Content available at: https://www.ipinnovative.com/open-access-journals

IP Indian Journal of Clinical and Experimental Dermatology

Journal homepage: https://www.ijced.org/

Original Research Article

An analysis of various patterns and presentations of oral lichen planus: A clinico epidemiological study

Raj Patolia[1]*, N S Bhavani[2]

[1]Dept. of Dermatology, Venereology & Leprosy, Shantabaa Medical College, Amreli, Gujarat, India
[2]Dept. of Dermatology, Venereology & Leprosy, Kodagu Institute of Medical Science, Madikeri, Karnataka, India

Abstract

Background: Oral Lichen Planus (OLP) is a chronic inflammatory mucocutaneous disorder with varied presentation. Some forms have even been predisposed to malignant potential.
Aims & Objectives: To investigate the clinico-epidemiological profile of oral lichen planus and to evaluate various risk factors in a third world country along with clinico-histopathological correlation.
Materials and Methods: A cross-sectional observational study was carried out over a period of 6 months at dermatology outpatient department of a tertiary care hospital in south Gujarat. Patients having clinical lesions of oral lichen planus and willing to give written informed consent were included in the study. Patients not willing to participate and less than 18 years age were excluded from the study. Detailed history and clinical examination was conducted of those enrolled in the study. Results were noted and analysed.
Results: 106 clinical cases were included in the study of which 60 were females. At the time of presentation only 33 (31.13%) patients had one or the other symptoms. Major complaints were of oral discomfort in 16 (48.48%) patients, pain in 12 (36.36%) patients and soreness in 5 (15.15%) patients. The most common site involved was the buccal mucosa, followed by the tongue, gingiva, and lips. Reticular form was the most common variant found in the study (63.2%). Tobacco addiction was predominant among patients (33.01%). Simultaneous extraoral involvement was seen in 9 (8.49%) patients. There was a correlation between the clinical and histopathological findings in 60 (81.08%) cases.
Conclusion: Amongst multiple patterns and presentations of oral lichen planus, asymptomatic reticular variant was found to be maximum. This study highlighted the prevalence and potential risk factors associated with the condition of which tobacco addiction was predominant. It also stresses on early detection and monitoring of Oral Lichen Planus, owing to its potential malignant transformation.

Keywords: Oral lichen planus, Addiction, Dysplasia, Symptoms

Received: 23-07-2024; **Accepted:** 07-05-2025; **Available Online**: 26-05-2025

1. Introduction

Oral lichen planus is a chronic inflammatory mucocutaneous disorder of unknown etiology which is encountered more often than usual in daily practice. The prevalence of oral LP ranges between 0.5% and 2.2% in different epidemiological studies.[1] There is female preponderance in ratio 2:1 with age of evolution generally between fourth and sixth decades of life.[2] Oral mucosal lesions occur in fifty percent of patients of cutaneous LP whereas 25% of patients with oral lichen planus (OLP) present only with oral lesions.[3] Genital lichen planus is associated with approximately 20% of OLP.[2]

Multiple types of oral lichen planus have been described, like reticular, plaque-like, atrophic, papular, erosive or ulcerative, and bullous forms. The reticular variant is the most common, followed by the erosive form. The latter manifests painful symptoms and has been associated with possible malignant transformation of lichen planus.[3] The buccal mucosa is the most common site of involvement followed by tongue and gingiva. Erosive/Ulcerative oral lichen planus is mostly seen on tongue and is extremely painful.[4] The clinical features are generally polymorphic and it manifests as white striations (Wickham's striae), white papules, white plaques, erythema, erosion or blisters and are usually bilateral and/or multiple symmetric. Symptoms vary

*Corresponding author: Raj Patolia
Email: rajpatolia@yahoo.com

http://doi.org/: 10.18231/j.ijced.2025.030

from a burning sensation to severe chronic pain. Alternation between phases of exacerbation and quiescence has been reported.[3,5,6]

The development of oral squamous cell carcinoma (OSCC) is a significant concern when it comes to the progression and outcome of OLP. The frequency of malignant transformation of OLP into OSCC, ranges from 0.4% to 5.3%.[7] Erosive LP is the commonly associated with malignant transformation. Proliferation of basal layer cells induced by various inflammatory mediators promotes tumour development has been suggested as one hypothesis. Association of Hepatitis C with Lichen Planus has also been suggested.[8]

Numerous studies conducted in developed countries have provided detailed information on the demographic and clinical characteristics of OLP, with hundreds of cases being analyzed.[2] However, there is a lack of extensive studies from developing countries.[9,10,11] So we undertook this study to investigate the clinico-epidemiological profile of oral lichen planus and to evaluate various risk factors in a third world country.

2. Materials and Methods

A cross-sectional observational study was carried out after getting clearance from the Institutional Ethics Committee over a period of 6 months at dermatology OPD in a tertiary care hospital in South Gujarat.

Patients aged 18 years or above and who attended the outpatient clinics of dermatology department of a tertiary care centre in south Gujarat during the 6 month period with clinical lesions of Lichen Planus in oral cavity and who were willing to give consent were included in the mentioned study. Patients who had received any form of immunosuppressive therapy in past 3 months were excluded from the study. Written Informed Consent was taken from participants willing for the study.

The presence of keratotic white slightly elevated papules, lacy network of slightly raised gray-white lesions, plaque-like configuration or erosion/ulcerative lesions with violaceous hue in oral cavity, tongue or gingiva was clinically diagnosed as oral LP. A thorough history regarding the evolution, symptoms, duration of disease, history of similar illness, exposure to chemicals or drugs known to induce LP, and individual's habits such as smoking, betel nut chewing, and alcohol intake was enquired and documented using a pre-structured proforma. Family history of similar illness was noted. Thorough examination of the oral cavity in good daylight was done. The site, number, location, and morphology of the lesions were recorded. Regional lymphadenopathy, when present, was noted. Tongue blade was used to find out whether the lesions were scrapable or not. Routine blood and urine analysis, random blood sugar estimation, liver function tests, serology for anti-hepatitis C antibody, and KOH smear were carried out in all patients. A biopsy was performed in cases willing to give consent.

The data were entered in Microsoft Excel and analysis was done using MS Excel 13 software.

3. Results

In our study during period of 6 months, total 106 clinical cases of oral LP were included in the study.

Out of 106 cases, 60 (56.6%) were females and 46(43.4%) were males with female to male ratio 1.3:1. The study group ranged from 18 to 70 years with youngest having 21 years and eldest 67 years age. Majority (41.5%) of patients were in age group of 31-40 years.(**Table 1**)

The duration of the disease varied from less than three to greater than six months. At the time of presentation 33(31.13%) patients had one or the other symptoms whereas 73(68.86%) patients were asymptomatic. Among symptomatic group main complaints were of oral discomfort in 16(48.48%) patients, pain in 12(36.36%) patients and soreness in 5(15.15%) patients. Every patient who experienced symptoms reported a sensation of burning in their mouth when consuming spicy food. 83.33% patients having pain had erosive variant of OLP. Most patients with reticular variant were asymptomatic.

Of 106 cases, 33(31.13%) received some treatment at the time of presentation out of which 15(14.15%) patients received clotrimazole mouth paint, 10(9.43%) patients received topical steroids and remaining 8(7.76%) patients had oral multivitamin tablets.

Comorbidity was seen in 17(16.03%) patients of the study group. 9(8.49%) patients had hypertension, 7(6.6%) patients had diabetes mellitus whereas 1 patient had simultaneously both hypertension and diabetes. History of dental filling was present in 7 patients (3 males, 4 females) of which 5 had filling 9 years ago and 2 had 13 years ago.

35(33.01%) patients had tobacco addiction, 18 (16.98%) patients had smoking addiction and 5 (4.7%) patients in study group had alcohol addiction.

Most common clinical variant of OLP in the study was the reticular form (67, 63.2%) followed by erosive variant (21, 19.81%), atrophic (9, 8.49%), plaque (4, 3.77%), papular (3, 2.83%) and bullous (2, 1.88%) forms (**Figure 1**). The spectrum of clinical presentations of OLP is visually depicted in (**Figure 3**-**Figure 7**), illustrating the diverse morphological patterns observed in the study. Out of total 18 smokers in the study, 3 had plaque form and 1 had reticular form. Of the 8 patients having diabetes, 5 had atrophic form and 3 had erosive form.

Table 1: Demographic data and clinical findings of patients with oral lichen planus (n=106)

Variables	Number
Mean age (years)	41.78
18-30	13(12.26%)
31-40	44(41.51%)
41-50	25(23.58%)
51-60	15(14.15%)
>60	9(8.50%)
Gender (M/F)	60/46
Duration (months)	
0-3	29 (27.36%)
3-6	24 (22.64%)
>6	53 (50.00%)
Symptoms	
Asymptomatic	73 (68.87%)
Oral Discomfort	16 (15.09%)
Pain	12 (11.32%)
Soreness	05(04.72%)
H/O Treatment	
No	73 (68.87%)
Antifungals	15 (14.15%)
Multivitamins	10 (09.43%)
Steroids	08 (07.54%)
H/O comorbidities	
Yes	17 (16.04%)
No	89 (83.96%)
No. of site	
Single	29 (27.36%)
Multiple	77 (72.64%)
Clinico-Histopathological correlation	
No consent	32 (30.19%)
Consented	74 (69.81%)
1. Concordance	60(81%)
2. Discordance	14(19%)

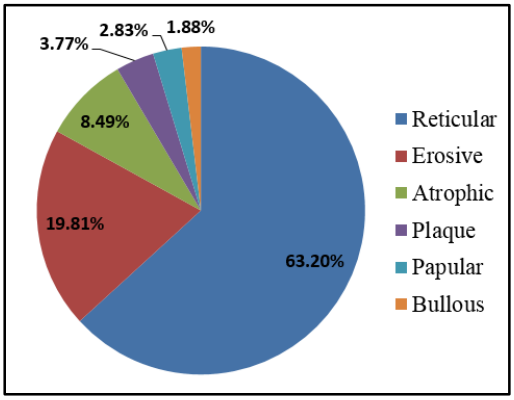

Figure 1: Distribution according to clinical variant

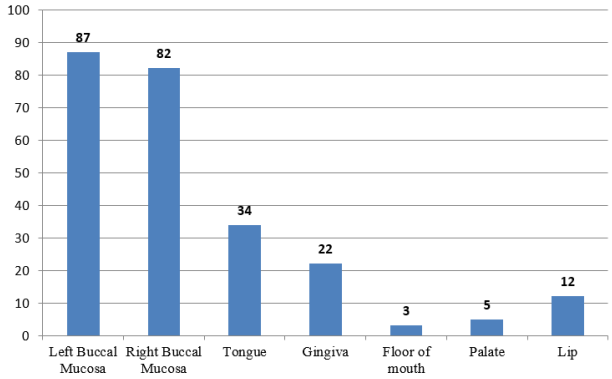

Figure 2: Distribution according to site

Figure 3: Reticular variant (Left and Right buccal mucosa)

Figure 4: Showing erosive variant

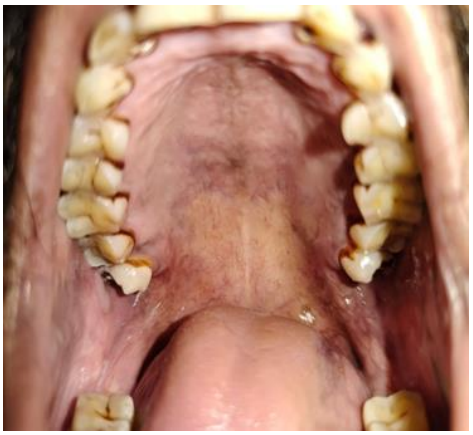

Figure 5: Showing atrophic variant (tongue)

Figure 6: Showing plaque variant

Figure 7: LP involving lip and gingival mucosa

The majority of patients (87, 82.07%) had LP lesions located in the left buccal mucosa, followed by right buccal mucosa (82, 77.35%), tongue (34, 32.07%). Other affected sites included gingiva (22, 20.75%), labial mucosa (12, 11.32%), palate (5, 4.71%), and floor of mouth (3, 2.83%) (**Figure 2**). A total of 77 patients (72.64%) had more than one site affected. 65 patients (61.32%) had involvement of buccal mucosa bilaterally. Simultaneous extraoral involvement was seen in 9 (8.49%) patients with oral LP of which 1 had genital LP, 2 had nail involvement and 6 had other cutaneous site involved.

There were no patients with significant lymphadenopathy in the study. HCV antibody was negative in all the cases. KOH test was positive in 14 (13.20%) patients.

Out of 106 cases, only 74 gave consent for biopsy examination. Among the 74 patients, correlation between the clinical and histopathological findings was seen in 60 (81.08%) cases. Nonspecific features were seen in 3 (2.83%) patients. Evidence of dysplasia was noted in 1 patient.

4. Discussion

Our findings regarding the higher occurrence of oral LP in females align with previous studies. Similarly, the higher percentage of young or middle-aged individuals being affected is also in agreement with existing literature.[2,3,5,6,8,12,13] Hormonal influences have been suggested as a possible explanation for the female predilection.[14] However, a study by Chitturi et al. found no specific sex predilection in oral LP.[15]

While the majority of patients with the reticular form did not experience any symptoms, 63.2% of the participants in our study were diagnosed with this particular form of the disease which is also found in study by Jing-Ling Xue et al.[9] Oral LP in the asymptomatic subjects was either incidental finding during mucosal examination for some other condition or due to referral from E.N.T. and Dental department as a part of routine dental check-up. In our study, we found majority of patients to be having oral discomfort followed by pain and soreness which is in contrast to study by Pakfetrat et al[11] in which majority had soreness. Pain was the most frequent symptom associated with erosive form in our study which is consistent with the other studies.[3,9,16]

Percentage of patients having diabetes mellitus in our study was nearer to study by Carbone et al (8.1%).[12] Diabetic patients in our study presented with atrophic-erosive lesions which was found to be consistent with study by Torrente-Castells E et al.[17] However, there is limited data to establish the association of specific variant with Diabetes and further research is warranted. History of dental filling was present in 6.6% study subjects. Some studies stated association of dental materials with OLP;[5] however a study by Linda Daume et al found no statistical differences in the clinical parameters between patients with or without any type of filling.[18]

High addiction of tobacco found in our study was also seen in study by Murti et al.[10] Although no statistically significant associations between OLP and tobacco could be proved.[19] 16.98% patients had smoking addiction which is similar to study by Monica et al (18.18%);[3] however it was lower (8.3%) in study by Zheng-Yu Shen et al.[2] Smokers and /or patients with alcohol abuse have tendency to develop dysplastic changes/malignization.[17]

Reticular pattern was most common in our study consistent with findings in Juan Seoane et al.[13] In contrast studies by Roy et al[20] and Silverman et al[19] showed erosive lesions more than reticular form. We observed buccal mucosa as most common site involved followed by tongue, gingiva, lips in alignment with other studies.[3,8,9,11,12,13,16] The most common type of oral LP identified, the specific areas of the oral mucosa that were affected, and the involvement of multiple sites were in line with findings from previous studies.[15,21]

KOH test positive in our study may be due to chronic use of topical steroid preparations. The result was consistent with previous data on fungal colonization.[22] Negative serology for Hepatitis C was consistent with the other previous Indian study.[23] Several contrasting studies had been stated regarding association of Hepatitis C with OLP.[5]

Clinico-histopathological was present in 81.08% study subjects which was 52.2% of cases in a study conducted by Syed et al[24] and 92.31% of cases in a study conducted by Bandyopadhyay et al.[25] Dysplastic changes were seen in only 1 patient which were present in 50% in study by Werneck et al.[21] However, as histopathology couldn't be conducted in all patients and dysplastic changes take time to develop, a more comprehensive follow up study is required to derive definitive conclusion. It is important not to conclude that oral LP poses a lower risk of progressing into neoplastic transformation in our population based solely on the absence of dysplastic changes observed in our study participants. This is because previous research has shown that the median time interval for oral LP to develop into squamous cell carcinoma is 5 years.

5. Conclusion

Present study focussed on epidemiology and patterns and presentations of Oral Lichen Planus. Majority patients were middle aged and most of them asymptomatic. The study also highlighted potential risk factors associated with the condition of which tobacco addiction was predominant. The most common reticular variant found in the study was mostly asymptomatic. There was also no correlation with Hepatitis C unlike found in literature. These findings increase awareness regarding early detection and monitoring of Oral Lichen Planus in high-risk populations for the condition and its potential malignant transformation to ensure proper management strategies. Long term follow up study with larger sample size is required to assess potential malignant complication.

6. Limitations

1. This study did not utilize dermoscopy, which may have provided further insights into lesion characteristics.
2. The quality of clinical photographs may not have been optimal. High-quality clinical documentation is crucial for future studies.
3. Long term follow up to evaluate dysplastic changes is required.

7. Ethical approval

This study was approved by institute ethical committee with ref. ECR/42/Inst/GJ/2013.

8. Source of Funding

None.

9. Conflict of interest

None.

References

1. Setterfield JF, Black MM, Challacombe SJ. The management of oral lichen planus. *Clin Exp Dermatol*. 2000;25(3):176–82.
2. Shen ZY, Liu W, Zhu LK, Feng JQ, Tang GY, Zhou ZT. A retrospective clinicopathological study on oral lichen planus and malignant transformation: analysis of 518 cases. *Med Oral Patol Oral Cir Bucal*. 2012;17(6):e943-7.
3. Oliveira Alves MG, Almeida JD, Balducci I, Guimarães Cabral LA. Oral lichen planus: A retrospective study of 110 Brazilian patients. *BMC Res Notes*. 2010;3:157.
4. Eisen D. The clinical features, malignant potential, and systemic associations of oral lichen planus: a study of 723 patients. *J Am Acad Dermatol*. 2002;46(2):207–14.
5. Ismail SB, Kumar SK, Zain RB. Oral lichen planus and lichenoid reactions: etiopathogenesis, diagnosis, management and malignant transformation. J Oral Sci. 2007;49(2):89–106.
6. Yiemstan S, Krisdapong S, Piboonratanakit P. Association between Clinical Signs of Oral Lichen Planus and Oral Health-Related Quality of Life: A Preliminary Study. *Dent J (Basel)*. 2020;8(4):113.
7. Shi P, Liu W, Zhou ZT, He QB, Jiang WW. Podoplanin and ABCG2: malignant transformation risk markers for oral lichen planus. *Cancer Epidemiol Biomarkers Prev*. 2010;19(3):844–9.
8. Rashid N, Riyaz N, Geetha M. Clinicohistopathological study of oral lichen planus. *J Ski Sex Transm Dis*. 2020;2(1):52–5.
9. Xue JL, Fan MW, Wang SZ, Chen XM, Li Y, Wang L. A clinical study of 674 patients with oral lichen planus in China. *J Oral Pathol Med*. 2005;34(8):467–72.
10. Murti PR, Daftary DK, Bhonsle RB, Gupta PC, Mehta FS, Pindborg JJ. Malignant potential of oral lichen planus: observations in 722 patients from India. *J Oral Pathol*. 1986;15(2):71–7.
11. Pakfetrat A, Javadzadeh-Bolouri A, Basir-Shabestari S, Falaki F. Oral Lichen Planus: a retrospective study of 420 Iranian patients. *Med Oral Patol Oral Cir Bucal*. 2009;14(7):E315–8.
12. Carbone M, Arduino PG, Carrozzo M, Gandolfo S, Argiolas MR, Bertolusso G, et al. Course of oral lichen planus: a retrospective study of 808 northern Italian patients. *Oral Dis*. 2009;15(3):235–43.
13. Seoane J, Romero MA, Varela-Centelles P, Diz-Dios P, Garcia-Pola MJ. Oral lichen planus: a clinical and morphometric study of oral lesions in relation to clinical presentation. *Braz Dent J*. 2004;15(1):9–12.
14. Speight PM. Update on oral epithelial dysplasia and progression to cancer. *Head Neck Pathol*. 2007;1(1):61–6.
15. Chitturi RT, Sindhuja P, Parameswar RA, Nirmal RM, Reddy BV, Dineshshankar J, et al. A clinical study on oral lichen planus with special emphasis on hyperpigmentation. *J Pharm Bioallied Sci*. 2015;7(Suppl 2):S495–8.
16. Gorsky M, Raviv M, Moskona D, Laufer M, Bodner L. Clinical characteristics and treatment of patients with oral lichen planus in Israel. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 1996;82(6):644–9.
17. Torrente-Castells E, Figueiredo R, Berini-Aytés L, Gay-Escoda C. Clinical features of oral lichen planus. A retrospective study of 65 cases. *Med Oral Patol Oral Cir Bucal*. 2010;15(5):e685–90.
18. Daume L, Kreis C, Bohner L, Jung S, Kleinheinz J. Clinical characteristics of oral lichen planus and its causal context with dental restorative materials and oral health-related quality of life. *BMC Oral Health*. 2021;21(1):262.
19. Silverman S, Gorsky M, Lozada-Nur F. A prospective follow-up study of 570 patients with oral lichen planus: persistence, remission, and malignant association. *Oral Surg Oral Med Oral Pathol*. 1985;60(1):30-4.
20. Roy S, Varshney S. Oral dermatological conditions: a clinical study. *Indian J Otolaryngol Head Neck Surg*. 2013;65(2):97-101.

21. Werneck JT, Costa Tde O, Stibich CA, Leite CA, Dias EP, Silva Junior A. Oral lichen planus: study of 21 cases. *An Bras Dermatol*. 2015;90(3):321–6.
22. Gupta S, Jawanda MK. Oral Lichen Planus: An Update on Etiology, Pathogenesis, Clinical Presentation, Diagnosis and Management. *Indian J Dermatol*. 2015;60(3):222–9.
23. Jayavelu P, Sambandan T. Prevalence of hepatitis C and hepatitis B virus infection(s) in patients with oral lichen planus. *J Pharm Bioallied Sci*. 2012;4(Suppl 2):S397–405.
24. Bukhari SS, Gupta V, Dogra DR, Goswami KC, Ahmed A, Rather MI. Clinicohistopathological correlation of oral lesions. *Int J Contemp Med Res*. 2017;4(6):1398–401.
25. Bandyopadhyay A, Behura SS, Nishat R, Dash KC, Bhuyan L, Ramachandra S. Clinicopathological Profile and Malignant Transformation in Oral Lichen Planus: A Retrospective Study. *J Int Soc Prev Community Dent*. 2017;7(3):116–24.

Cite this article: Patolia R, Bhavani NS. An analysis of various patterns and presentations of oral lichen planus: A clinico epidemiological study. *IP Indian J Clin Exp Dermatol*. 2025;11(2):181-186.