

Screening for Oral Cancers, Need for India: A Cross-Sectional Study in a Medical Collage Hospital in Maharashtra

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ABSTRACT

Introduction: Oral cancer is among the top three types of cancers in India because tobacco use is rampant and the lack of awareness of its risk in the community. Early detection of oral precancerous lesions by visual clinical screening will help in timely preventive interventions by stopping tobacco consumption and other risk factors and treatment needed. **Objectives:** The objectives of the study were to know the yield of oral screening and to know the association between risk factors such as tobacco-related habits, sharp tooth, poor oral hygiene, and oral lesions. **Materials and Methods:** It is an observational cross-sectional study. All the patients above the age 18 years and willing to participate in screening, during June–July 2019 attending screening camps in the outdoor patient’s department of otolaryngology were included in the study. Demographic data, history of tobacco, and alcohol-related habits were collected by interview method. Clinical examination findings of oral cavity were recorded. Appropriate management of the lesions was done. **Exclusion Criteria:** Patients coming for consultation with previously diagnosed oral lesions or oral cancers were excluded from the study. **Results:** Of 1637 screened, 614 (37.51%) were tobacco users, 525 (32.07%) were with poor oral hygiene, and 422 (25.7%) had sharp tooth. Twenty-seven (19.98%) were consuming alcohol, 71 (4.34%) had oral precancerous lesions, of these, 23 (32.39%) had oral submucosal fibrosis, 19 (22.4%) had ulcers, 13 (18.31%) had leukoplakia, 2 (2.82%) had erythroplakia and lichen planus, and 11 (15.49%) had melanoplakia. Tobacco, poor oral hygiene, and sharp tooth found to be risk factors for oral precancerous lesions. **Conclusion:** Oral screening is an effective tool for early detection of oral precancerous lesions. Tobacco use, poor oral hygiene, and sharp tooth are the risk factors.

Key words: Oral precancerous lesions, risk factors, screening

INTRODUCTION

Oral cancer is among the top three types of cancers in India because of tobacco use and the lack of awareness

in the community.^[1-3] According to the World Health Organization, nearly 6 million deaths occur every year due to tobacco use, which may escalate to 8 million deaths a year by 2030.^[3] India is one of the fewer countries where the prevalence of smoking and smokeless tobacco use is high.^[4] In comparison to Western populations, where oral cancer represents about 3% of malignancies, it is over 30% of all cancers in India.^[5] Opportunistic oral screening helps to find out precancerous lesions and risk factors for it.^[6] Epidemiological data of the changing trends are lacking. The purpose of this study was to investigate the prevalence of oral mucosal changes and its association with tobacco-related habits

Access this article online	
Website: www.mmj.net.in	Quick Response Code 
DOI: 10.15713/ins.mmj.46	

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and risk factors such as alcoholism, oral hygiene, and sharp denture.

MATERIALS AND METHODS

Oral screening program was conducted in the medical college hospital in June–July 2019; data collected using an interview questionnaire and clinical examination by specialists because just by thorough visual examination in good light will bring the precancerous lesions on the surface, which can be managed with diagnostic procedures.

Sampling Procedure

All 1637 attending the camp above 18 years of age, willing to participate, were included in the study. Informed consent was taken. S-E status, history of tobacco-related habits, and alcohol intake were collected, clinical examination of oral cavity done. Management of the lesions was done.

Data Analysis

Data analyzed using the SPSS, version 20 (IBM, Chicago, Illinois, USA). Descriptive analyses were performed using frequencies and percentages. For the bivariate analysis, Chi-square tests were performed, the level of significance was set at $P < 0.05$ and 95% confidence intervals (CI) (95% CI).

RESULTS

Table 1: Of 1637 people in the study, 976 (59.6%) males and 661 (40.4%) females. The mean age of the participants was 47.57 ± 14.93 years. About 51.25% of participants were from lower socioeconomic class according to modified Kuppaswamy classification. Six hundred and fourteen (37.51%) were tobacco users. Three hundred and twenty-seven (20%) gave history of alcohol consumption. Five hundred and twenty-five (32.07%) were having poor oral hygiene. Four hundred and twenty-two (25.78%) had sharp tooth. Table 2: Among the participants screened, 71 (4.33%) of them showed the presence of oral precancerous lesions. Out of those with lesions, 23 (32.39%) had oral submucosal fibrosis, 19 (22.4%) had ulcers, 13 (18.31%) had leukoplakia, 11 (15.49%) had melanoplakia, 2 (2.82%) had erythroplakia and lichen planus, each 1 (1.42%) had polyp. Figure 1: Of 71 screened

positive, 55 (77.46%) males and 16 (22.54%) females. M:F ratio was 3.43:1. Table 3: Tobacco- and alcohol-related habits and poor oral hygiene are significantly associated with oral precancerous lesions. Table 4: Multinomial logistic regression model was developed to test the relationship between various risk factors

Table 1: Distribution of participants according to sociodemographic variables and risk factors

Characteristic	Total number of study participants
Sociodemographic variables no. (%) n=1637	
Age (years)	
≤20	13 (0.8)
21–30	157 (9.6)
31–40	378 (23.1)
41–50	425 (26)
51–60	345 (21.1)
61–70	204 (12.5)
71–80	89 (5.4)
>80	26 (1.6)
Sex	
Males	976 (59.6)
Females	661 (40.4)
Total	1637
Socioeconomic status	
Upper	28 (1.7)
Upper middle	103 (6.3)
Lower middle	669 (40.9)
Upper lower	751 (45.9)
Lower	86 (5.3)
Risk factors	
Tobacco habit	
Nil	1023 (62.5)
Chewing	418 (25.5)
Smoking	134 (8.2)
Both chewing and smoking	62 (3.8)
Alcohol	
Present	327 (20)
Absent	1310 (80)
Sharp tooth	
Present	422 (25.8)
Absent	1215 (74.2)
Hygiene	
Good	1112 (67.9)
Poor	525 (32.1)

Table 2: Prevalence of oral premalignant lesions in study population

Oral premalignant lesions	Frequency (%)
Oral submucosal fibrosis	23 (32.39)
Ulcers	19 (22.4)
Leukoplakia	13 (18.31)
Melanoplakia	11 (15.49)
Erythroplakia	2 (2.82)
Lichen planus	2 (2.82)
Polyp	1 (1.41)
Total	71 (100)

Table 3: Association between various risk factors and premalignant lesions

Risk factor	Premalignant lesion			Chi-square value	P-value
	Present n (%)	Absent n (%)	Total n (%)		
Tobacco habit					
Nil	1 (0.1)	1022 (62.4)	1023 (62.5)	133.52	0.0000001*
Chewing	50 (3.1)	368 (22.5)	418 (25.5)		
Smoking	7 (0.4)	127 (7.8)	134 (8.2)		
Both chewing and smoking	11 (0.7)	51 (3.1)	62 (3.8)		
Alcohol					
Present	22 (1.3)	305 (18.6)	327 (20)	6.39	0.011*
Absent	47 (2.9)	1263 (77.2)	1310 (80)	-	-
Hygiene					
Good	8 (0.5)	1104 (67.4)	1112 (67.9)	-	-
Poor	61 (3.7)	464 (28.3)	525 (32.1)	104.94	0.0000001*
Sharp tooth					
Present	14 (0.9)	408 (24.9)	422 (25.8)	1.134	0.287
Absent	55 (3.4)	1160 (70.9)	1215 (74.2)		

*P<0.01=significant, P>0.05=Not significant

Table 4: Correlates of premalignant lesions – multiple logistic regression

Risk factor	B	SE	Wald	df	Sig.	Exp. (B)	95% CI for Exp. (B)	
							Lower	Upper
Tobacco	-0.538	0.155	12.048	1	0.001	0.584	0.431	0.791
Alcohol	0.441	0.316	1.949	1	0.163	1.554	0.837	2.887
Poor oral hygiene	-2.283	0.408	31.302	1	0.000	0.102	0.046	0.227
Sharp tooth	-0.676	0.362	3.486	1	0.062	0.508	0.250	1.034

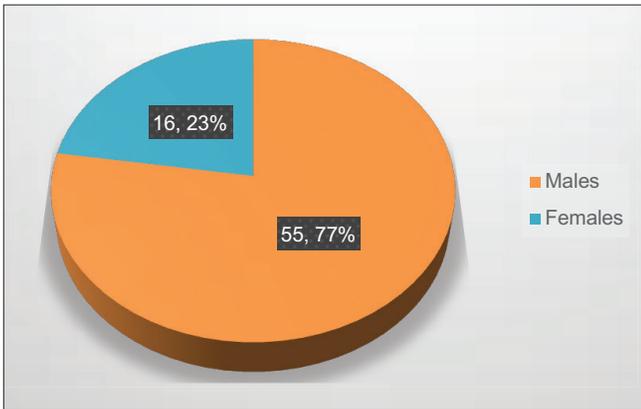


Figure 1: Sex-wise distribution of the study participants with oral lesions

with premalignant lesions of the oral cavity which was considered as the dependent variable. Tobacco and poor oral hygiene are significant independent risk factors for oral cancers.

DISCUSSION

The study showed M:F ratio of 3.43:1 of oral precancerous lesions. In Jodhpur study, 69.7% were male.^[6] Philip *et al.* showed a ratio of 3.26:1.^[7]

Various studies showed that male gender was significantly associated with oral premalignant lesions (OPMLs).^[8-10]

We got that mean age of the participants was 47.57 ± 14.93 years. Meena *et al.* found mean age of 48.6 years.^[6] This study showed that the overall prevalence of oral potentially malignant disorders in the study population was 4.33%. This was slightly higher when compared to findings observed by Pahwa *et al.*^[11] and Burungale *et al.*^[12] where the prevalence of OPMLs was 3.73% and 3.25%, respectively. Narasannavar *et al.*^[13] found the prevalence of OPML to be 5.0%. Saraswathi *et al.*^[14] in a hospital-based study reported prevalence of OPML (1.29%).

Of these lesions, oral submucous fibrosis (OSMF) was the most commonly observed OPML (32.39%), followed by ulcers (22.4%), leukoplakia (18.31%), melanoplakia (15%), erythroplakia (2.82%), lichen planus (2.82%), and polyp (1.42%). The prevalence of OSMF was comparable to a study done by Pahwa *et al.*^[11] and lower than that reported in the previous studies.^[10,15] The prevalence of leukoplakia was lower than other studies.^[11,15] Erythroplakia was prevalent but lower to that in the previous studies done by Reichart and Philipsen and Villa *et al.*^[16,17]

We found significant association of oral cancerous lesions with tobacco. Meena *et al.* found that 88.1% of

patients with oral lesions were consuming tobacco.^[6] A study by Philip *et al.*^[7] observed that all those with oral precancerous lesions were found to be tobacco users. Similar association with tobacco use was also observed in other studies.^[10,12] More than 60 known carcinogens have been detected associated with tobacco.^[18]

This study showed no significant association between alcohol and OPMLs after regression analysis. This is concordant with observations by Evstifeeva *et al.*^[19] and Gupta,^[20] while other studies that showed associations had not adjusted for potential confounders such as tobacco chewing and smoking.^[21] However, a meta-analysis done by Manoharan *et al.*^[22] showed a significant association between oral cancer and oral mucosal trauma due to ill-fitting dentures (odds ratio [OR] = 1.42, 95% CI 1.01–1.99). Our study found association of oral precancerous lesions with poor oral hygiene. This is agreeing with the studies by Meena *et al.*^[6] and Oji and Chukwunke^[23] in Nigeria; in Sweden also found a similar association between poor oral hygiene and OPML with an odds ratio of 5.3.

Limitations of the Study

This study is the cross-sectional, so the temporal relationship of the oral potentially malignant disorders and its associated risk factors comes into question. We also acknowledge that there might be other risk factors, not studied here, may be responsible for the development of oral potentially malignant disorders.

Significance of the Study

Study highlights the importance of thorough oral examination of every patient by an ENT specialist so that precancerous lesions are detected early.

CONCLUSION

Frequent oral visual screening may prove effective in timely detecting oral precancerous lesions. Tobacco and alcohol consumption and poor oral hygiene are the risk factors to be targeted for public health interventions. This will provide public health benefits in India where oral cancers are predominant.

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How to cite: Kotnis DP, Kotnis S. Screening for oral cancers, need for India: A cross-sectional study in a medical college hospital in Maharashtra. *MIMER Med J* 2020;4(1):11-15.

Source of Support: Nil. **Conflicts of Interest:** None declared.

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