

Frequency of clinical patterns of oral lichen planus

Asmaa Batool Awan, Saadiya Siddqui, Tariq Rashid, Atif Shahzad

Department of Dermatology, Fatima Jinnah Medical University, Sir Ganga Ram Hospital, Lahore.

Abstract

Background Lichen planus is one of the chronic autoimmune inflammatory mucocutaneous disorders that affects stratified squamous epithelium. It affects skin, oral and genital mucous membranes, and nails and scalp. Oral Lichen planus is more common than cutaneous forms and is resistant to treatment. It presents as reticular, erosive and atrophic lesions. One of the serious complications of oral form of Lichen planus is the development of squamous cell carcinoma. We want to ascertain different clinical patterns of oral lichen planus in our population.

Objective To find out the frequency of different clinical patterns of oral Lichen planus in population presenting in a tertiary care hospital.

Methods It was a Cross sectional study that was carried out in Department of Dermatology, Sir Ganga Ram Hospital, on 100 patients meeting the inclusion criteria. Patients were explained the details of study, written informed consent was taken. Patients were examined clinically and their age, gender, duration of disease and the clinical type of oral lichen planus and the site of lesions were recorded in the predesigned proforma.

Results Out of 100 patients, 38 were men and 62 were women. The mean age of the patients was 40 ± 10 years. The mean duration of disease was 5.4 ± 6 years. Among the various clinical patterns, the isolated reticular pattern was found in 65% of patients, the erosive pattern was seen in 28% of patients, the atrophic pattern was seen in 7% of patients. 42% of patients had no concomitant skin lesions while 58% had skin lesions along with the oral lesions. The buccal mucosa was most frequently involved, seen in 61% of patients with the most common pattern i.e isolated reticular pattern. When stratified oral LP was highest among the age group of 41 to 50 years and among those with duration between 1 to 5 years. There was a remarkable relationship among duration of disease ($p < 0.001$) and age ($p = 0.04$) of patient with the pattern of disease, however there was no remarkable relationship among gender ($p = 0.63$) and disease pattern. Erosive oral LP showed longest duration.

Conclusion The most frequent clinical pattern of oral lichen planus identified in this study was reticular pattern and the most frequent site of involvement was buccal mucosa. The second most common pattern was erosive pattern and atrophic pattern was the least common pattern observed. Erosive LP showed the longest duration.

Key words

Lichen planus, squamous cell carcinoma, reticular pattern, erosive and atrophic pattern.

Introduction

Lichen planus (LP) is one of the chronic

Address for correspondence

Dr. Asmaa Batool Awan
Consultant Dermatologist,
Fouji Foundation Hospital, Lahore.
Ph: 03214193530
Email: drawan08@yahoo.com

autoimmune inflammatory mucocutaneous disorder that affects stratified squamous epithelium. It affects skin, oral and genital mucous membranes and nails and scalp.¹ Age of onset is between 30 to 60 years and is more common in female gender.²

Exact incidence and prevalence of LP is not

known but about 0.5 to 2% of the common population is affected.³ Oral involvement is more common than cutaneous form and it is more persistent and more resistant to treatment.⁴ Prevalence of oral involvement by this disease is 0.5 to 2.2% and with cutaneous involvement it accounts for 15% of all cases.^{2,5} The Relative risk is 3.7% in people with mixed habits, 13.7% in smokers and in those who use tobacco and 0.3% among those who do not use tobacco.¹ Oral lichen planus commonly involves buccal mucosa, lateral border and dorsum of tongue, lips, gingiva, hard palate and floor of mouth.¹

Classically oral lichen planus is classified into six types by Andreasen including reticular, erosive, plaque like, atrophic, papular and bullous but this classification was rationalized by other authors and they include only three lesions which are: the reticular one along with white lesions, the plaques and the papules; atrophic or erythematous; and erosive type, including erosions and bullae.⁶

One of the serious complications of oral form of lichen planus is the development of squamous cell carcinoma. The frequency of this complication varies between 0 to over 3.5%.²

In a clinical study conducted by Jing-Ling Xue et al in-People's Republic of China 674 patients of Oral Lichen Planus were collected between 1963 and 2003. Out of 674 patients 65.9% were females and 34.1% were male. Solely the reticular pattern was observed in 51.3% of patients. Rest of patients showed other patterns along with reticular pattern. Atrophied lesions were seen 9.6% and reticular lesions were seen concomitantly. Erosive form was predominant in 39.1%.⁶

Oral lichen planus often remains undiagnosed and is mismanaged due to inadequate knowledge about this disease and this adds to the suffering

of patients. Patients visit physicians, dentists and ENT specialists. Proper knowledge of oral Lichen planus is necessary to diagnose the disease earlier and to start an appropriate treatment, not only to alleviate patient's symptoms but also to avoid any complication especially transition to squamous cell carcinoma. No data on frequency of different clinical types of Lichen planus involving oral cavity was available in Pakistani population, so we planned this study to scientifically document the clinical patterns of oral lichen planus.

Methods

It was a Cross sectional study that was carried out at Dermatology Department, Sir Ganga Ram Hospital, Lahore for a period of six months from 16th March, 2016 to 15th September, 2016. It was conducted on 100 patients selected through non probability consecutive sampling with 95% confidence interval, 6% margin of error and taking anticipated percentage of atrophic lichen planus least common among all clinical patterns of lichen planus in patients presenting to the above mentioned tertiary care hospital. Patients of both genders in age range 18 to 50 years clinically diagnosed as a case of oral Lichen planus as per operational definition, with or without skin lesions were selected according to inclusion criteria. Patients with history of Steven Johnson's syndrome, Immunobullous disorder and Systemic Lupus Erythematosus and having dental restorative material were excluded. Oral Lichen Planus (OLP) will be labeled if any one or more of following types will be present: reticular type, erosive and atrophic type lesions (the last two included as a subtype only if the reticular lesions were seen elsewhere in the oral mucosa).¹ Isolated Reticular LP will be seen as asymptomatic fine intertwined lace like pattern involving the posterior part of cheeks in maximum patients,¹ it includes white lines,

plaques and papules.^{6,7} Erosive LP will be observed as painful lesions adjoined by the fine radiant keratinized striae with a network appearance¹ and consist of erosions and bullae.⁶ Atrophic LP will be seen as diffuse red patches along with white striae which is characteristic of reticular type surrounded by erythematous area.¹ After informed written consent, all information was collected on a specially designed proforma. Final analysis of results was done after completion of sample size. Outcome variable i.e. isolated reticular, erosive and atrophic types were recorded according to operational definitions. All patients were accessed by researcher herself to control observer bias. Data was recorded and interpreted using SPSS 20. Quantitative data like age and duration was shown by mean and Qualitative data like gender and clinical type of lesion (isolated reticular, erosive and atrophic) was shown by frequencies and percentages. Data was stratified for age, gender, site and duration of disease. Post stratification chi-square test was applied, p-value ≤ 0.05 was considered significant.

Results

Hundred patients were included in this study among them 38 were men and 62 were women. The mean age of patients was 40 ± 10 years. The mean age among males was 39 ± 10 years and

mean age among females was 40 ± 9 years (**Table 1**). The maximum age was 50 years and minimum age was 18 years. The mean duration of disease was 5.4 ± 6 yrs. with mean duration among males was 5.3 ± 6 yrs. and among females as 5.5 ± 6 yrs. (**Table 1**). The maximum duration of disease was 25 years and minimum duration was 1 month. Among the various clinical patterns, the isolated reticular pattern was found in 65% of patients with the frequency among males as 63.2% and among females as 66.1%. The erosive pattern was seen in 28% of patients with percentage among males was 31.6% and among female 25.8%. The atrophic pattern was seen in 7% of patients with the percentage among males was 5.3% and among females was 8.1% (**Table 2**). The most frequent site of involvement was buccal mucosa, seen in 61% of patients with the most common pattern i-e isolated reticular pattern (**Table 3**). When stratified, the oral LP was highest among the age group of 41 to 50 years and among those with duration between 1 to 5 years. It was also noted that the frequency of isolated reticular type was highest among those with duration of 1 to 5 year of duration and frequency of erosive type of oral LP was highest with the duration of more than 10 years. There was a remarkable relationship among duration of disease ($p \leq 0.001$) and age ($p = 0.04$) of patient with the pattern of disease (**Table 4,5**). However, there was no significant relationship among gender ($p = 0.74$) and disease

Table 1 Mean age and duration of disease.

	Gender					
	Male		Female		Total	
	Mean	SD	Mean	SD	Mean	SD
Age (Years)	39	10	40	9	40	10
Duration of Disease (Years)	5.3	6.0	5.5	6.0	5.4	6.0

Table 2 Frequency of different clinical patterns of oral lichen planus among male and females.

Clinical pattern	Gender				Total	
	Male		Female		Number	Frequency
	Number	Frequency	Number	Frequency		
Isolated reticular	24	63.2%	41	66.1%	65	65%
Erosive	12	31.6%	16	25.8%	28	28%
Atrophic	2	5.3%	5	8.1%	7	7%

Table 3 Frequency of different clinical patterns of oral lichenplanus at various sites of oral cavity.

Site	Clinical pattern		
	Isolated reticular	Erosive	Atrophic
Buccal mucosa	61.0%	25.0%	8.0%
Lips	34.0%	17.0%	1.0%
Tongue	9.0%	3.0%	0.0%
Gums	6.0%	2.0%	0.0%
Hard Palate	5.0%	0.0%	0.0%
Floor of mouth	2.0%	10.0%	0.0%

Table 4 Effect of duration of disease on pattern of disease.

Duration of disease	Clinical pattern			Total	p-value
	Isolated reticular	Erosive	Atrophic		
< 1 year	19	1	0	20	<0.001
1-5 year	38	8	1	47	
6-10 year	5	4	4	13	
>10 year	3	15	2	20	
Total	65	28	7	100	

Table 5 Effect of age of patient on pattern of disease.

Age (years)	Clinical pattern			Total	p-value
	Isolated reticular	Erosive	Atrophic		
<20	2	0	0	2	0.043
21-30	18	3	0	21	
31-40	19	5	3	27	
41-50	26	20	4	50	
Total	65	28	7	100	

pattern (**Table 6**). Around 42% of patients had no concomitant skin lesions while 58% of patients had skin lesions along with oral lesions.

Discussion

Lichen planus is one of the chronic autoimmune inflammatory mucocutaneous disorders that affect stratified squamous epithelium. It affects skin, oral and genital mucous membrane, scalp and nails. It occurs between 30 to 60 years of age and is more common in women. About 0.5 to 2% of the common population is affected from LP. Oral Lichen planus is more common than cutaneous form and it is more persistent and more resistant to treatment. Oral Lichen planus is prevalent in 0.5 to 2.2% of population and with skin involvement it accounts for 15% of all cases.^{2,5} Oral Lichen planus commonly involves buccal mucosa, lateral border and dorsum of tongue, lips, gingiva, hard palate and floor of mouth. Classically oral lichen planus is

classified into six types by Andreasen but this classification was rationalized by other authors who considered only three types of lesions which are: reticular, atrophic and erosive type. One of the serious complications of oral Lichen planus is development of squamous cell carcinoma.⁸ The frequency of this complication varies between 0 to over 3.5%.² In a clinical study conducted by Jing-Ling Xue et al in People's Republic of China 674 patients of Oral Lichen Planus were collected between 1963 and 2003. Out of 674 patients 65.9% were females and 34.1% were males. The mean age at presentation was 49 years for females and 52 years for males. The reticular pattern solely was observed in 51.3% of patients. Rest of patients showed other patterns along with reticular pattern. Atrophied lesions were seen 9.6% and reticular lesions were seen concomitantly. Erosive form was predominant in 39.1%.⁶ This study was aimed to scientifically document the clinical patterns of oral lichen planus in local

Table 6 Effect of gender of patient on pattern of disease.

Gender	Clinical pattern			Total	p-value
	Isolatedreticular	Erosive	Atrophic		
Male	24	12	2	38	0.043
Female	41	16	5	62	
Total	65	28	7	100	

population so as to see the frequency of various clinical patterns and also to diagnose them earlier to prevent the complications. Patients were diagnosed clinically according to the operational definitions and fulfilling the inclusion criteria. The mean age of the patients in our study was 40±10 years. In current study there is female predominance among oral LP patients i.e. 62% which is consistent with the literature with the report of female preponderance.^{2,9-11} The mean duration of disease in this study was 5.4±6 years with maximum duration of 25 years and minimum of 1 month. Erosive lesions showed a longer duration which is similar to a study conducted by Xue et al in China.⁶

The most frequent clinical pattern is reticular pattern which was seen in 65 percent of the patients. Reticular oral LP is the most common type seen in other literature reports.^{2,6,9,12} Erosive pattern was seen in 28% and atrophic pattern in 7%. The most frequent site of involvement was buccal mucosa which is consistent with literature.¹³ When stratified, the oral LP was highest among the age group of 41 to 50 years and among those with duration between 1 to 5 years. It was also noted that the frequency of isolated reticular type was highest among those with duration of 1 to 5 year of duration and frequency of erosive type of oral LP was highest with the duration of more than 10 years, showing chronic nature of erosive oral LP. This finding of longer duration of erosive oral LP is also seen in another study.⁶ Both long standing disease and erosive type of LP are risk factors for the development of malignancy.¹⁴ On cross tabulation, there was a remarkable relationship

among duration of disease ($p \leq 0.001$) and age ($p = 0.04$) of patient with the disease pattern. However there was no significant relationship among gender ($p = 0.74$) and disease pattern. One of the finding which is seen in our study and is different from literature reports is presence of concomitant skin lesions along with oral lesions which is seen in 52% of patients. While in literature concomitant skin lesions are seen in 15% or in less than one third of patients.^{6,12,13}

Our study however was limited to the clinical diagnosis and we did not consider the histopathological aspect, which is an important aspect and should be considered in future studies.

Conclusion

The most frequent clinical pattern of oral lichen planus seen in this study is reticular pattern and the most frequent involved site is buccal mucosa. The second most common pattern is erosive pattern and atrophic pattern is the least common pattern observed. It was also noted that the frequency of isolated reticular type was highest among those with duration of 1 to 5 year of duration and frequency of erosive type of oral LP was highest with the duration of more than 10 years, showing chronic nature of erosive oral LP.

References

1. Gupta S, Jawanda MK. Oral lichen planus: An update on etiology, pathogenesis, clinical presentation, diagnosis and management. Indian J Dermatol. 2015;60:222-9.

2. Werneck JT, Stibich CA, Dias EP, Costa TO, Leite CA, Junior AS. Oral lichen planus: Study of 21 cases. *An Bras Dermatol.*2015;90(3):321-6.
3. Edwards PC, Kelsch R. Oral lichen planus: Clinical presentation and management. *J Can Dent Assoc* 2002;68:494-9.
4. Sharma S, Saimbi CS, Koirala B. Erosive. Oral lichen planus and its management: A case series. *JNMA J Nepal Med Asso* 2008;47:86-90.
5. Breathnach S.M. Lichen planus and lichenoid disorders. In:Burns T, Breathnach S, Cox N, Griffith C editors. *Rook's Textbook of Dermatology.* Eighth Edition. West Sussex: Willey Blackwell;2010.P.41.9.
6. Xue JL, Fan MW, Wang SZ, Chen XM, Li Y, Li W.A. Clinical study of 674 patients with oral lichen planus in China. *J Oral Pathol Med.* 2005;34:467-72 .
7. Canto AM, Muller H, Freitas RR, Santos PS. Oral lichen planus(OLP): Clinical and complementary diagnosis. *An Bras Dermatol* 2010;85:669-75.
8. Giuliani M, Troiano G, Cordaro M, Corsalini M, Gioco G, Lo Muzio L, Pignatelli P, Lajolo C. Rate of malignant transformation of oral lichen planus: A systematic review. *Oral Dis.* 2019 Apr;25(3):693-709. doi: 10.1111/odi.12885. Epub 2018 Jun 25. PMID: 29738106.
9. Van der Waal I.Oral lichen planus and oral lichenoid lesions;a critical appraisal with emphasis on the diagnostic aspects.*Med Oral Patol Oral Cir Bucal.*2009;14:E310-4.
10. Al-Hashmi I, Schifter M, Lockhart PB, Wary D, Brennan M, Migliorati CA, et al. Oral lichen planus and oral lichenoid lesions:diagnostic and therapeutic consideration.*Oral Surg Oral Med Oral Pathol Oral Radiol Endod.*2007;103:S25.e1-12
11. Piguet V,Breathnach S.M and Cleach LL.Lichen planus and lichenoid disorders.In:Griffiths C ,Barker J,Bleiker T,Chalmers R,Creamer D editors.*Rook's Textbook of Dermatology.*Ninth Edition .West Sussex:John Wiley and Sons;2016. Figure 37.3 Lichen planopilaris showing hyperpigmented, follicular, „plugged“ lesions in the frontal scalp hairline,p.37.4.
12. Radwan-Oczko M. Topical application of drugs used in treatment of oral lichen planus lesions. *Adv Clin Exp Med* 2013;22:893-8.
13. Silverman S Jr, Griffith M: Studies on oral lichen planus. II. Follow-up on 200 patients, clinical characteristics, and associated malignancy. *Oral Surg Oral Med Oral Pathol* 1974;37:705-710.
14. Pittelkow MR, Daoud MS. Lichen planus.In: Wolff, Klaus; Goldsmith, Lowell A.; Katz, Stephen I.; Gilchrest, Barbara A.; Paller, Amy S.; Leffell, David J. *Fitzpatrick's Dermatology in General Medicine,* 7th Edition. McGraw-Hill;2008.p.552-584.