

**ORIGINAL RESEARCH**

# Lichen planus: a clinico-epidemiological study in a tertiary care centre

<sup>1</sup>Dr. Bidhan Mondal, <sup>2</sup>Dr. Pradip Sarkar, <sup>3</sup>Dr. Partha Sarati Nayek, <sup>4</sup>Dr. Abanti Saha, <sup>5</sup>Dr. Md Samim Shikari

<sup>1</sup>Specialist Medical Officer, Department of Dermatology, Balurghat Distric Hospital, Balurghat, Dinajpur, India

<sup>2</sup>Associate Professor, Department of Dermatology, Jalpaiguri Medical College and Hospital, Jalpaiguri, West Bengal, India

<sup>3</sup>Assistant Professor, Department of Dermatology, Tamralipto Government Medical College, Tamluk, West Bengal, India

<sup>4</sup>Associate Professor, Department of Dermatology, Medical College, Kolkata, West Bengal, India

<sup>5</sup>Tutor, Department of Dermatology, Medical College, Kolkata, West Bengal, India

**Corresponding Author**

Dr. Md Samim Shikari

Tutor, Department of Dermatology, Medical College, Kolkata, West Bengal, India

Email: [mdsamimshikari@gmail.com](mailto:mdsamimshikari@gmail.com)

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**ABSTRACT**

**Introduction:** The archetype of "lichenoid" illnesses is Lichen Planus (LP). Despite having a global distribution, this common inflammatory dermatosis is not influenced by a person's race, climate, or sex. **Aims:** to research the clinical characteristics and demographics of patients with various forms of lichen planus, including age, sex, and occupation. to research the histopathological characteristics of various Lichen Planus species. **Materials & Methods:** The present study was a proposed study. This Study was conducted from January 2021 to March 2022 at Department (OPD) of Dermatology, Medical College & Hospital, Kolkata. Total 100 patients were included in this study. **Result:** Among the hundred study population, 76 patients (76%) had cutaneous lesions of Lichen Planus. Lower limb was the predominant site of involvement in majority of patients with cutaneous involvement (48 patients). Lesions were bilaterally symmetrical in most cases. Among them, majority of patients (34 patients, 34%) had Classical cutaneous Lichen Planus, whereas, 14 patients (14%) had hypertrophic, 12 patients (12%) Lichen Planus Pigmentosus and 6 patients (6%) had Linear Lichen Planus. **Conclusion:** Patients' quality of life is greatly impacted by Lichen Planus (LP), a chronic inflammatory disease with a wide range of clinical symptoms. According to this clinico-epidemiological study carried out in a tertiary care facility, middle-aged people are the main demographic affected by LP, with a little female preponderance.

**Keywords:** Lichen Planus, Clinico-epidemiological study, Tertiary care center and Chronic inflammatory disorder.

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**INTRODUCTION**

Lichen Planus (LP) is the prototype of "lichenoid" disorders.[1] Despite having a global distribution, this common inflammatory dermatosis is not influenced by a person's race, climate, or sex.

The term "Lichen Planus" derived from Greek word "leichen" meaning "tree moss" and Latin word "planus" meaning "flat".[2] A shiny, flat-topped, papular eruption that resembles lichen planus is referred to as "lichenoid" in clinical contexts. In histology, the name refers to vacular degeneration of basal epidermal keratinocytes and a band-like inflammatory infiltration that frequently masks the dermo-epidermal junction (DEJ).

It most commonly affects middle-aged adults. Childhood Lichen Planus is uncommon.

Skin (cutaneous lichen planus), oral cavity (oral lichen planus), genitalia (vulvo-vaginal or penile

lichen planus), scalp (lichen planopilaris), and nails (nail LP) can all be affected by lichen planus. It causes unbearable itching, which frequently disrupts sleep.

Pruritic, violaceous, flat-topped, polygonal papules and plaques that affect the flexor surfaces of the wrists and forearms, the dorsal surfaces of the hands, the anterior aspect of the lower legs, the neck, and the lower back are the characteristic primary lesions of "Classic Lichen Planus." Although the "classic form" of Lichen Planus is the most common variety, there may be different variations depending on the place of involvement, lesion morphology, and lesion configuration. [3]

As the condition progresses, it may result in hypertrophic lesions and hyperpigmentation that are not aesthetically pleasing. [4] Also there are certain

variants of Lichen Planus with risk of malignant transformation.

## MATERIALS AND METHODS

### Study design

It was an institution based, descriptive, cross sectional study. Patients presenting with Lichen Planus, fulfilling the inclusion criteria, who gave consent for participating in the study were included in the study.

### Study setting and timeline

- Department of Dermatology, Medical College, Kolkata.
- Recruitment of patients and study: January 2021 to March 2022.
- Data analysis and review of literature: March 2022 to May 2022.
- Thesis writing and submission: June 2022 to August 2022

### Study place

The proposed study was conducted in the Out Patient Department (OPD) of Dermatology, Medical College & Hospital, Kolkata.

### Study Period

January 2021 to March 2022

### Study population

All patients attending Dermatology Out Patient Department (OPD) of Medical College, Kolkata.

### Sample size

Based on previous years' record, we recruited 100 patients during the study period.

### Sample design

Consecutive sampling of all patients with Lichen Planus attending or referral to the OPD of

Dermatology at this tertiary Centre during the study period was recruited in study. The following inclusion and exclusion criteria were laid down.

### Inclusion criteria

Patients of all ages and both sex having Lichen Planus.

### Exclusion criteria

Critically ill or moribund patients.

### Statistical Analysis

For statistical analysis, data were initially entered into a Microsoft Excel spreadsheet and then analyzed using SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism (version 5). Numerical variables were summarized using means and standard deviations, while categorical variables were described with counts and percentages. Two-sample t-tests, which compare the means of independent or unpaired samples, were used to assess differences between groups. Paired t-tests, which account for the correlation between paired observations, offer greater power than unpaired tests. Chi-square tests ( $\chi^2$  tests) were employed to evaluate hypotheses where the sampling distribution of the test statistic follows a chi-squared distribution under the null hypothesis; Pearson's chi-squared test is often referred to simply as the chi-squared test. For comparisons of unpaired proportions, either the chi-square test or Fisher's exact test was used, depending on the context. To perform t-tests, the relevant formulae for test statistics, which either exactly follow or closely approximate a t-distribution under the null hypothesis, were applied, with specific degrees of freedom indicated for each test. P-values were determined from Student's t-distribution tables. A p-value  $\leq 0.05$  was considered statistically significant, leading to the rejection of the null hypothesis in favour of the alternative hypothesis.

## RESULT

**Table 1: Types of cutaneous lesions in study population**

Types of cutaneous LP	Cases
Classical	34
Hypertrophic	14
Linear	6
Lichen Planus Pigmentosus	12
Annular	2
Follicular	4
Actinic	2
Atrophic	2
No Cutaneous Lesion	24

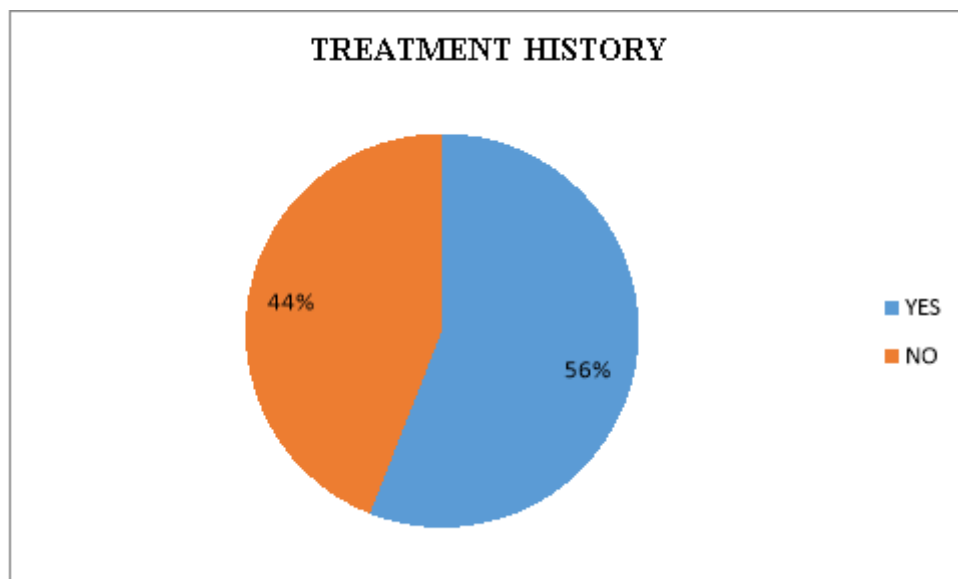
**Table 2: Showing co-morbidities in study population**

Co-morbidity	cases
Absent	66
Diabetes only	13
Hypertension only	8
Thyroid Disorder	6

Vitiligo	2
Alopecia Areata	1
Hypertension, Diabetes & Thyroid Disorder	3
Others	1

**Table 3: Addiction in study population**

Addiction to substances	cases
absent	64
Alcohol	8
smoking	20
Tobacco chewing	4
others	4

**Figure 1: Treatment history in study population**

Among the hundred study population, 76 patients (76%) had cutaneous lesions of Lichen Planus. Lower limb was the predominant site of involvement in majority of patients with cutaneous involvement (48 patients). Lesions were bilaterally symmetrical in most cases.

Among them, majority of patients (34 patients, 34%) had Classical cutaneous Lichen Planus, whereas, 14 patients (14%) had hypertrophic, 12 patients (12%) Lichen Planus Pigmentosus and 6 patients (6%) had Linear Lichen Planus.

The rare findings were Follicular Lichen Planus (4 patients, 4%), and each of Annular Lichen Planus, Actinic Lichen Planus and Atrophic Lichen Planus were found in 2 patients (2%).

Majority of the patients had no co-morbidities (66 patients, 66%).

Among others, diabetes is the most prevalent comorbid condition (13 patients with only diabetes and 3 patients with other comorbidities- total 16%), followed by hypertension (8 patients solely with hypertension and 3 patients with other disorders- total 11%) and thyroid disorder (6 patients solely with thyroid disease and 3 with other diseases- total 9%) respectively.

3 patients (3%) was suffering from hypertension, diabetes and thyroid disorders.

Vitiligo and alopecia areata was associated in 2 patients (2%) and one patients (1%) respectively

Majority of patients had no addiction history (64%).

Among the rest, 20 had addiction of smoking (20%), 8 were alcoholic (8%) and 4 had a habit of chewing tobacco (4%).

The association of history of addiction with sex of the study population is found to be statistically significant (P value=<0.0001, Chi-squared test).

The association of comorbidities with history of addiction of the study population is not found to be statistically significant (P-value=0.8292, Chi-squared test).

Among the study population, 44 patients (44%) received prior treatment. But 56 patient (56%) did not.

## DISCUSSION

The cause of the itchy dermatosis known as lichen planus is uncertain. It is typified by violaceous, scaly, fiat-topped, polygonal papules that typically affect the vaginal and oral mucosal membranes as well as the flexor portions of the wrists and legs. [5] One hundred patients who met the inclusion criteria were recruited for this descriptive, cross-sectional, institution-based

study. A structured case record form was used to record the data, and statistical analysis was conducted in accordance with that form.

### Age incidence

In our study, maximum incidence of 63% was found in the age group of 20 to 49 years (mean age  $38.05 \pm 15.59$  years). This observation was supported by other studies from India. Singh et al (1976)[6] showed 3<sup>rd</sup> decade as most common age group. Similarly Bhattacharya et al (2000)[7] found maximum number of cases in the age group 20-49 years. But it was higher in the reports from central china (mean age 50.4 years), UK (52 years), Spain (56.4%), and Italy (56.7%). This difference was probably due to the different ethnicity between tropical and western countries.

Lichen Planus is uncommon in children. It was only 4% of total cases (age group 0-9 years) in our study, in agreement with the studies conducted by Singh et al (1976)[6] (4.54%) and Bhattacharya et al (2000)[7] (1.3%).

### Sex incidence

In the literature there has been no consistency regarding any sex preference of LP. Slight female preponderance (female: male=1.2:1) was noted in this study, similar to that reported by Garg et al (2000)[8] (female:male ratio 1.3:1). This was in contrast to the studies conducted by Kachhwa et al (1995)[9] and Singh et al (1976)[6], which showed slight male preponderance. The study conducted by Bhattacharya et al (2000)[7] showed both sexes being equally affected. So, sex incidence of Lichen Planus varies according to the population studied.

### Duration of the disease

Lichen Planus may present as an acute illness or a chronic disease. The duration of illness varied from 1 month to 5 years (mean duration  $14.76 \pm 13.51$ ) in our study; this agreed the report of Bhattacharya et al (2000) [7] (1 month to 7 years).

### Common Presenting symptoms

Itching was the predominant symptoms in nearly all cases with cutaneous lesions (except cases with Lichen Planus Pigmentosus, Linear LP and Actinic LP) similar to the study conducted by Bhattacharya et al (2000)[7]

Burning sensation on intake of hot and spicy food was the main symptom with oral mucosal lesions, in our study.

### Site of involvement

Cutaneous lesion was most common (n=76) and in majority of them lower limb was the predominantly involved (48%). Only skin involvement was noted in 60% of patients. Mucosal involvement was noted in 35% of patients and oral mucosal involvement was noted in 31% patients. This was in accordance with

study by Kachhwa et al (1995)[9] (lower limb to be predominantly affected, cutaneous involvement in 70.66% cases, mucosal involvement in 29.34% and oral mucosal involvement in 25.9% cases).

Nail changes were seen in 2% cases which was lower in comparison to other studies. On the contrary, Sehgal and Rege (1974)[10] It may be emphasized that nail changes seen in Lichen Planus were neither significant nor specific, as these may be seen in other dermatoses.

### Clinical types of cutaneous LP

Classical LP was the commonest type (34%) followed by Hypertrophic LP (14%) and it is consistent with reports of others.

LP pigmentosus was reported in 12% in our study. It was 8.3% in the study conducted by Singh et al (1976)[6] but it was only 1.6% in the study by Kachhwa et al (1995).[9]

Actinic LP (ALP) is a distinct variant of LP, also known as subtropical LP or "Melanodermitite Lichenoide". It occurs mainly in the Middle-East countries and presents as annular violaceous lesions on sun-exposed skin. In our study, ALP comprised only 2% of all cases which was lower than reported from Middle-East. Its reported incidence in India varied between 0.4% to 19.2%.

The incidence of follicular LP was 4%, which was consistent with other studies. One patient also had cicatricial alopecia of the scalp due to follicular atrophy.

Linear LP, along the line of Blaschko, was seen in 6% cases and each of atrophic and annular LP was seen in 2% cases. Patients with atrophic LP had annular atrophic lesions with a slightly violaceous hue at the periphery.

No cases of bullous LP or LP pemphigoides were seen in our study. No malignant transformation of hypertrophic lesions was found.

### Clinical types of Oral LP

Oral mucosal involvement was noted in 31 cases in this study. Oral LP was the sole manifestation of the disease in 18 cases and 12 cases were associated with cutaneous lesions (58.06% and 38.70% of total oral LP cases, respectively). This was in contrast to the report by Gorouhi et al (2007)[11] (25% solely with oral manifestation and 70% - 75% with associated with cutaneous lesions).

Among the oral LP, Reticulate Oral LP was seen to be most common variant (18 cases) followed by erosive type (11 cases). Romero et al (2002)[12] also found reticular LP to be the most common variant of Oral LP.

No malignant transformation was noted. Shen ZY et al (2012)[13] reported rate of malignant transformation 0.96% in their study.

Mucosal LP tends to persist longer. Patients with skin lesions only become clearer more quickly.

### Associated disorders

The prevalence of diabetes or hypertension in lichen planus patients is similar to that of the general population. However, 16% of the individuals in our research had diabetes, and 11% had hypertension. Given that the claimed prevalence of diabetes or hypertension ranges from 1% to 3%, this was relatively high. Nine people had thyroid disorders. There is no relevance in isolated cases of vitiligo and alopecia areata interaction. It is debatable how important psychological variables are. It has been connected in some individuals to both the beginning and the triggering of further episodes of the condition. Emotional stress was linked to 7% of instances in our study.

### Histopathology

We had done histopathology in 58 cases. Histology was consistent with clinical diagnosis in all except 4 cases where band like infiltrates were lacking and in 1 case basal cell degeneration was absent.

### Miscellaneous findings in the study

Papules and plaques were the predominant lesions in majority of patients similar to the study by Garg et al (2000).[8]

Post-inflammatory hyperpigmentation was noted in 21% cases.

Mucosal involvement – Buccal mucosa was the commonest site followed by lips.

Longitudinal ridging and melanonychia was seen in both the cases with nail LP, but only one cases demonstrated pterygium.

Among the patients with palmoplantar involvement, central aspect of palms and soles are the commonest site involved. Violaceous & pigmented plaques were seen in 2 cases as opposed to yellowish plaques found in literature. One patient presented with palmoplantar keratotic pits clinically resembling punctuate keratoderma, was diagnosed as palmoplantar LP by histopathology

Family history was positive in only 3 cases. No family history was present in a study by Garg et al (2000).[8]

12 patients gave history of dysphagia (12%), all of them was suffering from extensive oral Lichen Planus.

2 patients had history of dental filling, both of them were suffering from treatment recalcitrant erosive Oral LP affecting the buccal mucosa.

### CONCLUSION

Patients' quality of life is greatly impacted by Lichen Planus (LP), a chronic inflammatory disease with a wide range of clinical symptoms. According to this clinico-epidemiological study carried out in a tertiary care facility, middle-aged people are the main demographic affected by LP, with a little female preponderance. Classic LP was the most prevalent clinical variation seen, with oral and hypertrophic

variants coming in second and third. One of the most common symptoms that affected the burden of the disease was pruritus. Although the precise cause is yet unknown, correlations with stress, systemic illnesses, and drug-induced cases have been identified. For a conclusive diagnosis, histopathological analysis is still essential. Response to treatment varied, but the most successful treatment was corticosteroids. Better disease management and better patient outcomes depend on early diagnosis and customized treatment approaches. To investigate the genetic susceptibility and environmental triggers that contribute to LP, more extensive research is required. Preventive actions and public awareness campaigns can aid in the early detection and treatment of this illness, lowering morbidity and consequences.

### REFERENCE

1. Tilly JJ, Drolet BA, Esterly NB. Lichenoid eruptions in children. *J Am Acad Dermatol.* 2004;51:606–24.
2. Daoud, M. S. (2003). Lichen planus. *Fitzpatrick's dermatology in general medicine*, 463-477.
3. Pittelkow MR, Daoud MS. Lichen planus. In: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, editors. *Fitzpatrick's dermatology in general medicine*. 7th ed. New York: McGraw Hill; 2008. p. 244–56
4. Durgaraju, S., & Katakam, N. (2020). A clinico-histopathological study of lichen planus. *International Journal of Health and Clinical Research*, 3(12), 165–168
5. Handa S, Sahoo B. Childhood Lichen planus A study of 87 cases. *Int J Dermatol* 2002; 41 : 423-7
6. Singh OP, Kanwar AJ. Lichen planus in India: an appraisal of 441 cases. *Int J Dermatol.* 1976 Dec;15:752-6
7. Bhattacharya M, Kaur I, Kumar B. Lichen planus: a clinical and epidemiological study. *J Dermatol.* 2000;27:576–82
8. Garg VK, Nangia A, Logani K, Sharma RC. Lichen Planus-a Clinico-histopathological. *Indian J Dermatol Venereol Leprol.* 2000 Jul-Aug;66(4):193-5.
9. Kachhwa D et al. A clinico-aetiological profile of 375 cases of lichen planus *Int. J. Dermatol* 1995 ; 61 : 276 – 279
10. 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 Sep;34(8):467-72.
11. Gorouhi F, Solhpour A, Beitollahi JM, Afshar S, Davari P, Hashemi P, et al. Randomized trial of pimecrolimus cream versus triamcinolone acetonide paste in the treatment of oral lichen planus. *J Am Acad Dermatol.* 2007;57: 806–13
12. Romero MA, Seoune J, Varela – Centelles P et al. Clinical and pathological characteristics of oral lichen planus in hepatitis positive & negative patients. *Clin Otolaryngol* 2002; 27 : 22-6
13. 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 May 1 [Epub ahead of print]