ORIGINAL ARTICLE

Clinicopathological spectrum of lichen planus and its variants: A cross-sectional study

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Background: Lichen planus (LP) is commonly occurring papulosquamous disease of the skin and mucous membranes. The classical lesions presents with violaceous, flat-topped polygonal papules associated with intense itching. Different variants are typed based on clinical and histopathological features. **Objectives:** The aim of the study to study clinicopathological spectrum of LP and variants. **Materials and Methods:** The study was conducted in the Department of Pathology, Rohilkhand Medical College and Hospital, Bareilly, U.P for a period of 1 year from November 2020 to October 2021 and included all histopathologically diagnosed cases of LP. **Results:** Majority of patients in LP were in 21–40 years age group with slight female preponderance (31.2%). Histopathologically, LP was the most common (56%) followed by different variant, that is, LP pigmentosus (31.2%). **Conclusion:** Among papulosquamous skin diseases, LP is the most common. Due to similar clinical presentation of skin lesions, it is difficult to make a confirmatory diagnosis. Thus, histopathological examination plays an important role.

KEY WORDS: Lichen planus, papulosquamous, pathological, violaceous

INTRODUCTION

Papulosquamous diseases are heterogeneous group of diseases, comprising the largest group of diseases in inflammatory condition characterized by plaques and scaly papules.[1,2] The most common papulosquamous skin lesions are lichen planus (LP). Other examples of non-infectious erythematous and paulosquamous skin diseases are lichenoid reactions, LP pigmentosus, and psoriasis.[3]

LP is an inflammatory skin disease which typically has a chronic course and affects the skin and mucous membranes and appendages.[4] Nails may also be affected in up to 10% of cases. LP affects 0.22–5% of people worldwide.[5-9] The prevalence of LP is 0.91–1.89 in India.[10,11] The condition primarily affected patients in their middle years with slight female preponderance.[12-14] Primary lesions of LP consist of firm, glossy, polygonal, 1–3 mm diameter papules with a red to violet color make up the traditional clinical appearance of LP.[15] The conventional six "P's" of LP are "Pruritic, Purple, Polygonal, Planar, Papules, and Plaques."[16] The lesions presents with Kobners phenomenon and Wickham's striae.[17] Typically, the lesions are bilateral and symmetrical.[18]

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Different variants of LP are atrophic, hypertrophic, inverse, eruptive, vesiculobullous, and follicular, ulcerative, lichen planopilaris, LP pigmentosus, actinic, and LP pemphigoides.[19] On standard histopathology, LP is characterized by the presence of a band-like lymphocytic infiltrate at the dermal-epidermal junction with hydropic degeneration of the epidermis. Resultant dyskeratosis is represented by the presence of necrotic keratinocytes (Civatte bodies or cytoid bodies), which are extruded into the papillary dermis. Subepidermal clefts (Max- Joseph spaces) may form as a consequence of interface inflammation. Irregular acanthosis may assume a saw-toothed appearance.[20]

Papulosquamous group of diseases is complex to diagnose on clinical ground because of similar resemblance. Hence, these

diseases are commonly misdiagnosed.[21] These diseases had similar clinical presentation with different histopathological findings, thus it requires histopathology for their confirmation.[22] Clinical as well as histopathological findings results in a correct diagnosis and impacts overall treatment and prognosis in patients.[21]

MATERIALS AND METHODS

This was a hospital-based and cross-sectional study. It was carried out in the Department of Pathology, Rohilkhand Medical College and Hospital, U.P after taking ethical clearance. The duration was 1 year from November 2020 to October 2021. All the biopsies received were fixed, grossed and processed with standard method and were stained with hematoxylin and eosin dye. All the biopsies were examined under the microscope and slides of LP and its variants were selected.

OBSERVATION AND RESULTS

The present study included 48 histologically proven cases of LP and its variants.

The subtypes of LP seen were 27 cases (56.2%) of classical LP followed by its variants [Table 1].

Majority of cases were seen in the age group of 21–30 years, followed by 31–40 years, LP pigmentosus 21–30 years, and lichen planopilaris 41–50 years [Figure 1].

In our study, there were 27 (56.08%) male and 21(43.6%) female, showing a male preponderance in the study patients. Overall male to female ratio is 1.2:1. In LP, females were more commonly affected with 15 cases (31.2%) compared to males with 12 cases (25%).

Clinically plaque was the most commonly encountered lesion in LP and its variants, followed by papule, pruritis [Table 2].

On histological examination, lichenoid lesions in epidermis showed orthokeratosis and hyperkeratosis in LP and its variants [Table 3].

LP showed clinical presentation along with epidermal and dermal changes [Figure 2a-c].

DISCUSSION

We studied 48 cases of LP and its variants. Out of which 27 cases (56%) were of LP, 2 cases (4.1%) of hypertrophic LP, 2 cases (4.1%) of atrophic LP lichen planopiliaris, 2 cases (4.1%), LP pigmentosus, and 15 (31.2%). The findings are similar to those of Reddy and Krishna[23] where LP was 58.83%, LP pigmentosus was 12.50%, and lichen planopiliaris was 10%.

In our study of 48 cases, LP was mostly seen between 21–30 years and 31–40 years of age group. Two cases of lichen planopiliaris were seen in 41–50 years of age group. In LP pigmentosus, maximum number of cases were seen in 21–30 years, that is, five cases, atrophic LP was seen in 31–50 years of age group, This study is similar to the findings of Cigiri *et al.*[21] in which LP was mostly seen in 21–30 years and 31–40 years.

Table 1: Cases of lichen planus and its variants

Lichen planus and variants of lichen planus		
Variants of lichen planus	**No. (*n*=48)**	**%**
Lichen planus	27	56
Lichen planopilaris	2	4.1
Hypertrophic lichen planus	2	4.1
Lichen planus pigmentosus	15	31.2
Atrophic LP	2	4.1
Total	48	100

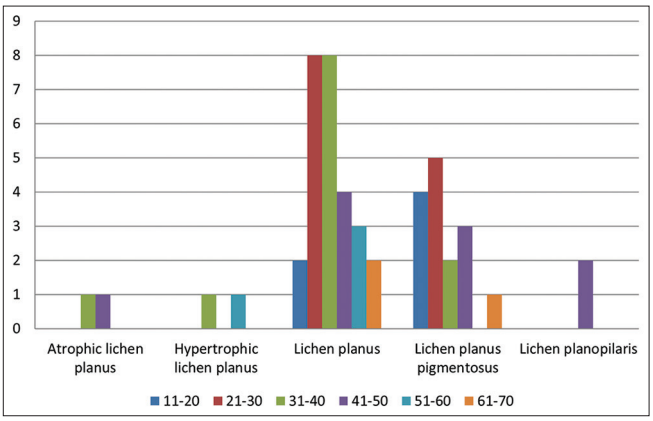

Figure 1: Age-wise distribution of lichen planus and its variants

Out of 48 cases in our study, LP showed maximum number of cases in females 15 cases (31.2%), males were seen in 12 cases (25%). LP pigmentosus showed (10 cases, 20.8%) in males, (5 cases, 10.4%) in females. Lichen planopilaris showed (2 cases, 4.1%) in males. Hypertrophic LP was seen in (2 cases, 4.1%) in males. Balaji *et al.*[24] conducted a study which showed similar findings with slight female preponderance with 32 cases and males with 24 cases in LP.

This study showed different clinical presentation in variants of LP. Hypertrophic LP showed plaque and papule in two cases each, respectively. LP presented with plaque in maximum cases, that is, 27 cases, papule 26 cases, violaceous 23 cases, flat topped 20 cases, pruritis 24 cases. LP pigmentosus presented with plaque and hyperpigmentation in nine cases each, respectively, macular lesion 12 cases. This study is similar to the study of Tayal *et al.*[25] LP presented with papule in 11 cases. Hypertrophic LP presented with papule one case**.** D'Costa and Bharambe[26] also carried out a study in which they reported LP pigmentosus presented with hyperpigmented patches mainly on sun exposed areas. Moreover, LP presented with flat topped and violaceous to erythematous lesion over the extremities.

In our study, different epidermal findings were seen in LP and its variants. Hypertrophic LP presented with acanthosis

Table 2: Types of lesion in lichen planus and its variants

Types of lesion	Histopathological diagnosed lesions				
	Atrophic LP	Hypertrophic LP	Lichen planopilaris	Lichen planus	LPP
Plaque	1	2	0	27	9
Scales	0	0	0	3	1
Silver white	0	0	0	0	0
Erythematous lesion	0	0	0	1	1
Pruritic lesion	1	0	0	24	2
Macular lesion	2	0	0	2	12
Hyperpigmentation	0	2	0	5	9
Papule	2	2	0	26	0
Violaceous	1	1	0	23	0
Flat topped	0	1	0	20	0
Hypopigmentation	0	0	2	0	0
Lichenification	0	0	0	0	0

Table 3: Epidermal changes in lichen planus and its variants

Epidermal changes	Histopathological diagnosed lesions					
	Atrophic LP	Hypertrophic LP	Lichen Planopilaris	Llichen Planus	LPP	LSC
Hyperkeratosis	0	0	1	0	10	12
Orthokeratosis	1	2	0	27	5	0
Parakeratosis	1	0	1	0	0	0
Munro microabscess	0	0	0	0	0	0
Spongiosis	0	0	0	2	0	0
Acanthosis	2	2	1	25	3	12
Max Joseph Space	0	0	0	4	0	0
Civatte bodies	0	1	0	3	0	0
Hypergranulosis	0	2	2	26	6	4
Rete ridges	0	0	0	3		
Elongated	0	0	0	3	1	12
Saw toothed				19	0	0
Short				0	1	0
Vacuolar degeneration	2	1	1	25	13	0
Inflammatory Infiltrate	0	0	0	0	0	0
Pigment incontinence	0	0	0	0	5	0
Supra papillary thinning	0	0	0	0	0	0
Follicular plugging	0	0	2	0	0	0

two cases, civatte bodies one case, hypergranulosis two cases, vacuolar degeneration one case, and orthokeratosis two cases. LP were presented with spongiosis two cases, acanthosis 25 cases, max joseph space four cases, civatte bodies three cases, hypergranulosis 26 cases, saw toothed rete ridges 19 cases, vacuolar degeneration in 25 cases, and orthokeratosis 27 cases. LP pigmentosus was presented with acanthosis three cases, hypergranulosis six cases, elongated rete ridges in one case, short rete ridges one case, vacuolar degeneration in 13 cases, pigment incontinence five cases, hyperkeratosis 15 cases, and orthokeratosis five cases. Atrophic LP showed orthokeratosis in one case, acanthosis in two cases, and vacuolar degeneration in two cases. Lichen planopilaris showed hyperkeratosis in one case, hypergranulosis in two cases, follicular plugging in two cases, and vacuolar degeneration in one case. The study conducted by Patel and Chandraker[27] showed similar findings. LP showed hyperkeratosis 25 cases, acanthosis 23 cases, hypergranulosis 21 cases, saw toothed rete ridges 23 cases, and vacuolar degeneration 21 cases. D' Costa and Bharambe[26] in their study showed vacuolar degeneration in nine cases of LP pigmentosus. Rampal *et al.*[15] in their study showed single case of lichen planopilaris presented with vacuolar degeneration and LP pigmentosus showed with acanthosis, vacuolar degeneration, melanophages in upper dermis, and perivascular infiltrate mainly composed of lymphocytes.

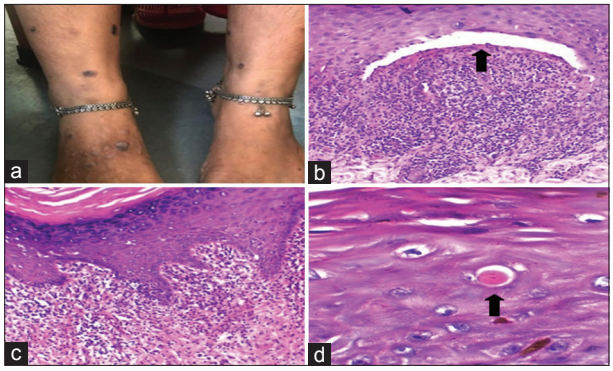

Figure 2: Lichen planus, (a) Flat-topped violaceous papule, present over bilateral dosum of feet. (b) Epidermis shows max joseph space band-like dermal lymphocytic infiltrate. (H and E, ×100). (c) Saw-toothed rete ridges, wedge shaped hypergranulosis. (d) civatte body (H and E, ×100)

The present study showed dermal changes in different papulosquamous skin lesions. Hypertrophic LP showed interstitial inflammatory infiltrate composed of lymphocytes in two cases. LP pigmentosus showed pigment incontinence in upper dermis in 15 cases and mononuclear perivascular in 11 cases and interstitial infiltrate four cases. LP showed interstitial infiltrate in two cases. Lichen planopilaris showed perifollicular inflammatory infiltrate composed of lymphocytes. Histology of our cases was matched with those of Patel and Chandraker[27] which showed band like dermal infiltrate in 15 cases of LP. D'Costa and Bharambe[26] in their study showed nine cases of LP pigmentosus with pigment incontinence in upper dermis and mononuclear cell infiltrate. Gurusamy and Selvaraj[28] conducted a study which showed a case of lichen planopilaris presented with perifollicular inflammatory infiltrate.

CONCLUSION

In India, skin diseases are causing significant burden which has increased drastically from 1990 to 2017. Among them, LP is most frequently occurring disease in society. Due to similar clinical presentation of skin lesions, it is difficult to make confirmatory diagnosis. Thus, histopathological examination plays an important role. With help of clinical history of the patient along with examination of skin biopsy, we can make a confirmatory diagnosis.

Conducting more such studies will help pathologists and dermatologists in reaching a the proper diagnosis and thus giving the effective treatment.

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