

Oral Leukoplakia – A hospital based study

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Abstract:

Background: Oral Leukoplakia is the most common potentially malignant lesion of the oral mucosa. It is seen most frequently in middle-aged and older men, with an increasing prevalence with age. Less than one percent of men below the age of 30 years have oral leukoplakia. The etiology is multifactorial but the most common cause associated with oral leukoplakia is tobacco consumption.

Aim: To establish the prevalence and assess the socio-demographic data along with clinical presentation of Oral Leukoplakia associated with tobacco consumption from the records of the department.

Materials and Method: The present hospital based retrospective study on oral leukoplakia associated with tobacco consumption was conducted by assessing the records available in the department. The data of total 579 patients was collected, evaluated and analyzed statistically by using SPSS version 17 and the p value <0.05 was considered significant.

Results: From the present study it was concluded that oral leukoplakia was more prevalent in the age group of 60-64 years, more commonly seen in males, more prevalent in rural area and most commonly associated with Bidi smoking. The study further concluded that the Homogenous type of oral leukoplakia was distinctly noticed and the most common affected oral site was buccal mucosa.

Conclusion: The early diagnosis and treatment of oral leukoplakia should be effectively carried out. The condition of the lesion may remain either stationary or become severe. Dentists, ENT Surgeons and General Physicians play an important role in educating the patients about the perils of

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tobacco and in the early diagnosis of high risk oral leukoplakia.

Keywords: Arecanut, Bidi, Oral Leukoplakia, Oral Precancer, Tobacco, White lesion

Introduction:

Oral cavity is lined by a keratinized or non keratinized stratified squamous epithelium. Several lines of evidence including clinical, experimental and morphological data support the concept that squamous cell carcinoma of the upper aerodigestive tract arises from noninvasive lesions of the squamous mucosa. These includes "Premalignant lesions" and "Premalignant conditions"⁴ The WHO definition for an oral Precancerous Lesion - a localized area of morphologically altered tissue where cancer is more likely to occur⁴ - accords well with the characteristic of Oral Leukoplakia.

Leukoplakia is the most common potentially malignant lesion of the oral mucosa. However, the use of terminology should be limited exclusively to the clinical context by the exclusion of other lesions, which present as oral white plaques i.e. for example oral lichen planus, chronic cheek bite, frictional keratosis, tobacco induced keratosis (nicotine stomatitis), leukoedema and white sponge nevus. The mucosa appears white due to increase in the thickness of the epithelium i.e. hyperkeratosis and acanthosis, increase in the amount of edema fluid in the epithelium, reduced vascularity of the underlying lamina propria, surface ulcerations covered by pseudomembrane (fibrin cap) and ruptured bullae.¹

Epidemiological data on the prevalence of oral leukoplakia have ranged from 0.7 to 24.8%³. Marked differences are found between the prevalence rates in various countries, in different parts of one country but also in the same population. Reasons for the variation in prevalence rates could relate to methodology, the diagnostic criteria and the selection of study population.

The present retrospective study was undertaken to establish the prevalence and assess the socio-demographic data along with clinical presentation of Oral Leukoplakia associated with tobacco consumption from the records of the Department.

Methodology:

The present hospital based retrospective study on Oral Leukoplakia was conducted by assessing the records available in the department of Oral Medicine & Radiology, K.M.Shah Dental College & Hospital, Vadodara of year 2009. The permission to undertake this study was obtained from Institutional Ethics Committee. The descriptive data of total 579 patients was collected, evaluated and analyzed statistically. The Clinical grading of Oral leukoplakia as based on the clinical manifestations i.e. Preleukoplakia, Homogenous and Non Homogenous²⁻⁶. Statistical analysis was performed to study the most common age group, gender predilection, occupation, demographic presentation, habit and clinical manifestation. The data was analyzed by using SPSS version 17. Chi square test was applied and probability value less than 0.05 was considered significant.

Results and observations:

Graph 1 shows *Age wise distribution of Oral Leukoplakia*. From the present study, it was distinctly observed that Oral Leukoplakia was more prevalent in the age group of 60-64 years [18.83%] followed by 45-49 years [16.23%] and 50-54 years (12.26%).

Graph 2 shows *Gender wise distribution of Oral Leukoplakia*. From our study, it was observed that Males [91.71%] were more affected with Oral Leukoplakia then Females [8.29%]. The Male to Female ratio of the subjects affected with Oral Leukoplakia was 11.06:1. The reasons for this may be due to high male predilection towards use of tobacco.

Graph 3 shows *Occupation wise distribution of Oral Leukoplakia*. From the present study, it was observed that the most common group having Oral Leukoplakia was Farmers [24.18%] followed by retired individuals [21.76%] and unemployed group [17.96%].

Graph 4 shows *Demographic distribution of Oral Leukoplakia patient*. In our study, majority of the patients having oral leukoplakia were from Rural area [63.90%] as compared to Urban area [36.10%].



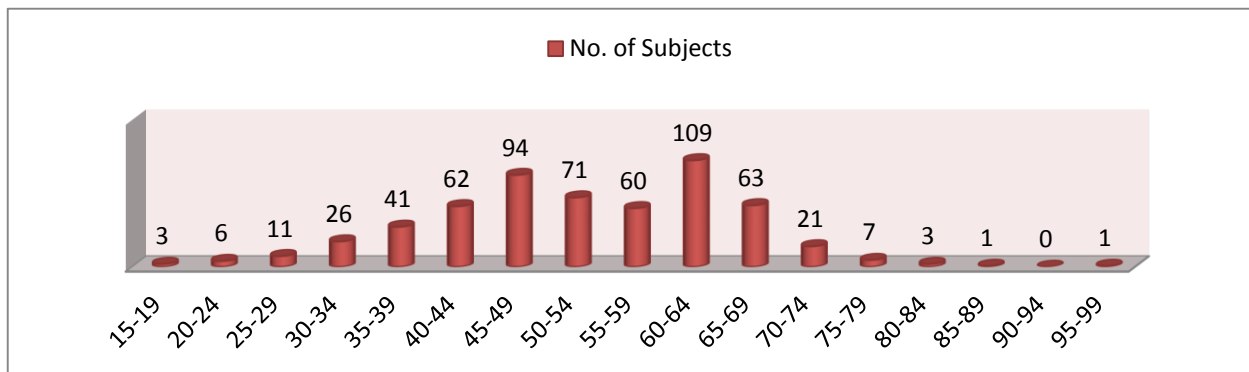
Fig. 1 A - Homogenous Oral Leukoplakia



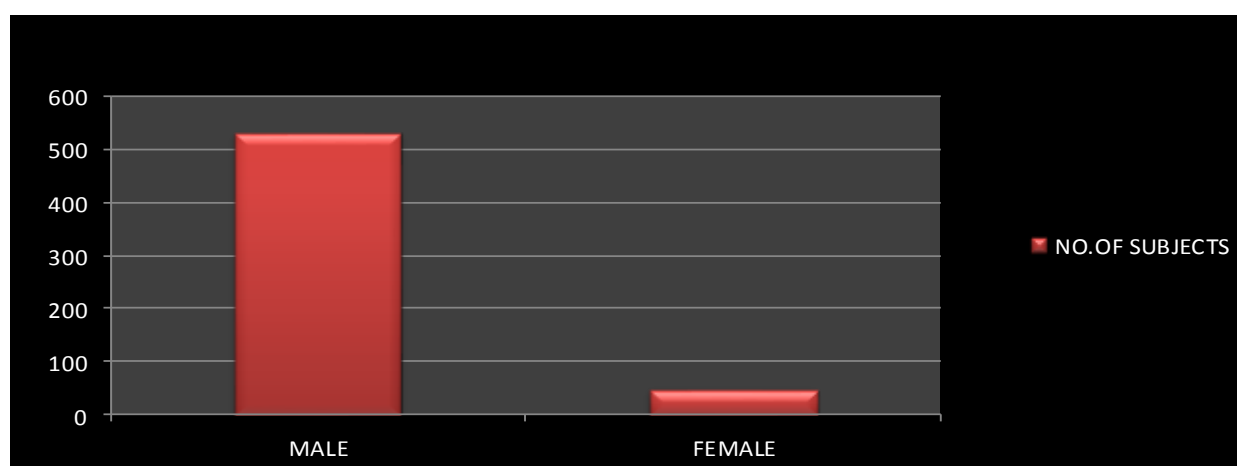
Fig. 1 B - Non Homogenous Oral Leukoplakia



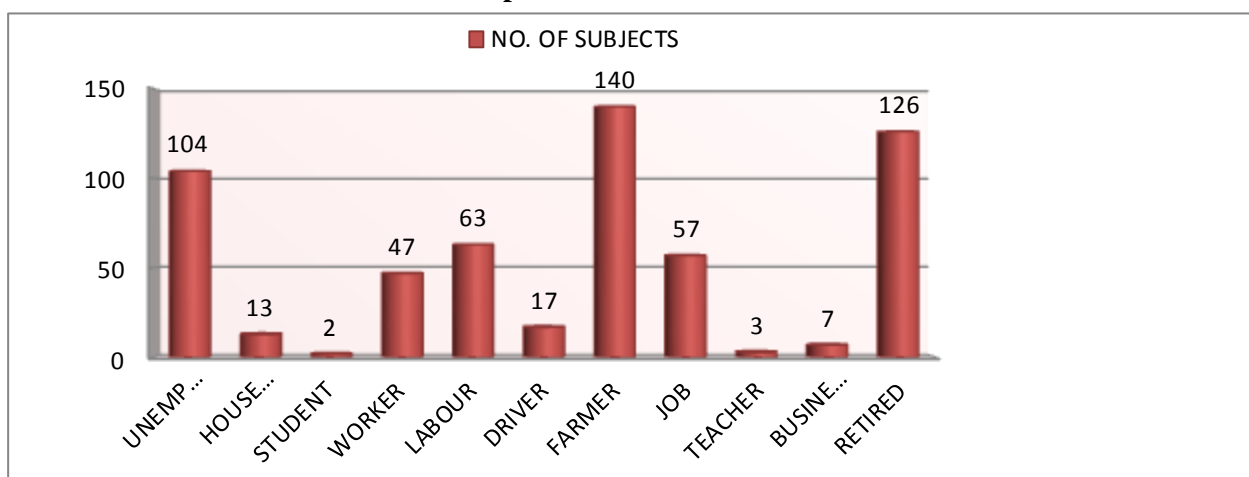
Fig. 1 C - Oral Preleukoplakia



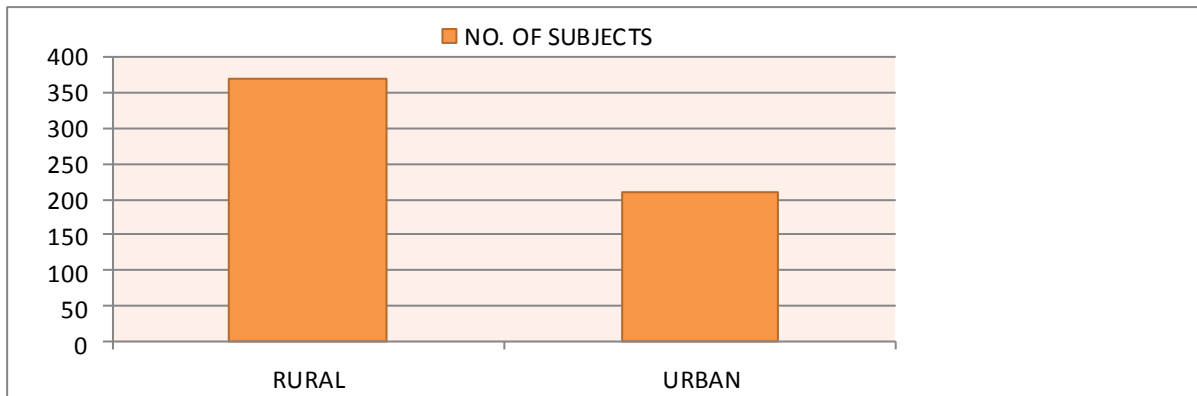
Graph 1 - Age wise distribution



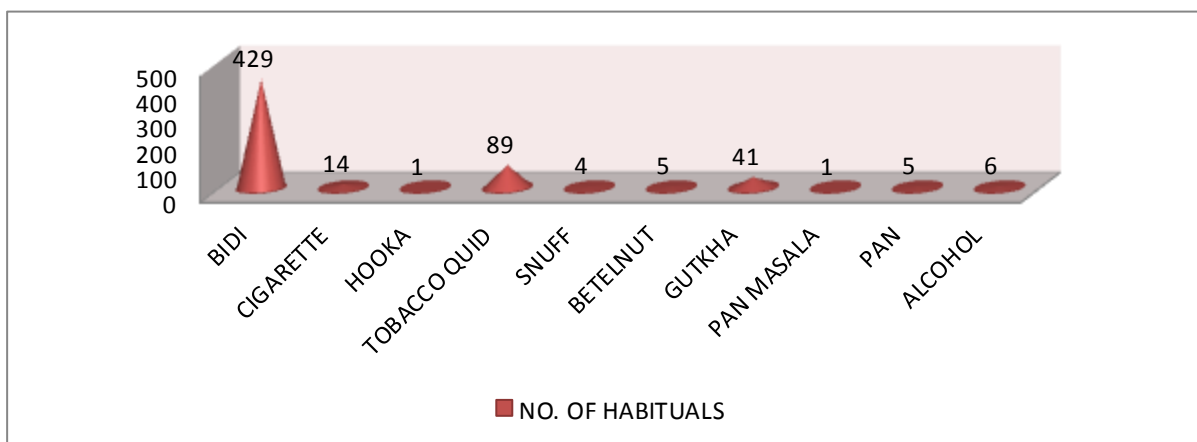
Graph 2- Gender wise distribution



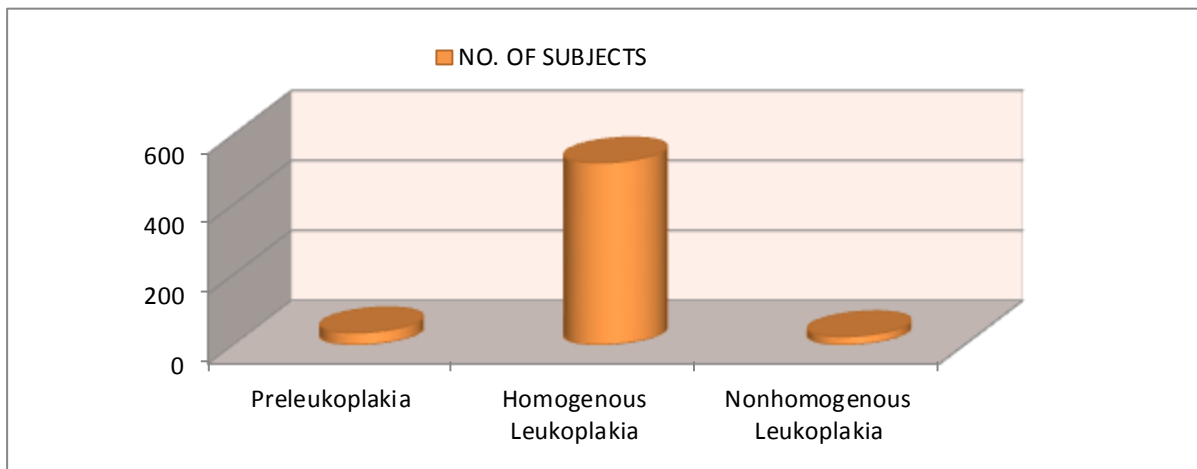
Graph 3: Occupation wise distribution



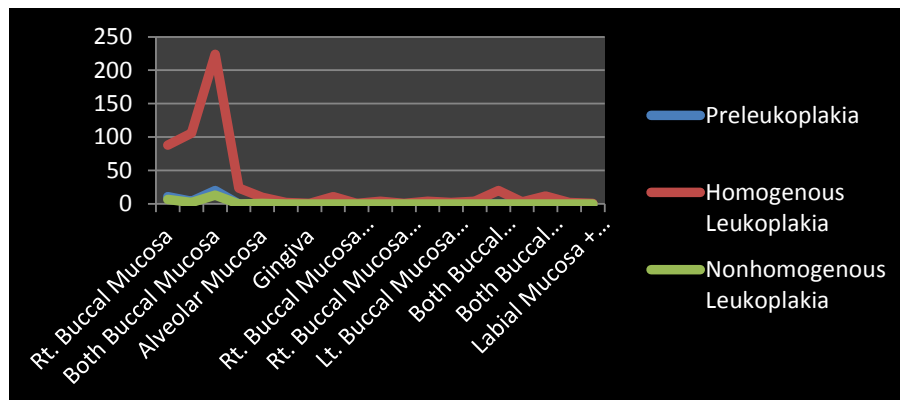
Graph 4: Demographic distribution



Graph 5 : Distribution of Harmful Habit



Graph 6 - Distribution of Clinical variants of Oral Leukoplakia



Graph 7: Distribution of Oral Leukoplakia at various oral sites

Graph 5 shows *Distribution of Harmful Habit associated with Oral Leukoplakia*. In the present study, it was observed that the most common habit associated with Oral Leukoplakia was Bidi smoking [74.09%] followed by Tobacco quid [15.37%] and Gutkha chewing [7.08%]. Low cost, easy availability and self preparation (home made) may be the probable cause for more use of bidi over the other habits in the rural areas.

Graph 6 shows *Distribution of Clinical variants of Oral Leukoplakia*. Our study showed that maximum number of patients had Homogeneous type of oral leukoplakia [89.81%] followed by Pre-Leukoplakia [6.04%] and Non Homogenous type of oral leukoplakia [4.15%].

Graph 7 shows *Distribution of Oral Leukoplakia at various oral sites*. In the present study it was observed that the most prevalent oral site affected with Oral Preleukoplakia was buccal mucosa [100%], the most prevalent oral site affected with Homogenous leukoplakia was buccal mucosa (80.77%) followed by labial mucosa (12.13%) and alveolar mucosa (5.19%) and the most prevalent oral site affected with Non homogenous leukoplakia was buccal mucosa (95.83%) followed by alveolar mucosa (4.17%).

Discussion:

Oral Leukoplakia is a predominantly white lesion of the oral mucosa that cannot be clinicopathologically characterized as any other definable lesion. It is the most common precancerous lesion

of the oral mucosa. Axell T. in 1996 has defined Oral Leukoplakia as "a predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion; some oral leukoplakia will transform into cancer".¹

Nicotina stomatitis, cheek and lip biting², frictional white lesion and snuff dippers lesion should not be considered as leukoplakia^{3,4}.

The etiology of Oral Leukoplakia is multifactorial but tobacco is the main causative agent. There are two clinical variants of Oral Leukoplakia- 1) Homogeneous Leukoplakia [fig.1 A] - a lesion of uniform flat appearance that may exhibit superficial irregularities, but with consistent texture throughout and 2) Non-homogeneous Leukoplakia [fig.1B] - a predominantly white or white and red lesion (erythro-leukoplakia) with an irregular texture that may present as a flat, nodular or exophytic lesion. Both these forms are preceded by Pre-leukoplakia [fig.1C]. Histological features of both forms are quite variable and may include ortho or para-keratosis of varying degree, mild chronic inflammation and dysplastic changes.

Oral Leukoplakia affects males more frequently than females.^{6,7,8,9,10} It is usually seen in middle-aged and older men, with an increasing prevalence with age.^{2,3} Fewer than one percent of men below the age of 30 have oral leukoplakia, but the prevalence increases to an alarming eight percent in men over the age of 70.³ The gender distribution in most studies varies, ranging from a strong male predominance in different parts in India, to almost

1: 1 in the western world.⁴ The most common sites are the buccal mucosa, alveolar mucosa and lower lip; however, lesions in the floor of mouth, lateral tongue and lower lip are most likely to show dysplastic or malignant changes.⁵

The management of Oral Leukoplakia includes discontinuation of habits, diet rich in nutritive value, vitamin supplements, antifungal and chemotherapeutic agents and surgical treatment modalities have been tried with various results but none has lead to complete regression of oral leukoplakia.^{11,12,13,14,15,16}

Although various researchers have observed various aspects of occurrence of oral leukoplakia pertaining to age, gender, habit, occupation etc. But in the present retrospective study, we had observed that the most common Age for oral leukoplakia was 60-64 years (18.83%) followed by 45-49 years (16.23%), Males dominated (91.71%) over Females in having Oral Leukoplakia, Maximum patients (63.90%) were from rural region, Farmers (24.18%) were affected in more numbers. The most common habit associated with Oral Leukoplakia was Bidi smoking (74.09%). The Homogenous type of Oral Leukoplakia (89.81%) was seen as the most common type and the most common oral site for the occurrence of Oral Leukoplakia was Buccal mucosa (bilaterally).

Various factors which arise at every stage of life plays a vital role in the initiation of one or the other habits in most of the individuals. Usually the initiation of substance abuse is due to peer pressure, influence of family members & relatives, social culture, stress, boredom, aid in concentration, when unhappy, to postpone hunger, for taste, to do something with mouth, for pleasure, to refresh breath, to look mature, to look good and psychological effect of substance abuse leads to dependence and addiction inspite of knowing or not knowing the consequences on the health. In our study all these factors have contributed in initiation as well as effect of tobacco in various forms and has lead to increase in the state of occurrence of Oral Leukoplakia.

Conclusion:

Oral Leukoplakia, being a potentially malignant lesion, early diagnosis and treatment should be effectively carried out. The condition may remain either stationary or become severe. Dentists and Otolaryngologist play an important role in both- the education of patients about the perils of Tobacco and chewing Arecanut and in the early diagnosis of high risk Oral Leukoplakia and Cancer.

Our retrospective study was based only on clinical findings. We suggest the researchers to undertake ambi-directional study of larger sample size with emphasis on age & reasons for initiation of habit, clinico-pathological and histological co-relation. The awareness programs at mass level shall be undertaken for Tobacco and Arecanut related health problems.

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