usage of these products by supplying tobacco stuffed packets in clothes which is kept in the mouth for prolonged period. Labors spend huge amount of money to purchase these lethal products with least spending of money for their general health. Stoppage of these habits at an early stage will prevent public from cancerous lesion. Complete ban of these products in the market and increased awareness of this lethal habit will reduce the morbidity and mortality rate. Stoppage of these habits reverses this condition and has good prognosis of this lethal condition. Knowledge and awareness about this condition is lacking in construction workers and this study aims to bring forth this awareness to the general public to curb this lethal habit. Future recommendation of this study Involving the family members for counseling the patients will fetch good results. Diverting their attention during working hours like listening to a good music might prevent them from using tobacco. Advising them chewing of tobacco will not reduce their stress and teaching them various stress relieving methods and quoting that even their family members have not indulged in chewing tobacco for stress relief.

Limitations: The current study focused on certain sites and areas and only included labours saged above 18 years. Therefore, a comprehensive epidemiological investigation of the Kota city is necessary to provide a complete understanding of the problem's magnitude.

CONCLUSION

Understanding the prevalence and distribution patterns of OSF may assist in healthcare intervention planning and alleviate the oral cancer burden associated with OSF. Tobacco chewing habit must be prevented at the beginning stage which is a best method to reduce the occurrence of oral submucous fibrosis. Unnecessary spending of money to this lethal habit will deteriorate their health. Stoppage of tobacco chewing habit leads to reduction in occurrence of oral

submucous fibrosis which in turn reduces the occurrence of lethal carcinoma. More studies should be done along with local awareness programs to minimize the cases of OSMF.

CONFLICT OF INTEREST

No conflict of interest was declared.

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