

## Assessment of Prevalence of Leukoplakia: A Descriptive Study

Nidhi Thakur<sup>1\*</sup>

<sup>1</sup>Senior Resident, Nalanda Medical College and Hospital, Patna, Bihar, India.

### ABSTRACT

**Aim:** Leukoplakia is a common premalignant lesion associated with the use of tobacco. This study was carried out to determine the prevalence of leukoplakia in a defined population.

**Material & methods:** In this study 300 patients were included who reported to the outpatient dental department of Nalanda Medical College and hospital. The age sex and prevalence of leukoplakia was assessed in these patients.

**Results:** The study revealed a prevalence of 2% in the defined group of populations.

**Conclusion:** A high prevalence of leukoplakia needs a closer follow up of these patients and a generalised screening for all the patients reporting to the dental department.

**Keywords:** Leukoplakia, premalignant lesion, prevalence.

### INTRODUCTION

Oral leukoplakia is a predominantly white lesion of the oral mucosa that cannot be characterised as any other definable lesion<sup>1</sup>. This is a clinical term that can be used only if other white lesions have been ruled out. The epidemiological data associated with oral leukoplakia are variable. The prevalence in the general population varies from less than 1 to more than 5 percent<sup>2, 3,4,5,6</sup>. The rate of malignant transformation varies from almost 0 percent

to about 20 percent in one to thirty years<sup>7,8,9</sup>. It was first mentioned in literature in 1969.<sup>10</sup> Tobacco use has been identified as the most important etiological agent for leukoplakia.<sup>11</sup> The use of alcohol is also an important etiological factor.<sup>1</sup> OL is classified in two main types: homogeneous type which appears as a flat white lesion and non-homogeneous type which includes speckled, nodular and verrucous leukoplakia<sup>11</sup>. The homogeneous leukoplakia is a uniform, thin white area altering or not with normal mucosa. The speckled type is a white and red lesion, with a predominantly white surface<sup>11</sup>. Verrucous

leukoplakia has an elevated, proliferative or corrugated surface appearance. The nodular type has small polypoid outgrowths, rounded predominantly white excrescences<sup>11</sup>.

### MATERIAL AND METHODS

The present study was carried out to estimate the prevalence of leukoplakia in the population. Ethical clearance was obtained by the institutional review board and informed consent was obtained from all the patients. A simple random sampling was done in the patients reporting to the department of oral medicine and radiology for a period of four months. All the relevant data pertaining to the use of habit and its frequency, type, duration were obtained. The criteria to diagnose leukoplakia were clinical assessment of the lesion. Since leukoplakia is a clinical term and histological confirmation is not required for its diagnosis so biopsy was not mandatory for diagnosis in this study.

### Statistical analysis:

The results obtained were entered in Microsoft Excel sheet and analyzed using SPSS version 21.

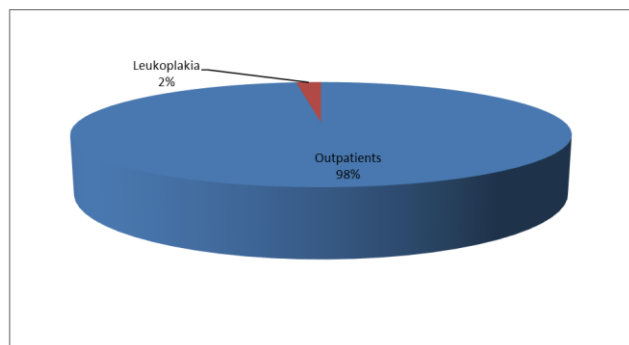
Received: June. 11, 2018; Accepted: Aug. 4, 2018

\*Correspondence Dr. Nidhi Thakur.

Nalanda Medical College and Hospital, Patna, Bihar, India.

Email: nidhithakur21@rediffmail.com

Descriptive statistics were used to formulate the results.



Graph I showing prevalence of Leukoplakia in defined population

## RESULTS

In the present study the prevalence of leukoplakia was studied in a population of 300 patients. The prevalence (Graph I) found was 2%. All the patients gave a history of use of tobacco consumption in different forms. The study sample who presented with leukoplakia had only one female patient showing a male preponderance. All the patients were above the age of 40 years.

## DISCUSSION

Many studies have been carried out to determine the epidemiology of leukoplakia in different populations. In the present study out of the 300 patients included in the study 6 patients were reported to have leukoplakia (graph I). In a Swedish study, Axell (1976) reported a prevalence of 3.6%, while in Hungary, the prevalence of leukoplakia varied between 0.6 and 3.6% of the adult population, as reported by Banoczy and Sugar<sup>10</sup>. In a 10-year population-based study, more than 30,000 individuals 15 years of age or older were studied by Gupta *et al* in 1980<sup>12</sup>. These individuals were from three areas of India, with an average of 10,000 individuals forming random samples from these three separate communities. They were followed annually and examined in a house-to-house survey manner. The annual incidence *per* 1000 men ranged from 1.1 to 2.4, while in women in the same geographical areas the incidence ranged from 0.2 to 0.03. Where reverse smoking was practiced, the incidence of white patches on the palate was 6.3 *per* 1000 men and 11.2 among women. Of greatest importance in this particular study was that tobacco

use in one form or another was the most common variable relative to the development of leukoplakia.

The gender distribution of leukoplakia varies widely from one survey to another. In the present study the prevalence was seen more in male population. Out of 6 patients only one was a female. This can be attributed to the use of tobacco more commonly in male population. Few studies have also reported a female preponderance. Such differences in distribution have been attributed to variability in tobacco habits (Reed-Petersen *et al*, 1972). In a study in the United States, Waldron and Shafer (1975) demonstrated an increased frequency of leukoplakia in women between 1961 and 1975, with the suggestion that this increased frequency may reflect changes in smoking habits during the period of observation. All the patients in the present study were above 40 years of age. This was similar to another study done by Napier *et al* where all the patients were of older age group.

The greatest emphasis has been directed toward tobacco as the major etiologic agent in the development of leukoplakia (Pindborg *et al*, 1977, 1980). In the present study a similar conclusion regarding the association with the use of tobacco was obtained. All the patients gave a positive history of use of tobacco. Diagnosis of leukoplakia is done clinically but brush biopsy, toluidine blue staining, chemiluminescence and be carried out as adjunctive diagnostic methods. The most important parameter in treatment of leukoplakia is cessation of tobacco and alcohol habit if present. Intervention of leukoplakia depends on the site, size, and extent and associated dysplastic changes and is best left to the treating clinicians.

## Limitations

The limitation of the present study was a small sample. This study can be carried out in larger sample to substantiate the results. Also, there may be a selection bias in the present study as histological confirmation was not carried out. Therefore, further research is required to overcome the foresaid flaws.

## CONCLUSION

The present study demonstrated that the prevalence of leukoplakia is 2% in the defined

population. It is associated with the use of tobacco consumption in different forms.

#### CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

#### REFERENCES

1. Axell T, Pindborg JJ, Smith CJ, van der Waal I. Oral white lesions with special reference to precancerous and tobacco-related lesions: conclusions of an international symposium held in Uppsala, Sweden, May 18-21, 1994. International Collaborative Group on Oral White Lesions. *J Oral Pathol Med* 1996;25:49-54.
2. Axell T, Holmstrup P, Kramer I, Pindborg JJ, Shear M. International seminar on oral leucoplakia and associated lesions related to tobacco habits. *Community Dent Oral Epidemiol* 1984;12:145-54.
3. Bouquot JE, Gorlin RJ. Leukoplakia, lichen planus, and other oral keratoses in 23,616 white Americans over the age of 35 years. *Oral Surg Oral Med Oral Pathol* 1986;61:373-81.
4. Axell T. Occurrence of leukoplakia and some other oral white lesions among 20,333 adult Swedish people. *Community Dent Oral Epidemiol* 1987;15:46-51.
5. Ikeda N, Ishii T, Iida S, Kawai T. Epidemiological study of oral leukoplakia based on mass screening for oral mucosal diseases in a selected Japanese population. *Community Dent Oral Epidemiol* 1991;19:160-3.
6. Reichart PA. Oral mucosal lesions in a representative cross-sectional study of aging Germans. *Community Dent Oral Epidemiol* 2000;28:390-8.
7. Silverman S Jr., Gorsky M, Lozada F. Oral leukoplakia and malignant transformation: a follow-up study of 257 patients. *Cancer* 1984;53:563-8.
8. Lind PO. Malignant transformation in oral leukoplakia. *Scand J Dent Res* 1987;95:449-55.
9. Schepman KP, van der Meij EH, Smeele LE, van der Waal I. Malignant transformation of oral leukoplakia: a followup study of a hospital-based population of 166 patients with oral leukoplakia from The Netherlands. *Oral Oncol* 1998;34:270-5.
10. Sugar L, Banoczy J. Follow-up Studies in Oral Leukoplakia. *Bull. Org. mond. Sante.* 1969;41:289-293.
11. Warnakulasuriya S, Johnson NW, Van der Waal I. Nomenclature and classification of potentially malignant disorders of the oral mucosa. *J Oral Pathol Med.* 2007;36:575-80
12. Gupta PC, Mehta FS, Daftary DK, Pindborg JJ, Bhonsle RB, (alnawalla PM, *etal.* (1980). Incidence rates of oral cancer and natural history of oral precancerous lesions in a 10 year follow up study of Indian villagers. *Community Dent Oral Epidemiol* 8:287-233.
13. Napier SS, Speight PM. Natural history of potentially malignant oral lesions and conditions: an overview of the literature. *J Oral Pathol Med.* 2008;37:1-10.