ORIGINAL RESEARCH

Prevalence of oral, skin, and both oral and skin lesions of lichen planus: A cross-sectional study

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ABSTRACT

Background: Lichen planus (LP) is a pruritic, inflammatory skin, mucous membrane, and hair follicle condition. It affects people of various ethnicities all over the world. 1.5 percent of men and 2.3 percent of women have oral LP. In some situations, it may be inherited. The goal of this study was to determine the prevalence of oral, skin, and both oral and skin lesions of LP in patients who visited a dental college's Department of Oral Medicine and Radiology.

Material and methods: The prevalence of oral, skin, and oral and skin lesions in people with LP was investigated in a cross-sectional study. We conducted a prospective study for 18 months. All patients suspected of having LP were diagnosed based on clinical presentation and histological investigation of mucosal and skin sample. SPSS (Statistical Package for Social Sciences) software version 14 was used for statistical analysis. The chi-square test was performed to determine statistical significance.

Result: There were 7,112 men and 8,544 females among the 15,656 patients who were screened. LP appeared in 126 cases (0.80 percent). The prevalence of LP was found to be higher in middle-aged adults (21-40 and 41-60 years old), with the lowest age being 14 and the highest being 67. There were no statistically significant differences between genders in the skin LP group or the oral and skin LP groups, however there was a substantial female preference in the oral LP group.

Conclusion: Oral LP was shown to be more common than skin LP, and both oral and skin LP had a female predominance in this investigation.

Keywords: Lichen planus, pruritic, inherited.

INTRODUCTION

Lichen planus (LP) is a pruritic, inflammatory skin, mucous membrane, and hair follicle condition. It affects people of various ethnicities all over the world. Cutaneous LP affects 0.3% of men and 0.1% of women. 1.5 percent of men and 2.3 percent of women have oral LP. In some situations, it may be inherited. Certain human leukocyte antigen (HLA) alleles (HLA-DR/DQ, HLA-A3), gene mutations (MTHFR), and single-nucleotide polymorphisms (tumour necrosis factor– [TNF-], NRP2, IGFBP4) have been shown to confer risk in certain populations and subgroups. LP occurs after the age of 20 in people of European heritage and peaks between the ages of 40 and 70. After the age of 80, very few cases emerge. Childhood

LP accounts for only about 5% of all LP cases, while it can be as high as 10%–20% in other areas, such as the Indian subcontinent, Arab countries, and Mexico. Race appears to be a key role; LP is more common in African American children in the United States, and Indians account for 80 percent of childhood LP in the United Kingdom. LP is a T-cell disease characterised by an increase in Th1 cytokine expression and T-cell activity at the basement membrane zone.[1]

Oral lichen planus (OLP) is a T-cell–mediated chronic inflammatory condition that affects the oral mucosa, with a higher frequency in women than in men.[2] The disease affects people of all ages around the world,[3] and it is uncommon in youngsters.[4] OLP is more common in smokers and patients who abuse alcohol.[5]

A genetic flaw or environmental variables can cause or trigger oral lichen planus. Although the aetiology is unknown, the immune system plays a significant role, and certain factors, such as psychological stress, drug use, and anxiety, are widely documented.[6-8] Oral lichen planus has been linked to hepatitis C virus infection, hypertension, diabetes, graft-vs-host disease, and thyroid dysfunction in the past.[9-12] However, the precise role of most of these conditions in OLP remains unclear.

So, the present study was taken to estimate the prevalence of oral, skin, and both oral and skin lesions of LP in patients visiting Dental college O.P.D. of Department of Oral Medicine and Radiology.

MATERIAL AND METHODS

A cross-sectional prospective study was conducted for a period of 18 months in Department of Oral Medicine and Radiology. Study included all subjects who visited department for various complains and were interviewed and clinically examined for oral, skin, and both oral and skin lesions of LP.

LP was diagnosed based on clinical signs and symptoms, with histological investigation of mucosal and skin biopsy samples performed on all patients suspected of having LP. The study included 15,656 patients who were screened for LP. The study protocol was approved by the Institutional Ethical Committee, and the subjects were explained about the study and it's motive and subjects who gave their consent were included in study.

INCLUSION CRITERIA

1. Subjects in the age group 10 -80 years.
2. Both male and female subjects who gave their consent to participate in study.

EXCLUSION CRITERA

1. Subjects less than 10 years and more than 80 years.
2. Subjects who were not ready to participate in study.
3. The study excluded lesions that resembled oral LP, such as lichenoid reactions caused by dental amalgam restorations.
4. The study also excluded lesions that looked like oral and skin LP but were not verified as such through biopsy.

STATISTICAL ANALYSIS

SPSS (Statistical Package for Social Sciences) software version 14 was used for statistical analysis. The chi-square test was performed to determine statistical significance.

RESULTS

There were 7,112 (45.42%) men and 8,544(54.57%) females among the 15,656 patients who were screened, with ages ranged between 10 and 70 years. LP appeared in 126 cases (0.80

percent) of which subjects with oral lichen planus (OLP) were 77 (61.11%), skin lichen planus (SLP) were 15 (11.90%), and subjects with both OLP and SLP were 34 (26.98%) (Figure 1). Prevalence of OLP was 0.49%, SLP was 0.09%. Prevalence of subjects with both OLP and SLP was 0.21%.

Figure 1: Oral, skin and both oral and skin lichen planus in the study population

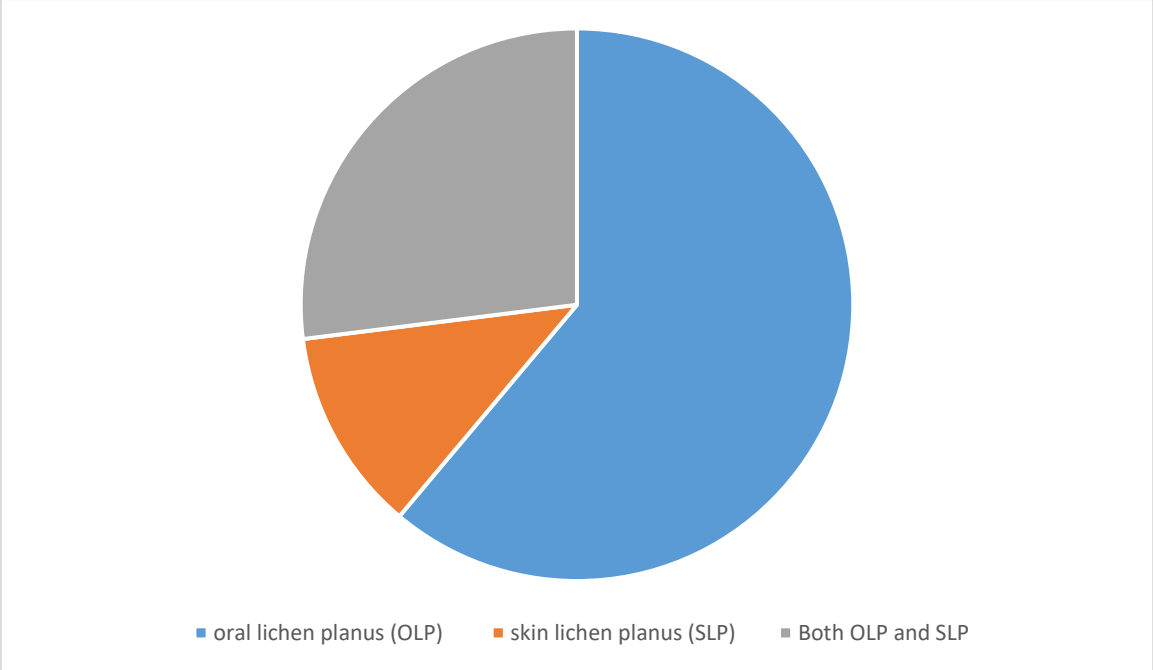

Table 1: Patients with oral, skin, and both oral and skin LPs among males and females

Type of LP	Male n(%)	Female n(%)	P value
OLP	24 (31.16)	53 (68.83)	<0.01*
SLP	4 (26.66)	11 (73.33)	<0.01*
Both OLP and SLP	12 (35.29)	22 (64.70)	<0.01*

*: statistically significant

Table 2: Age wise distribution of lichen planus-oral, skin, and both oral and skin LP

Age group	No. of patients screened	No. of patients with OLP	No. of patients with SLP	No. of patients with both OLP and SLP
0-20 years	2532	2 (0.07%)	0	0
21-40 years	10041	39 (0.38%)	12 (0.11%)	23 (0.22%)
41-60 years	2112	30 (1.42%)	3 (0.14%)	10 (0.47%)
61-80 years	971	6 (0.61%)	0	1 (0.10%)
Total	15,656	77 (0.49%)	15 (0.09%)	34 (0.21%)

There was a considerable female prevalence of OLP, SLP, and both OLP and SLP among the three types of LP (OLP, SLP, and OLP and SLP) [Table 1]. Table 2 shows the age distribution of LP (oral, skin, and oral and skin LP). The largest prevalence of oral, skin, and oral and skin LP was found in the 21-40 and 41-60 years age group; the lowest age of a patient with LP (oral LP) was 14 years, and the highest was 67 years in our study. OLP was shown to affect the buccal mucosa 46.84 percent, gingiva 23.42 percent, tongue 13.51 percent, labial mucosa 10.81 percent, and soft palate 5.04 percent [Table 3].Extraorally, wrist and forearm were affected most often 44.89%, followed by knees and thighs 28.57%, scalp 14.28%, and nails 12.24% [Table 4].

Table 3: Intraoral site of involvement of oral lichen planus

Buccal mucosa	52 (46.84%)
Gingiva	26 (23.42%)
Tongue	15 (13.51%)
Labial mucosa	12 (10.81%)
Soft palate	6 (5.40%)
Total	77 +34 (100%)

Table 4: Extra oral site of involvement of lichen planus

Wrist and forearm	22 (44.89%)
Nails	6 (12.24%)
Knees and Thigh	14 (28.57%)
Scalp	7 (14.28%)
Total	15+34 (100%)

DISCUSSION

Lichen planus gets its name from the fact that it resembled lichens growing on a rock, and planus means flat.[13,14,15] LP can affect multiple mucosal surfaces at the same time or separately (oral, skin, and oral and skin lesions). The oral version of the disease may appear before or after the skin lesions, or it may be the only symptom.[15] Skin LP has a prevalence of 0.9-1.2 percent in the general population, while oral LP has a prevalence of 0.1 percent to 2.2 percent.[15] The prevalence of OLP was 0.49 percent in this study, while SLP was 0.09 percent. Subjects with both OLP and SLP were 0.21 percent of the population.

The following distribution of oral lesions was reported by Shklar and Mc Carthy[14,16]: buccal mucosa 80%, tongue 65%, lips 20%, gingiva, floor of mouth, and palate less than 10%. The buccal mucosa and gingiva are the most prevalent sites of involvement in the oral cavity.[17] Buccal mucosa lesions was most commonly involved in present study, it accounted for 46.84 percent of oral LP lesions, followed by gingiva 23.42 percent, tongue 13.51 percent, labial mucosa 10.81 percent, and soft palate was least involved with only 5.04 percent involvement. Oral LP is classified into two types: erosive oral LP and nonerosive oral LP.[13,18] The erosive form manifests as a central erythema with radiating white striae on the periphery,[13,14,18] while the nonerosive form, also known as the reticular variant, is distinguished by the presence of Wickham striae.[14,18] Erosive variety is of great concern to both clinicians and patients since patients frequently report burning sensations in the affected areas; also, erosive form has a higher risk of malignant development[14,19] (0.3 percent -3 percent). The majority of patients with a chief symptom of burning sensation in our study had erosive LP, with a malignant transformation incidence of 1.23 percent. On regular examination, nonerosive LP was discovered.

Short comings of the present study were that it was performed for a limited period of time involving only one centre. So, studies involving multiple hospital and colleges and done for a longer duration are required to validate our results.

CONCLUSION

Skin and oral sores are common symptoms of LP. Oral LP is more common in the 21-40 yeras and 41-60 years age group, with a female predominance, according to this study. Oral LP lesions, particularly those that are erosive, must be closely monitored since they have a higher risk of developing into squamous cell carcinoma.

BIBLIOGRAPHY

1. James WD, Elston DM, Treat JR, Rosenbach MA, Neuhaus IM. Andrews' Diseases of the Skin, 2020;12: 215-230.
2. Drogoszewska B, Chomik P, Polcyn A, Michcik A. Clinical diagnosis of oral erosive lichen planus by direct oral microscopy. Postepy Dermatol Alergol. 2014;31(4):222-228.
3. Mozaffari HR, Rahmani M, Rezaei F, Sadeghi M, Sharifi R, Ejtehadi A. Evaluation of oral lichen planus frequency in patients referred to pathology centers of Kermanshah city, during 2008 to 2011. Scholars Journal of Applied Medical Sciences. 2016;4(6): 2200-2202.
4. Gorouhi F, Davari P, Fazel N. Cutaneous and mucosal lichen planus: a comprehensive review of clinical subtypes, risk factors, diagnosis, and prognosis. ScientificWorldJournal. 2014;2014:742826.
5. 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-e690.
6. Soto Araya M, Rojas Alcayaga G, Esguep A. Association between psychological disorders and the presence of oral lichen planus, burning mouth syndrome and recurrent aphthous stomatitis. Med Oral. 2004;9(1):1-7.
7. Rojo-Moreno JL, Bagán JV, Rojo-Moreno J, Donat JS, Milián MA, Jiménez Y. Psychologic factors and oral lichen planus: a psychometric evaluation of 100 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1998;86(6):687-691.
8. Ivanovski K, Nakova M, Warburton G, et al. Psychological profile in oral lichen planus.J Clin Periodontol. 2005;32(10):1034-1040.
9. GuptaS, JawandaMK.Oral lichen planus:an update on etiology, pathogenesis, clinical presentation, diagnosis andmanagement.Indian JDermatol. 2015;60 (3):222-229.
10. Alrashdan MS, Cirillo N, McCullough M. Oral lichen planus: a literature review and update. Arch Dermatol Res. 2016;308(8):539-551.
11. Vučićević Boras V, Savage NW, Brailo V, et al. The significance of oral and systemic factors in AustralianandCroatianpatientswith orallichenplanus. Acta Dermatovenerol Croat. 2014;22(2):97-102.
12. Lauritano D, Arrica M, Lucchese A, et al. Oral lichen planus clinical characteristics in Italian patients: a retrospective analysis. Head Face Med. 2016;12:18.
13. Jontell M, Holmstrup P. Red and white lesions of the oral mucosa. Green berg MS, Glick M, Ship JA, editors. Burket's Oral Medicine. 11 th ed. Hamilton: BC Decker Inc.; 2008. 90-1.
14. R Rajendran. Diseases of the skin. Rajendran R, Sivapathasundharam, editors. Shafer's Text book of Oral Pathology. 6 th ed. Amsterdam: Elsevier; 2009. p. 799-803.
15. Ghom AG. Oral Premalignant lesions and conditions. Ghom AG, editor. Text of Oral Medicine. 2 nd ed. Delhi: Jaypee Brothers; 2010. p. 208.
16. Mc Carthy PL, Shklar G. Diseases of the Oral mucosa. 2 nd ed. Philadelphia: Lea and Febiger; 1980.
17. Carlino P, Di Felice R, Samson J, Budtz-Jorgensen E, Fiore Donno G. Lichen planus. Clinical diagnosis, epidemiology and pathogenesis. Dent Cadmos 1991;59:34-42.
18. Neville BW, Damm DD, Allen CM, Bouquot JE. Dermatological diseases. Neville BW, Damm DD, Allen CM, Bouquot JE, editors. Oral and Maxillofacial Pathology. 2 nd ed. Philadelphia: Saunders; 2002. p. 680-5.
19. Fang M, Zhang W, Chen Y, He Z. Malignant transformation of oral lichen planus-a retrospective study of 23 cases . Quintessence Int 2009;40:235-42.