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Prevalence of Oral Mucosal Lesions Among Smokeless Tobacco Usage- A Cross Sectional Study

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KEYWORDS

Oral lesion, smokeless, smoking, tobacco

Abstract

Introduction- Individuals who smoke regularly may develop various mucosal sores. During this research, the prevalence of these lesions among tobacco users was evaluated. **Methodology:** The following cross-sectional poll includes a total of one thousand respondents. All those who regularly used tobacco products were included in the study. Each research participant's demographic data was documented. Additionally, using the toluene blue staining procedure, all individuals were screened for related oral lesions. **Results:** The kinds of tobacco used for gutkha, zarda, pan masala, supari, bidi, and cigarettes were documented. Tobacco pouch keratosis, leukoplakia, smoker's melanosis, erythroplakia, erythroleukoplakia, squamous cell carcinoma, sub-mucous fibrosis, and lichen planus were among the various types of related lesions that were seen, in decreasing order of appearance. In decreasing order, the oral sites affected were the tongue, gingiva, palate, floor of the mouth, buccal mucosa, and labial mucosa. **Conclusion:** Tobacco use can result in a variety of oral lesions in different ways. Among the most frequent alterations seen are leukoplakia in smokers and pouch keratosis in chewers.

Introduction

Different mouth lesions present themselves to clinicians on a daily basis. Numerous aetiologies, including infectious, idiopathic, inflammatory, reactive, and neoplastic alterations, can result in oral lesions. To arrive at an accurate diagnosis, a clinician needs to get a complete clinical history and possess sufficient understanding of the signs and symptoms, including the location, size, colour, and morphology of the oral mucosal lesions. Tobacco consumption is a huge problem and is felt as an economic burden as well worldwide. It has significantly increased during the past few decades. There are many different tobacco products available, offering the general public a wide range of options. It can be consumed in chewable form or smoked in a variety of readily accessible forms.[1] In contrast, bidi and cigarettes are the most popular kinds of smoking, along with a few other less popular varieties including hookah smoking, cigars, chillum, and so forth. Chewable tobacco products include pan masala, zarda, gutkha, and so on.[2,3] There are many other things that can lead someone to smoke, including as physical stress, tobacco product promotion through banners and commercials, family usage, and more. They ultimately result in tobacco use addiction.[4]

It causes a variety of lesions to appear, a few of those may be benign while other kinds of which can be premalignant with the potential to become malignant.[5] The World Health Organisation has classified these potentially malignant illnesses as leukoplakia, erythroplakia, erythroleukoplakia, submucous fibrosis, and so on. Melanin pigmentation linked to tobacco smoke and palatal abnormalities linked to smoking are two more that might possibly be quite common.[6] It is concerning that the prevalence of these tobacco-related lesions is rising not just in adults but increasingly in younger demographics. This has a strong connection to the smokeless tobacco use habit.[7] It is crucial to detect and identify such premalignant illnesses clinically using a variety of diagnostic techniques in order to reduce the likelihood that these lesions will develop into malignant transformations.[5,8] Brush biopsy, exfoliative cytology, vital staining, chemiluminescence, autofluroescence, and other techniques are among the several techniques used. Toluene blue was used in the present investigation as a screening tool for tobacco-associated lesions in

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order to determine the prevalence of these lesions among people who used tobacco

Methodology

Informed consent for this cross-sectional study which was conducted in the study was carried out in Department of Public Health Dentistry, Geetanjali Dental and Research Institute, Udaipur during the period March 2022 to September 2022. Camp screening patients reported to the department and were included to the study's registration list. For the purposes of this demographic study, all men and women who had used tobacco in any capacity for at least the previous year were included. The age range that was considered was 18 to 65. This study excluded participants who had a history of systemic disease, were pregnant, did not smoke regularly, or used tobacco occasionally. Following an explanation of the research's objectives to each participant, demographic information was collected for every participant, and if any lesions were discovered during examination, toluidine blue staining was used. Following staining, a representative section was chosen for a biopsy. The tissue was sent for a final diagnosis and histological review. After being organised into tables, all of the submitted data underwent statistical analysis. A P value of less than 0.05 was deemed noteworthy.

Results

The categorization of people by age and gender revealed that there were 87 men and 31 women in the 18–25 age group, while the 26–35, 36–45, 46–55, and 56–65 age groups showed 98, 115, 239, and 173 men and 39, 46, 81, and 91 women, correspondingly. The age range of 55–65 years was the most common among the 1000 individuals, followed by 46–55 years [Table 1].

Table 1-Age and gender distribution of study participants

Age range (*n*=1000)	Gender:Male (*n*=712)	Gender:Female (*n*=288)	Total subjects
18-25 years	87	31	118
26-35 years	98	39	137
36-45 years	115	46	161
46-55 years	239	81	320
56-65 years	173	91	264

Table 2-Demographic data of study participants

Parameter	Gender:Male	Gender:Female
Education		
Not educated	298	57
Primary	138	66
Secondary	103	71
Graduation	87	65
Postgraduation	78	37
Occupation		
Not working	78	159
Business	198	9
Teacher	234	97
Laborer	202	23
Socioeconomic status		
Lower	341	175
Middle	234	96
Upper	137	17

Table 3-Lesion-wise distribution among genders

Type of lesion	Gender:Male	Gender:Female	Total
Hyperkeratosis	184	119	303
Smoker’s melanosis	179	74	253
Leukoplakia	122	23	145

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Erythroplakia	54	17	71
Erythroleukoplakia	46	11	57
Tobacco pouch keratosis	40	10	50
Squamous cell carcinoma	37	8	45
Submucous fibrosis	24	16	40
Lichen planus	8	9	17
No lesion	13	6	19

Table 4-Site-wise distribution of oral lesions

Type of lesion	Buccal mucosa/vestibule	Labial mucosa	Floor of the mouth	Gingiva	Palate	Tongue
Hyperkeratosis is	136	99	32	17	16	11
Smoker's melanosis	103	83	7	19	22	10
Leukoplakia	105	16	11	5	6	3
Erythroplakia	61	18	4	3	2	2
Erythroleuko plakia	38	9	2	2	2	1
Tobacco pouch keratosis	32	18	0	0	0	0
Squamouscell carcinoma	22	9	4	1	1	7
Submucousfibrosis	30	10	0	0	0	0
Lichenplanus	13	5	0	1	0	2

Discussion

Premalignant illnesses are becoming more common, just as the incidence of mouth cancer is rising daily. This is linked to a rise in the use of tobacco products in all of their forms that are sold. The purpose of the research was to evaluate the prevalence of oral mucosal lesions among tobacco users, both smokers and non-smokers. The oral lesions in these subjects were screened using toluidine blue dye. To establish the presence and type of oral lesion, a sample site was chosen for biopsy, which included histological analysis and final diagnosis.[9]

The data showed that men were more afflicted than women, with 56 to 65 years old being the age group most frequently affected. This may be explained by the fact that men engage in more physical activity due to their higher stress levels and greater tobacco use. Lesions' frequency was also connected with the individuals' demographic characteristics. The most severe injuries were observed in illiterate individuals who worked as labourers in the service industry and belonged to lower socioeconomic groups in society. Insufficient knowledge and consciousness result in a rise in tobacco use among these populations.

Melanotic lesions are usually seen after hyperkeratosis as the primary lesion. Melanocyte activation and keratosis are the first changes the mucosa displays. This result implies that the majority of lesions are still in their early stages. The most prevalent premalignant condition linked to tobacco use was leukoplakia. Compared to males, females had a higher frequency of lichen plants, which may be connected to the higher frequency of autoimmunity in females. The buccal mucosa is the place most frequently impacted in the present investigation, and it correlates closely with the region where tobacco products are most frequently used or directly in contact with it. Due to the fact that quid tobacco is typically stored in vestibules, pouch keratosis most frequently occurs here. Buccal mucosa also brought to mind the most typical location for squamous cell carcinoma, which is highly correlated with the site's transition from premalignancy to malignancy. The types of lesions that were least common to present were lichen plans and submucous fibrosis. This may have to do with the several other elements that play a part in the pathophysiology of these illnesses. Other research have shown comparable outcomes. [5,7,10,11]

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Conclusion

When individuals who smoke have their oral lesions evaluated, it can help to identify changes in the mucosa early on and prevent the lesions from developing into cancer. Although premalignant and malignant lesions can also be seen, hyperkeratosis and smoker's melanosis account for the majority of the alterations seen.

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