

PREVALENCE OF ORAL LICHEN PLANUS AMONG NORTH INDIAN POPULATION: A DESCRIPTIVE EPIDEMIOLOGICAL STUDY

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Abstract

The aim: oral lichen planus is a chronic inflammatory disease affecting the oral mucous membrane. It can present in various clinical forms: reticular, papular, plaque-like, atrophic, erosive and bullous. Though the exact etiology is not certain – autoimmunity, trauma, stress, and habits are considered as etiological factors. Oral lichen planus has been classified as a premalignant lesion. The present study aims to describe the prevalence of oral lichen planus in a sample of north Indian population.

Materials and methods: the present study was conducted in the outpatient department of Dentistry, GMC Badaun. The parameters recorded were age, gender and site affected. The data was collected and analysed.

Results: a total of 6263 patients reported to the outpatient department of dentistry out of which 43 patients were diagnosed with oral lichen planus. The overall prevalence of oral lichen planus was found to be 0.69 %. The mean age of disease presentation was 37.5 years. A higher prevalence of oral lichen planus was reported in females compared to males with a ratio of 1:1.15. Most affected site was found to be buccal mucosa bilaterally (58.14 %).

Conclusion: the present study estimated the overall prevalence of oral lichen planus as well as its distribution according to age, gender and site in north Indian population. This could contribute to the precise assessment of the disease for better policy making for better treatment and management of oral lichen planus.

Keywords: oral lichen planus, prevalence, premalignant lesion, north India.

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1. Introduction

Oral lichen planus (OLP) is a chronic inflammatory disease that involves the stratified squamous epithelial tissues. It affects the oral and genital mucous membranes, skin, nails, and scalp in addition to esophageal mucosa, larynx and conjunctivae [1]. The prevalence of lichen planus (LP) is estimated at 0.22 % to 5 % worldwide [2], and the incidence of OLP is estimated at up to 2.2 %. Patients with cutaneous LP are estimated to exhibit oral disease expression in up to 60 % of cases [3, 4]. However, only a minority of OLP patients, approximately 15 %, develop cutaneous lesions [5–7]. OLP most often occurs in persons 30 to 80 years of age, with a greater prevalence in females [2, 4, 8, 9].

The exact aetiology of OLP is uncertain. Autoimmunity, immunodeficiency, food allergies, stress, habits, trauma, diabetes, and hypertension are considered as some of the etiological factors for lichen planus [10]. Antigen-specific keratinocyte killing by CD8+ cytotoxic T cells, mast cell deregulation, and matrix metalloproteinase activation are some of the molecular pathogeneses behind lichen planus lesions [11]. Oral lichen planus is usually bilateral [12–15], symmetric or asymmetric, located on buccal mucosa, tongue, lips and/or gingiva, with fine white lines forming a lace-like network known as Wickham's striae. The presence of Wickham's striae is a pathognomonic feature to define a lesion as Lichen planus [16]. The risk of malignant transformation of OLP ranges from 0.4 % to 12.5 % [17, 18]. In 2005, the World Health Organization (WHO) through the Global Oral Health Program classified OLP as a premalignant condition [19].

Numerous studies have been done to report the prevalence of oral lichen planus but have given variable results. Very few studies reported the prevalence of oral lichen planus in the northern India.

The aim of the present study is to establish the prevalence of oral lichen planus in a sample of north Indian population.

2. Materials and methods

The descriptive study was carried among the patients reporting to outpatient department in the Department of Dentistry, Government Medical College, Badaun from October 2019 to March 2020. The study was conducted in accordance with the Helenski Declaration and informed consent was taken from all the patients. The diagnosis of oral lichen planus was made based on the clinical aspects of the lesions in accordance with the criteria proposed by Van der Meij and Van der Waal [20]. The clinical data recorded were age, gender and site affected. The data were summarized in number (*n*) and percentage (%). sChi-square (χ^2) test was used for comparison at significance level $P < 0.05$.

3. Results

A total of 6263 patients reported to the outpatient department, of which 43 were diagnosed to be affected with oral lichen planus giving the overall prevalence to be 0.69 %. Of the diagnosed cases 20 were males and 23 were females giving the male to female ratio of 1:1.15 (**Fig. 1**).

The age of the patients ranged from 12 years to 68 years. The mean age of disease presentation was 37.3 years. Maximum numbers of cases were seen in the fourth decade (34.88 %) of life followed by fifth decade (23.25 %) of life (**Fig. 2**).

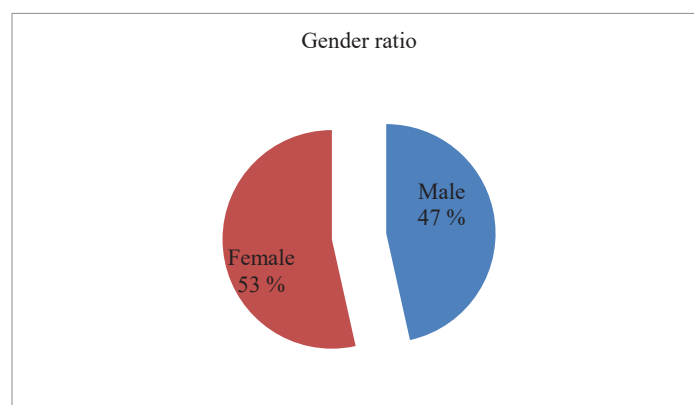


Fig. 1. Distribution of oral lichen planus according to gender

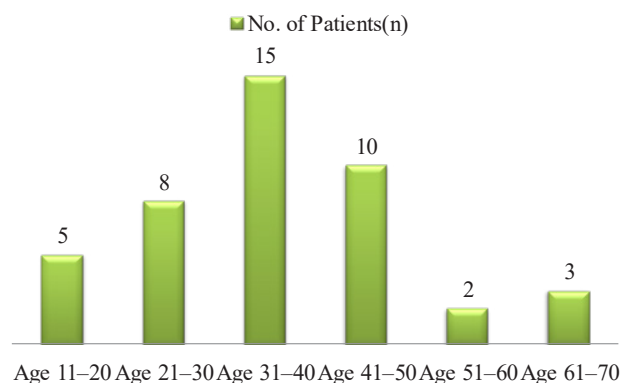


Fig. 2. Distribution of oral lichen planus in different age groups

In males the maximum numbers of cases were seen the fourth decade (13.95 %) and least in sixth decade of life (2.33 %). In females' maximum numbers of cases were recorded in the fourth decade of life (20.93 %) and least in seventh decade of life. Chi-square test showed an

insignificant ($P > 0.05$) difference in the prevalence of oral lichen planus between age and genders ($\chi^2 = 8.83$, $P = 0.115$) thus indicating similar distribution of oral lichen planus in both gender in various age groups (Table 1).

Bilateral involvement of the buccal mucosa accounted for maximum number of cases i.e., 58.14 %. Second most common site affected was found to be the unilateral involvement of buccal mucosa (Fig. 3).

Table 1

Distribution of oral lichen planus according to gender in various age groups

Age (in years)	Male N %		Female N %		χ^2	P
11–20	4	9.30	1	2.33	8.83	0.115
21–30	4	9.30	4	9.30		
31–40	6	13.95	9	20.93		
41–50	2	4.65	8	18.60		
51–60	1	2.33	1	2.33		
61–70	3	6.98	0	0		

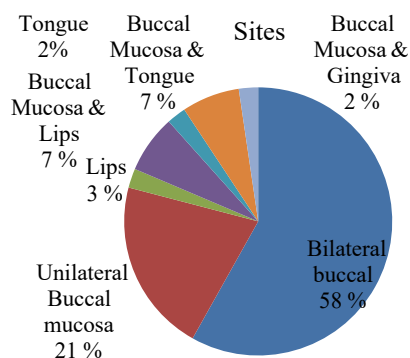


Fig. 3. Distribution of oral lichen planus according to site involved

4. Discussion

The present descriptive study estimated the prevalence of oral lichen planus in a sample of north Indian population. The overall prevalence of oral lichen planus was found to be 0.69 %. This is in accordance with the findings of Changchang Li et al., who performed a systematic review and meta-analysis and reported the overall prevalence of 0.89 % in general population and 0.87 % (0.61 %–1.25 %) in Asia [21]. Migue Angel González-Moles et al., reported the global pooled prevalence to be 1.01 %. They reported highest prevalence from Europe (1.43 %) and the lowest in India (0.49 %), where they attributed tobacco-associated keratosis to mask oral lichen planus resulting in attenuation of its prevalence [22]. Omal et al. [23], and Vivek et al. [24], performed the studies in southern India and reported the prevalence of oral lichen planus to be 0.4 %, 0.7 % respectively. Gowhar et al., conducted a prevalence study in Kashmir and reported it to be 1.2 % [25]. Jasmin Singh and Sanjeet Singh reported the prevalence of oral lichen planus to be 1.5 % in the study performed in Jammu [26].

In the present study, the prevalence was found to be higher in females compared to males. This is in consistent with the findings of various studies which reported female predilection [22–24]. Gholizadeh et al., reported that Oral Lichen Planus, like other autoimmune diseases, is affected by the serum level of sex hormones such as oestrogen. They showed that patients with Oral Lichen Planus, either premenopausal or postmenopausal, had significantly higher serum levels of oestrogen than healthy women [27]. Mohan et al., found higher prevalence of oral lichen planus in perimenopausal women than in general population. They stated that declined level of oestrogen and progesterone could directly or indirectly trigger oral lichen planus in perimenopausal women [28].

The mean age of presentation of disease was 37.3 years and maximum numbers of cases were found in the fourth decade of life. This finding is like the findings of some researchers [13, 26, 29], whereas others reported that the prevalence increased progressively from the age of 40 years [21, 22]. The most frequently affected oral site was the buccal mucosa bilaterally, as reported by other studies [13, 23, 24].

Research limitation. As present study was conducted at a single center therefore epidemiological data of only a limited population was collected.

Perspectives for future research. For a more precise and correct estimation of the oral lichen planus multicentre studies should be conducted. Studies with long term follow-up are required to monitor this premalignant lesion.

5. Conclusion

The present study reported the overall prevalence of oral lichen planus in a sample north Indian population to be 0.69 % affecting females more than males. The mean age of patients was 37.3 years and bilateral buccal mucosa was found to be the most common site affected. More such studies are required for the correct estimation of the prevalence and distribution of oral lichen planus in India as well as worldwide.

Conflict of interest

The authors declare there is no conflict of interests.

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