



PREVALENCE OF ORAL MUCOSAL LESIONS AMONG DENTAL PATIENTS IN BAREILLY POPULATION: AN ORIGINAL RESEARCH

Oral Medicine And Radiology

Dr. Mobeen Khan*	Senior Lecturer, Department of Oral Medicine and Radiology, Chandra Dental College and Hospital Safedabad, Barabanki. U.P. *Corresponding Author
Dr. Pradeep Kumar Jha	Associate Professor and Head, Department of Oral Medicine and Radiology, Patna Dental College & Hospital, GDC Patna Bihar.
Dr. Shruti Sharma Grover	Associate Professor, Prosthodontics, Crown & Bridge & Implantology, Chandra Dental College and Hospital Safedabad, Barabanki. U.P.
Dr. Ajay Kumar Kushwaha	Associate Professor, Department of Oral and Maxillofacial surgery, Chandra Dental College and Hospital Safedabad, Barabanki. U.P.
Sankey Kumar Baidya	Senior Lecturer, Department of Prosthodontics, Crown & Bridge & Implantology, Hazaribag college of dental sciences and hospital, Hazaribag, Jharkhand.
Dr. Md. Asad Iqbal	Senior Lecturer, Department of Oral Medicine and Radiology, Patna Dental College & Hospital, GDC Patna Bihar.

ABSTRACT

Aim: To determine the prevalence of oral mucosal lesions among dental patients in Bareilly population. **Methodology:** Subjects of the either sex reporting to the Department of Oral Medicine and Radiology, Institute of Dental Sciences, Bareilly, India, were included in the study after obtaining their informed consent. Examination of the oral cavity was performed under good illumination using gloves, probe, mirror according to Kerr, Ash, Millard and WHO guidelines and color atlas was followed during examination. Oral mucosal lesions were diagnosed based on the clinical features. When clinical diagnosis was inconclusive, histopathological evaluation was done. **Results:** There were total 2000 patients within 16 -70 years range; Mean age of patients was 43.83 ± 15.38 years. It was found that 1393 (69.7%) out of 2000 of oral mucosal lesions, maximum was 553 (27.7%) of leukoplakia, 319 (16%) of tobacco pouch keratosis, 180 (9%) of smoker's palate, 151 (7.6%) of oral submucous fibrosis. **Conclusion:** This study presented epidemiological data on oral mucosal lesions associated with the tobacco habit of the Bareilly city in UP, India. This might prove valuable in identifying high-risk populations, planning future oral health studies and implementing preventive programmes. In our study, we found that the tobacco habit was most prevalent in the age group of 41 to 50 years.

KEYWORDS

INTRODUCTION

Oral health is important to the quality of life of all individuals. Oral lesions can cause discomfort or pain that interferes with mastication, swallowing, and speech, and they can produce symptoms such as halitosis, xerostomia, or oral dysesthesia, which interfere with daily social activities. Among the broad spectrum of causes leading to changes in the oral mucosa are infections from bacteria, fungi, viruses, parasites, and other agents; physical and thermal influences, changes in the immune system, systemic diseases, neoplasia, trauma and other factors, some of which are issues of aging. In particular, long-term habits such as using tobacco or alcohol can cause precancerous or cancerous lesions. Dental factors (poor oral hygiene, edentulism, sharp teeth, electrogalvanism, the use of mouthwashes, or improperly fitting dentures) have been thought to play a role in the occurrence of oral precancerous and cancerous lesions.

Tobacco is the world's biggest preventable killer. Our universe is in a state of tobacco epidemic, with larger population of tobacco users increasing day by day. According to World health organization (WHO), nearly $1/3^{rd}$ of the global adult population (1.2 billion people, with female population being 200 million) is tobacco users. In India, there are 240 million tobacco users (195 million men and 45 million women) accounting for one fifth of the world's tobacco consuming population.²

India is the world's third largest tobacco growing country, which produces an average of 58,0000 tonnes every year.^{2,3} Nearly 0.2% of all available land is used for tobacco growing and 4 million people are estimated to be engaged full time in tobacco manufacturing. 1 million people work in growing and curing tobacco.⁴

Chewing, smoking and consumption of alcoholic beverages have become common social habits in India. The prevalence of these habits was found to be more among men when compared to women. Also, the prevalence was higher among the rural population and those with no

formal education. Smoking, drinking alcohol, and chewing tobacco have been positively associated with oral lesions such as oral submucous fibrosis (OSMF), leukoplakia, and oral lichen planus, which have the potential for malignant transformation. The prevalence of OSMF in India varies between 0.03% and 3.2% according to various studies conducted here. Also, higher occurrence of leukoplakia and cancer are observed in OSMF patients and it is believed to be an important risk factor for oral cancer among youths. Prevalence of oral leukoplakia in India varies from 0.2%-5.2%. According to an Indian study at four urban centers, the prevalence of oral lichen planus varies between 0.02%-0.4%. In yet another door-to-door survey of 7639 Indian villagers, the prevalence varies from 0.1%-1.5%.³ Understanding the distribution, etiology, natural history and epidemiology of oral mucosal pathologies is essential to promote primary prevention, early diagnosis, prompt treatment and provision of appropriate health services.⁵

Due to the large prevalence of tobacco consumption in western U. P. the incidence of oral mucosal lesions is reported to be high. However, to the best of our knowledge no such study has ever been conducted in western U. P. specially Bareilly district.

AIM

To determine the prevalence of oral mucosal lesions among dental patients in Bareilly population

METHODOLOGY

Subjects of the either sex reporting to the Department of Oral Medicine and Radiology, Institute of Dental Sciences, Bareilly, India, were included in the study after obtaining their informed consent. Patients with the oral adverse habit of chewing tobacco visiting the outpatient Department of Oral Medicine and Radiology, Institute of Dental Sciences, Bareilly age group more than 16 years were included in this study. Patients in whom an intraoral examination was not possible due to inadequate mouth opening (less than 15mm) were excluded from the

study. Informed consent was obtained from the patients selected for the study. Examination of the oral cavity was performed under good illumination using gloves, probe, mirror according to Kerr, Ash, Millard and WHO guidelines and color atlas was followed during examination. Oral mucosal lesions were diagnosed based on the clinical features. When clinical diagnosis was inconclusive, histopathological evaluation was done. The data was compiled using Microsoft excel sheet (Windows 2010) and analyzed using SPSS software (version 17.0). All results were compared using percentage.

RESULTS

A study consisting of 2000 patients with habit of tobacco use was undertaken to know the prevalence of oral mucosal lesions in Bareilly Population. There were total 2000 patients within 16 -70 years range; Mean age of patients was 43.83 ± 15.38 years. There were 139 (6.95%) patients in 16-20 years age group, 362 (18.1%) patients in 21-30 years age group, 387 (19.35%) patients in 31-40 years age group, maximum 441 (22.05%) patients in 41-50 years age group, 293 (14.65%) patients in 51-60 years age group and 378 (18.9%) patients in 61-70 years of age group (Table 1, Graph 1). There was 1917 (95.85%) male and 83 (4.15%) female (Graph 2).

There were 378 (18.9%) business class, maximum 575 (28.8%) farmer, 37 (1.9%) house wife, 520 (26%) labor class, 365 (18.3%) service class and 125 (6.3%) students (Graph 3). There were 291 (14.6%) of bidi smokers, 11 (0.6%) of bidi and alcohol, maximum 801 (40.1%) of cigarette smoker, 25 (1.3%) of cigarette and alcohol, 425 (21.3%) of habit of gutka, 17 (0.9%) of gutka and alcohol and 430 (21.5%) of quid taker (Graph 4).

It was found that 1393 (69.7%) out of 2000 of oral mucosal lesions, maximum was 553 (27.7%) of leukoplakia, 319 (16%) of tobacco pouch keratosis, 180 (9%) of smoker's palate, 151 (7.6%) of oral submucous fibrosis. It was found that 43 (2.2%) out of 2000 was oral mucosal variants, maximum 24 (1.2%) of Fordyce's granules, 7 (0.4%) fissured tongue, 8 (0.4%) of leukoedema and 4 (0.2%) of lingual varices.

Out of 2000 patients, no lesion was found in 607 (30.35%) patients. The maximum number of oral mucosal lesion was leukoplakia in 553 (27.7%) in which 542 patients were male and 11 patients were female. The most common age group was 31-40 years in which leukoplakia was found. The age group with minimum number of cases of leukoplakia was 16-20 years. The next most common oral mucosal lesion was tobacco pouch keratosis in 319 (16%) patients. Out of 319 patients the male patients were 315 and 4 female patients. The maximum patients were in the age group of 41-50 years including 92 male and 2 female. The minimum numbers of patients were in the age group of 16-20 including 16 male. The next most common oral mucosal lesion was smoker's palate in 180 (9%) patients. Out of 180 patients the male patients were 179 and 1 female patient. The maximum patients were in the age group of 41-50 years including 67 male and 1 female. The minimum numbers of patients were in the age group of 16-20 including 11 male. The next most common oral mucosal lesion was OSMF in 151 (7.6%) patients. Out of 151 patients, the male patients were 145 and 6 female patients.

The maximum patients were in the age group of 41-50 years including 54 male and 2 female. The minimum numbers of patients were in the age group of 16-20 including 4 male. The other oral mucosal lesions were in descending order denture stomatitis (2.8%), oral malignancy (1.9%), angular cheilitis (1.4%), frictional keratosis (1%), candidiasis (0.7%), lichen planus (0.7%), aphthous stomatitis (0.4%), geographic tongue (0.4%), and herpes labialis (0.4%) with the least common oral mucosal lesion to be mucocele (0.1%). (Graph 5, 6).

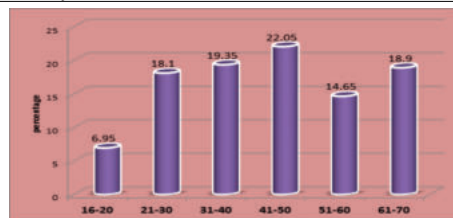
Among oral mucosal variants the most common finding was found out to be Fordyce's granules in 24 patients accounting 1.20% of total 2000 patients. It included 20 male patients and 4 female patients. The most common age group affected was 21 to 30 year age group. The other oral mucosal variants in decreasing order are leukoedema (0.4%), fissured tongue (0.4%) and lingual varices (0.2%) (Graph 7). Graph 8 shows oral mucosal variants in 2000 patients with age group and gender wise distribution. Graph 14 and 15 shows the prevalence of oral mucosal lesions in 2000 patients with age group and gender wise distribution.

Table-1 Age wise Distribution of Patients.

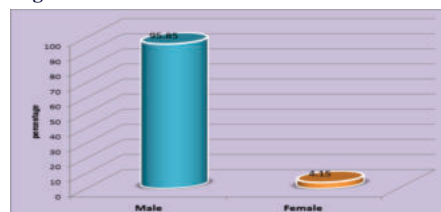
Age Group	No of patients	%
-----------	----------------	---

16-20	139	6.95
21-30	362	18.1
31-40	387	19.35
41-50	441	22.05
51-60	293	14.65
61-70	378	18.9
Total	2000	100

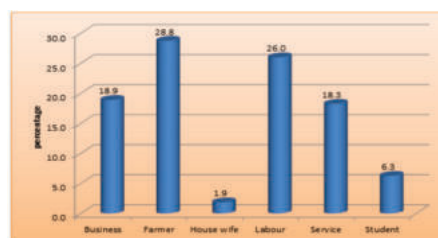
Range -16 – 70 years
Mean Age- 43.83 ± 15.38 years
Median – 44 years



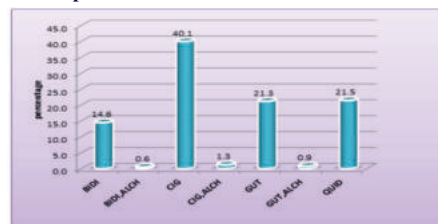
Graph-1 Age wise Distribution of Patients.



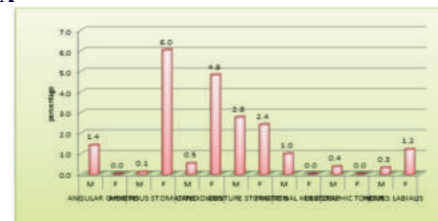
Graph-2: Gender wise distribution of Patients.



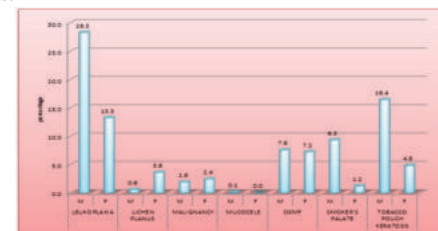
Graph-3: Occupation wise distribution of Patients.



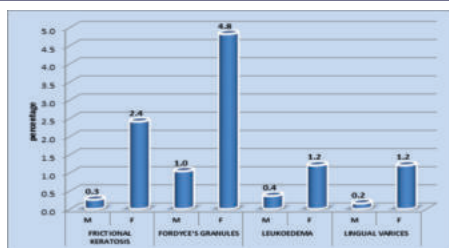
Graph-4 Habits, ALCH=ALCOHOL, CIG=CIGARATTE, GUT=GUTKA



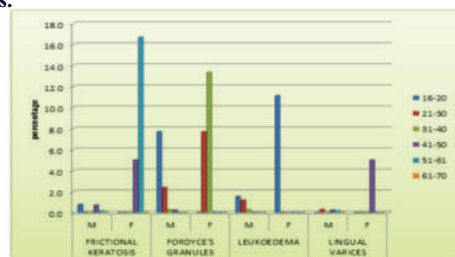
Graph- 5 Prevalence of oral mucosal lesions in gender wise in patients.



Graph- 6 Prevalence of oral mucosal lesions in gender wise in patients.



Graph- 7 Prevalence of oral mucosal variants in gender wise patients.



Graph- 8 Prevalence of oral mucosal variants in Age group and gender wise.

DISCUSSION

Tobacco is the world's biggest preventable killer. Population of tobacco users is increasing day by day. According to World health organization (WHO), nearly 1/3 rd of the global adult population (1.2 billion people, with female population being 200 million) are tobacco users. In India, there are 240 million tobacco users (195 million men and 45 million women) accounting for one fifth of the world's tobacco consuming population.²

Chewing tobacco, smoking and consumption of alcoholic beverages have become common social habits in India. The prevalence of these habits was found to be more among men when compared to women. Also, the prevalence was higher among the rural population and those with no formal education. Smoking, drinking alcohol, and chewing tobacco have been positively associated with oral lesions such as oral submucous fibrosis (OSMF), leukoplakia, and oral lichen planus, which have the potential for malignant transformation. The prevalence of OSMF in India varies between 0.03% and 3.2% according to various studies conducted here. Also, higher occurrence of leukoplakia and cancer was observed in OSMF patients and it is believed to be an important risk factor for oral cancer among youths. Prevalence of oral leukoplakia in India varied from 0.2%-5.2%. According to an Indian study at four urban centers, the prevalence of oral lichen planus varied between 0.02%-0.4%. In yet another door-to-door survey of 7639 Indian villagers, the prevalence varies from 0.1%-1.5%.³ Understanding the distribution, etiology, natural history and epidemiology of oral mucosal pathologies is essential to promote primary prevention, early diagnosis, prompt treatment and provision of appropriate health services.³

In the present study out of 2000 patients with known habit of tobacco use, 69.7% patients were found to have oral mucosal lesion. Among these the most common lesion was found out to be leukoplakia accounting for 27.7% of the patients. The most common age group in which oral mucosal lesions was found was that of 41-50 years. Among these patients 14.6% were bidi smokers with maximum patients being cigarette smokers accounting for 40.1%. The frequency of habit was most common to be 2-4 per day with common duration of 6-10 years. The major portion of the population was constituted by farmers accounting for 28.8 % of the patients. Males contributed 95.85% of the total population. The reason for high prevalence in men could be because men used both smoking and smokeless forms of tobacco while women used only smokeless tobacco. These results agreed with Axell T. et al.,⁶

If tobacco were to be introduced today, it would not be approved for human consumption anywhere in the world. Thousands of compounds are found in both forms of tobacco. Many of these compounds are not only irritants and toxins, they are also carcinogens. The smoking form of tobacco contains over 4000 different chemicals and at least 50 are known carcinogens. Smokeless tobacco contains 28 carcinogens. Tobacco-specific nitrosamines are present in higher concentrations

while nicotine content is lower in smokeless tobacco than in the smoking form.⁷

Another study was conducted to evaluate the prevalence of oral mucosal lesions in Manipal, Karnataka State, India. A total of 1190 subjects who visited the department of oral medicine and radiology for diagnosis of various oral complaints over a period of 3 months were interviewed and clinically examined for oral mucosal lesions. The result showed the presence of one or more mucosal lesions in (41.2%) of the population. Fordyce's condition was observed most frequently (6.55%) followed by frictional keratosis (5.79%). This is in contrary with our study where leukoplakia was found out to be most common oral mucosal lesion. This may be due to more awareness towards the harmful effects of tobacco in the study population.⁴

The prevalence of smoker's palate (9.0%) was similar to the previous studies done in Indian and Asian populations. Studies done in Western populations by Patil S. et. Al, showed that the prevalence of smoker's palate was much lower than in our study.⁸

In another study oral mucosal lesions were found in 322 (26.8%) subjects who had tobacco smoking and chewing habits as compared to 34 (2.8%) subjects without those habits. Oral leukoplakia (8.2%) and oral submucous fibrosis (OSMF) (7.1%) were the prevalent oral mucosal lesions found in subjects who had those habits, while the other lesions (1.7%) namely; oral candidiasis, median rhomboid glossitis, recurrent aphthous ulcer, frictional keratosis, and oral lichen planus (0.9%) were frequently reported among individuals without those habits. The odds of developing oral lesions in subjects with tobacco habits was nearly 11.92 times that of abstainers (odds ratio, OR = 11.92, 95% confidence intervals, CI = 10.61-14.59%). This is in accordance with our study where leukoplakia is the most common oral mucosal lesion.⁹

A cross sectional study was conducted to assess the prevalence of oral mucosal, potentially malignant or malignant, lesions associated with tobacco use among a stratified cluster sample of adults in Jeddah, Saudi Arabia. The most common oral mucosal lesion was found out to be hairy tongue accounting for 50% of the patients. However in our study the most common lesion was found out to be leukoplakia. This may be due to the less tobacco use with added demographic changes of the study population as compared with present study population.¹⁰ In our study, the prevalence was 7.6%, which agree with previous study carried by Gupta et al, 1998.¹¹

CONCLUSION

This study presented epidemiological data on oral mucosal lesions associated with the tobacco habit of the Bareilly city in UP, India. This might prove valuable in identifying high-risk populations, planning future oral health studies and implementing preventive programmes. In our study, we found that the tobacco habit was most prevalent in the age group of 41 to 50 years. Nearly three-fourths of the patients with a tobacco habit had oral mucosal lesions. It was also observed that the severity of the oral mucosal lesions was proportional to the duration of the habit. Hence, routine screening of the oral mucosa is essential. The patients have to be counseled on a regular basis in order to bring about long-term results with regard to tobacco cessation.

REFERENCES

- Cebeci AR, Gulsahi A, K Kamburoglu, Orhan BK, B Oztas. Prevalence and distribution of oral mucosal lesions in an adult Turkish population Med Oral Patol Oral Cir Bucal. 2009;14(6):272-277.
- Report on tobacco control in India". K S Reddy and P C Gupta. Published by Ministry of Health and Family Welfare, Government of India, 2004.
- Khanna R and Ralhan R. "Tobacco menace in India". Department of Biochemistry; AIMS, New Delhi, India. 1998.
- Christen A, Swanson B.Z, Glover E.D, Henderson A.H. Smokeless tobacco: folklore and social history of snuffing, sneezing, dipping and chewing. J AM Dent Assoc. 1982;182(105):821-829.
- This Is Your Country on Drugs: The Secret History of Getting High in America, Ryan Grim, 2009.
- Axell T, Zain RB, Siwamogstam P, Tantiran D, Thampipit J. Prevalence of oral soft tissue lesions in outpatients at two Malaysian and Thai dental schools. Community Dent Oral Epidemiol. 1990;18:95-99.
- Mehta FS, Hamner JE. Tobacco habits in India. In: Tobacco related oral mucosal lesions and conditions in India. Bombay: Tata Institute of Fundamental Research. 1993.
- Patil S, Kaswan S, Rahman F, Doni B. Prevalence of tongue lesions in the Indian population. J Clin Exp Dent. 2013;5:128-132.
- Breen, T. H. Tobacco Culture. Princeton University Press. Source on tobacco culture in 18th-century Virginia. 1985:46-55.
- Burns, Eric. The Smoke of the Gods: A Social History of Tobacco. Philadelphia: Temple University Press. 2007.
- Gupta PC, Sinor PN, Bhonsle RB, Pandar VS, Mehta HC. Oral submucous fibrosis in India – A new epidemic? Natl Med J Ind. 1998;11:113-116.