

Frequency and Clinical Variants of Oral Lichen Planus Among Dental Patients: A Cross-Sectional Multicenter Study

Daud Mirza¹, Waqas Iqbal³, Perveen Memon⁴, Seema Naz Soomro⁴, Khalid Mustufa Memon² and Shahzaman Memon⁵

ABSTRACT

Objective: The aim of this present study was to investigate frequency, clinical variants and its correlation with gender and age.

Study Design: Cross-sectional multicentre study

Place and Duration of Study: This study was conducted at the different dental clinics of Karachi and Hyderabad from August, 2018 to August 2020.

Materials and Methods: A total of 55 clinically diagnosed patients of oral lichen planus of both gender were included in this study. The age range was 10 to 90 years of age. Frequency of OLP was investigated among both gender and data was transferred on SPSS version 23 and Chi-square was applied and the level of significance was considered $p \leq 0.05$.

Results: Out of 55 subjects, 29(52.7%) were male and 26(47.3%) females. The mean age and standard deviation was 59.01 SD ± 11.61 . The present study findings showed higher predilection of oral lichen planus was seen among males 29(52.7%) than females 26(47.3%). The reticular types of oral lichen planus was highly seen in both gender and least observed was plaque type of OLP and no statistically significant findings were found $P > .05$. The OLP was reported higher in 31-60 years age group 30(54.55%) least reported in 10-30 years age group 1(1.82%). This study also revealed the association of OLP among hypertensive and diabetes patients.

Conclusion: Oral lichen planus is a chronic disease with multifactorial aetiology. This study showed higher prevalence of OLP in males particularly in 31-60 years of age group. The OLP has been reported with other comorbidities like hypertension, diabetes, psychosomatic ailments. The clinician should be aware about OLP and its systemic association for timely diagnosis and its management to halt the disease process.

Key Words: Autoimmune, basal keratinocytes, oral lichen planus, corticosteroids

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INTRODUCTION

The term lichen planus is derived from the Greek word 'leichen' meaning tree moss and Latin word 'planus' means flat.¹

¹. Department of Oral Pathology / Pharmacology², Bahria University Medical & Dental College, Karachi.

³. Department of Oral Pathology, Isra Dental College, Hyderabad.

⁴. Department of Oral Pathology, Liaquat University of health Sciences, Hyderabad.

⁵. Department of Oral Pathology, Bhitai Dental College, Hyderabad.

Correspondence: Daud Mirza, Professor & Head of Department, Oral Pathology, Bahria University Medical & Dental College, Karachi.

Contact No: 03223934985

Email: dr.daud_mirza@hotmail.com

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The lichen planus is the most common dermatological disease which manifest in the oral cavity with the name of oral lichen planus (OLP). It is a chronic inflammatory, autoimmune disease of the stratified squamous epithelium that affects mouth and other parts of the body such as skin, scalp, nails and genital mucosa. The oral lichen planus is the mucosal counterpart of the cutaneous lichen planus.² The onset of disease has been reported between the 30 to 70 years of age and higher prevalence seen in females with a ratio of 1:4:1.³ Researches has been shown that OLP has been seen in more in women than men.⁴ In this context a local study conducted in Lahore, Pakistan showed female dominance.⁵

The incidence and prevalence of OLP is not exactly known, but this lesion may present throughout the world with variable frequency. The prevalence of OLP being ranging from 1.9% in Swedish population, 0.5% in Japanese, 2.6% in Indian and 0.38% in Malaysian subjects.⁶ Oral lichen planus has shown the association with tobacco habits, the relative risk was reported approximately 3.7% in people with mixed oral habits, lowest 0.3% in non-users of tobacco and highest

prevalence of OLP (13.7%) seen in those who smoked and chewed.⁷

The etiology of OLP is remains fully elucidated; but it is considered as multifactorial in origin. Different triggering factors such as malnutrition, infectious, stress, endocrine disorders and psychological trauma and genetic susceptibility play an important role in the etiopathogenesis of this disease.^{8,9} Study has shown that HLA associated genetic factors play a role in the development of oral lichen planus. This association has been observed with HLA-A3, A11, A26, A28, B3, B5, B7, B8, DR1, and DRW9 in Chinese patients.^{10,1} The use of systemic drugs also contribute in the etiology of oral lichenoid reaction such as: angiotensin-converting enzyme (ACE) inhibitors, beta blockers, NSAIDs, sulfonyleureas, antimalarial and tooth paste flavoring agents particularly cinnamate^{11,12,10} The research has shown that the commonly used dental materials may also trigger oral lichen planus. These materials includes gold, palladium, silver amalgam, epoxy resins (composites). The OLP has also been reported in patients who used denture for longer duration.^{11,13}

Clinically, OLP present as radiating white lines, grey, thread like papules, annular and retiform arrangement forming typical lacy, reticular patches, rings and streaks forms Wickham striae (these are tiny white elevated dots are present at the intersection of white lines known as Wickham striae),⁷ The lesion is usually asymptomatic in majority of cases particularly reticular type of OLP. It may present bilaterally, symmetrically anywhere in mouth. The most common location of OLP in oral cavity is buccal mucosa followed by gingiva, floor of mouth, tongue, lips and palate.¹

The clinical presentation of OLP may ranges from asymptomatic white keratotic lesion to painful erosions and ulcerations. There are six distinctive clinical variants of OLP have been recognized so far. They include: keratotic reticular, papular, plaque-like white patches, erosive, atrophic, and bullous (ulcerative) type of OLP.¹⁴

The diagnosis of OLP is not complex process but history and clinical examination of oral lesions and skin involvement are usually sufficient to make clinical diagnosis of the disease. However, a biopsy is the recommended for the definitive diagnosis of OLP to differentiate it from other lesions of oral cavity. The aim of this study is to investigate the frequency and different clinical variants of oral lichen planus among both genders.

MATERIALS AND METHODS

This cross-sectional multicenter study was conducted at the department of dentistry of Mamji Hospital, and different clinics of Karachi and Hyderabad from August, 2018 to, August 2020. The sample size was calculated by using software OpenEpi.com by using prevalence of oral lichen planus 3.8%, 95% Confidence

interval and 2160 was the population size for 3 years estimated. The required sample size was found 55 from formula.

$$\text{Sample size } n = \frac{[DEFF * Np(1-p)]}{[(d2/Z2 1-a/2*(N-1)+p*(1-p)]}$$

A total of 55 patients of both genders with age ranging from 20 to 80 years of age group were included in this study. All patients were clinically and histologically diagnosed with oral lichen planus. The ethical approval was obtained from Hospital committee. A non-probability convenient sampling technique was used for this study. Informed consent was taken prior to oral examination of each patient. The demographic and clinical details such as age, gender, systemic disorders and related medications and different types of OLP present in oral cavity were also investigated. The names of different clinical variants includes: 1) keratotic reticular 2) papular 3) plaque like 4) atrophic 5) erosive 6) bullous (ulcerative) type. The exclusion criteria include patients under 20 years of age and those patients who did not give consent for the participation in this study. The data was recorded on a proforma and analyzed by Statistical Package for the Social Sciences (SPSS) version 23. The comparison of parameters of age and gender between the types of analyzed by using Chi-square test and results were considered significant if $p < 0.05$.

RESULTS

A total of 55 clinically diagnosed patients participated in present study, out of which 29(52.7%) males and 26(47.3%) were females. The minimum age of participants was 32 years and maximum 88 years. The mean age and standard deviation was 59.01 SD \pm 11.61 as shown in Table 1. Our study findings showed higher predilection of oral lichen planus was seen among males 29(52.7%) than females 26(47.3%). Table 2 depicts the clinical variants of OLP according to gender showed that the reticular types of oral lichen planus was highly seen in both gender and least observed was plaque type of OLP. Statistically no significant findings were found when gender and types of oral lichen planus was cross tabulated $P >$ value .455 (Table 2).

Table No.1: Showing gender distribution of OLP.

Gender	Patients (n)	SD \pm
Male	29 (52.7%)	11.61SD \pm
Female	26(47.3%)	
Total	55	

In present study, the oral lichen planus was further analyzed with respect to age group which revealed that the oral lichen planus was reported higher in 31-60 years age group 30(54.55%) followed by 61-90 years 24(43.64%) and 10-30 years age group 1(1.82%). The relationship of multiple comorbidities like hypertension, diabetes, hepatitis and stress/anxiety was also reported. Higher cases of OLP were recorded

among hypertensive and diabetes patients and least observed in hepatitis patients.

Table No.2: Cross tabulation of OLP variants with respect to gender.

Clinical variants of OLP	Male (%)	Female (%)	P-value
Reticular	22(75.8%)	17(65.3%)	.455
Atrophic	4(13.7%)	2(7.6%)	
Erosive	3(10.3%)	5(19.2%)	
Plaque	-	1(3.8%)	
Bullous	-	1(3.8%)	
Total	29	26	

*Chi-square test was applied, P-value ≤ 0.05 considered to be statistically significant

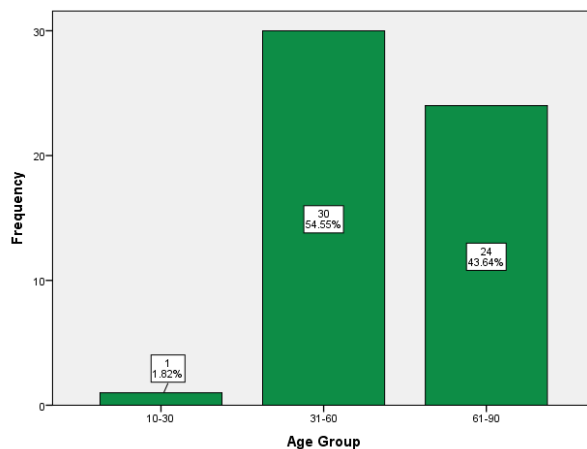


Figure No.1: Distribution of OLP with age groups.

DISCUSSION

Oral lichen planus is a common dermatological disorder, which may affect the skin and oral mucosa. This was described by Erasmus Wilson in 1869. This condition is linked with undue emotional stress, anxiety and depression. OLP usually affects 1-2% of the adult population. Literature has shown that it affects more predominantly female as compared to males with a ratio of 1.4:1 particularly middle aged women^{15,16} A case control study on Indian patients showed female dominance which are in accordance with our findings.¹⁷The OLP is a geriatric disease with multifactorial etiology. It has been linked with some system diseases. The present study also confirms that the most frequent comorbidity associated with OLP was the hypertension followed by diabetes and liver diseases. In clinical study of Lopez-Jornet found that the hypertension was observed in 19.2% followed by diabetes (Type 2) 11.5% of cases. This result also supports our present findings. This may be due to autoimmune nature of OLP and effects of prolonged use of particular type of antihypertensive drugs.¹⁸ Numerous researches have been carried out over the last few decades to find out the relationship of hepatitis C with OLP^{19,20} Studies performed in some parts of the

world like in China,²¹Brazil,¹⁹USA²²showed positive association of OLP with hepatitis C in a greater amount when compared with controls. The present study findings are in accordance with above mentioned studies. This is true in our sample the association was reported in both gender with a very small figure. The author also recommends take large sample size to authenticate finding.

The role of psychosomatic factors and its association with dermatological disorders is still controversial.¹⁵ The stress and anxiety is the possible factors which are also linked with OLP. In present study, these elements were highly observed in females than males. In this context, a study conducted in Kerala, India revealed 57% of patient of OLP had stress factor with erosive type of lichen planus. Majority of patients as has a mutual consensus on that, the stress or anxiety may aggravate their condition and lead to discomfort and finally affect their quality of life.⁴ Similar type of study was conducted in Iranian patients reported, the erosive type of lichen planus had significantly more stress ($Z = 4.123; p < 0.05$) than the controls subjects.²³ This study also confirms the role of stress, anxiety and depression has a relationship with OLP which later on affects the quality of life of an affected individual.

In current study, the reticular type of oral lichen planus was the commonly observed followed by erosive and atrophic type in both gender. The plaque type of OLP was less observed in present findings. The bilateral symmetrical involvement of the buccal mucosa was highly dominant in most of the patient of reticular type. This study was also supported by Ingafou study.²⁴ Monica conducted a retrospective on study on Brazilian patients showed the reticular type was most frequently seen in females with buccal mucosa involvement.²⁵ Another study conducted in United Kingdom oral medicine specialist and they observed that reticular form of OLP was the most common intra-oral presentation seen in British patient with 95% of bilateral involvement of buccal mucosa.²⁴ A clinicopathological study by C Petrou-Amerikanou showed in type I diabetic patients the OLP was found 5.76%, in type II DM 2.83%, and 1.82% in their control subjects. This finding clearly indicates the OLP is an autoimmune phenomenon and T cell immune responses respectively may contribute critical role in the presentation of OLP in type I diabetes mellitus patients.²⁶

CONCLUSION

Oral lichen planus is a chronic autoimmune disease with multifactorial aetiology. The oral lichen planus has been reported with other comorbidities like hypertension, diabetes, psychosomatic ailments. In present study OLP were found higher in female as compared to males in elderly population. In present study, hypertension, diabetes, hepatitis and stress and depression patients reported OLP with higher frequency. In Author opinion the OLP data should be taken to other hospital to correlate OLP with other ailments to authenticate the findings with respect to

gender. The timely diagnosis of oral lichen planus may play an important role to improve the quality of life of affected individual and halt the disease progression.

Author's Contribution:

Concept & Design of Study: Daud Mirza
 Drafting: Waqas Iqbal, Perveen Memon
 Data Analysis: Seema Naz Soomro, Khalid Mustufa Memon, Shahzaman Memon
 Revisiting Critically: Daud Mirza, Waqas Iqbal
 Final Approval of version: Daud Mirza

Conflict of Interest: The study has no conflict of interest to declare by any author.

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