

## Original Article

# Morphological patterns of lichen planus in patients with anti-hepatitis C antibodies

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**Abstract** *Background* Lichen planus (LP) has been reported in association with various liver disorders particularly hepatitis C virus (HCV) infection. Oral LP is the commonest morphological type seen in most of the studies.

*Objective* To document the morphological types of LP in patients with HCV seropositivity in our community.

*Patients and methods* In this prospective cross-sectional study, 41 patients of LP with anti-HCV antibodies, detected with second-generation enzyme-linked immunosorbent assay (ELISA), were analyzed and documented.

*Results* Hypertrophic and mixed pattern of LP were seen commonly (31% and 32% respectively) followed by erosive variety (20%).

*Conclusion* In our patients, suspicion of associated HCV infection may be kept in mind not only in oral LP but also in other morphological types especially in hypertrophic variants.

**Key words**

Lichen planus, ELISA, hepatitis C virus, morphological types

## Introduction

Lichen planus (LP) is derived from Greek word *leichen* (tree moss) and Latin *planus* (flat).<sup>1</sup> It is an inflammatory disease that affects the skin, mucous membranes, nails, and hair and is classically characterized by *pruritic, purple, polygonal, plane-topped papules* (the so called five Ps of LP).<sup>2</sup> It can have different clinical presentations like hypertrophic, atrophic, follicular, linear, actinic, pigmentosus, annular, guttate, etc.

LP occurs worldwide with no racial predilection. Although the exact cause of LP

remains unknown, immunopathological mechanisms are implicated in the pathogenesis of this disease.<sup>3</sup> The disease primarily affects adults and predominantly women. LP has been associated with different medical conditions such as diabetes mellitus, hepatitis C virus infection, ulcerative colitis, alopecia areata, dermatomyositis, and vitiligo.<sup>1</sup>

The disease was found to be more common in patients with hepatic dysfunction.<sup>4</sup> Hepatitis C virus was not seriously considered as a precipitating factor for LP until serological tests for anti-HCV antibody became available in 1990. The first case of LP associated with HCV was reported from France in 1991.<sup>5</sup> Since then, numerous cases

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of LP associated with HCV infection have been reported.<sup>6,7</sup> Oral LP is the commonest morphological type seen in association with HCV in most of the studies.<sup>5</sup>

The prevalence of hepatitis C virus is very high in Pakistan<sup>8</sup> and LP is often seen in its association. We planned the present study to scientifically document the morphological types of LP in patients with anti-HCV seropositivity in our community.

### Patients and methods

This cross-sectional analytical study was conducted at the Department of Dermatology, Divisional Head Quarters and Allied Hospitals (attached with Punjab Medical College, Faisalabad, Pakistan) from 1<sup>st</sup> January 2002 to 31<sup>st</sup> December 2002. All the patients of LP with anti-HCV seropositivity were enrolled.

The inclusion criteria were:

- Patients of any age and either sex.
- Clinical diagnosis of lichen planus.
- Histopathological confirmation<sup>9</sup> of lichen planus in doubtful cases.
- Anti-HCV seropositivity and the test for anti-HCV antibody detection was the second-generation enzyme linked immunosorbent assay (ELISA).<sup>5</sup>

The exclusion criteria were:

- Patients taking drugs causing lichenoid drug eruptions like gold salts, quinine, thiazide diuretics, beta blockers, INH, etc.
- Any other concomitant medical ailment, e.g. diabetes mellitus, vitiligo, alopecia areata, ulcerative

**Table 1** Morphological types of lichen planus recorded in 41 patients

Morphological types	n (%)
Hypertrophic	31%
Erosive	20%
Atrophic	12%
Follicular	5%
Mixed	32%

colitis, etc.

All the relevant details regarding history, duration of the disease before diagnosis, type of initial lesion and symptomatology were obtained. Physical examination for the location of lesion, symmetry, color, shape, nail, mucous membrane, and hair involvement, etc were recorded on a specially designed proforma. The data were analyzed and results calculated.

### Results

A total of 41 patients were enrolled in the present study. There were 25 males and 16 females. Mixed pattern of LP was seen most frequently followed by hypertrophic variety. **Table 1** depicts the various types of the disease recorded during the study period. **Figures 1-6** illustrate a few of these types.

### Discussion

The classic cutaneous lesion of LP is a faintly erythematous to violaceous flat-topped polygonal papule.<sup>9</sup> A thin transparent and adherent scale may be discerned at top of the lesion. Fine, whitish, puncta or reticulated networks referred to as Wickham's striae, named after the dermatologist who described the finding, may be present over the surface of many well-developed papules. These are considered to be highly characteristic of LP



**Figure 1** Early lesions of LP hypertrophicus on shin.



**Figure 2** Atrophic plaques of LP on left cheek.



**Figure 3** Purplish papules, follicular hyperkeratosis and alopecia are characteristic features of lichen planopilaris.



**Figure 4** Hyperpigmented plaque on left side of neck with histopathological findings consistent with the diagnosis of lichen planus pigmentosus.



**Figure 5** Typical plaques of actinic LP on face.



**Figure 6** Oral LP presenting as purplish white plaques with small erosion in a female with HCV seropositivity.

and are more easily observed after applying oil, xylene, or water and visualizing the lesions with a magnifying lens.

Many variations in the clinical presentation of LP have been described and may be categorized according to the configuration of lesions, morphologic appearance, or the site of involvement. Morphological pattern, however, is commonly followed.<sup>1</sup> Following are a few types observed in our study.

*Hypertrophic LP* usually occurs on the lower limbs, especially the shins (**Figure 1**) and around the ankles, and on the interphalangeal joints. Lesions are thickened, elevated, purplish or reddish-brown in color, and very pruritic.<sup>2</sup> The development of hyperkeratotic lesions greatly lengthens the course of the disease, as they may persist for many years. This variant usually heals with scar formation and hyper- or hypopigmentation.

*Atrophic LP* is rare and is characterized by the presence of a few well-demarcated, whitish blue papules or plaques with mild central atrophy.<sup>9</sup> Lesions are a few millimeters wide but may coalesce to form larger plaques (**Figure 2**). They are most common on the lower extremities or trunk.

*Follicular LP* or lichen planopilaris presents as hyperkeratotic papules and plaques. The lesions are seen mostly on trunk and lateral side of the limbs. It may affect the scalp with the development of cicatricial alopecia (**Figure 3**). This condition affects women more than men.<sup>1</sup> Patients present with hair loss that may be extensive and involve the entire scalp. Perifollicular erythema and

acuminate keratotic plugs are characteristic features.

*Lichen planus pigmentosus* is uncommon variant of LP and is characterized by hyperpigmented macules/patches on trunk and flexural folds (**Figure 4**). This entity tends to occur in Latin Americans and in patients with darker pigmented skin. Histologically, atrophic epidermis, vacuolar alteration of the basal cell layer with scarce lymphohistiocytic infiltrate and pigment incontinence are seen.<sup>2</sup> This variant of lichen planus bears significant similarity to ashy dermatitis and erythema dyschromicum perstans. There may also be similar histopathologic findings among these diseases.<sup>2</sup>

*Actinic LP* is also known as LP subtropicus, LP tropicus, summer-time actinic lichenoid eruption, LP actinicus, LP atrophicus annularis, and lichenoid melanodermatosis.<sup>9</sup> Actinic LP is more common in Middle East countries in spring and summer, where sunlight appears to have a precipitating effect. Exposed areas of the face, dorsal hands, arms, and nape are usually affected. The lesions are characterized by well-defined nummular plaques, which have a deeply hyperpigmented centre surrounded by a striking hypopigmented zone (**Figure 5**). Typical LP lesions may be present on other body areas. Pruritus and scaling are minimal.<sup>1</sup>

*Guttate LP* lesions may all be small, of 1-2 mm diameter or larger up to 1 cm in size, widely scattered, remain discrete, and may resemble guttate psoriasis. This form has a relatively good prognosis, and seldom becomes chronic.

Lichen planus can affect the *mucosal* surfaces of mouth (**Figure 6**), vagina, esophagus, conjunctiva, urethra, anus, nose and larynx.<sup>10</sup> Estimates of the prevalence of oral LP in the adult population may run as high as 1% of the general population. Oral involvement may occur at some time in approximately 60-70% of patients with generalized LP. Oral LP is the sole presenting complaint in about 15-25% of patients with generalized LP attending general dermatology clinics.<sup>11</sup>

Different morphological types of oral LP have been described, including reticular, plaque-like, atrophic, papular, erosive, ulcerative, and bullous forms of the disease. The reticular pattern is considered the most common in general population, but in oral medicine clinics, erosive forms predominate as a consequence of the symptomatology and chronicity.<sup>12</sup> In the present study also erosive type was frequently observed, amounting to 20% of all the variants of LP seen, in patients with anti HCV antibodies.

*Erosive lichen planus* is more common in the elderly and tends to cause painful or burning sensation. The buccal, gingival, and glossal mucosae are the most commonly affected areas.<sup>11</sup> Gingival involvement may take the form of gingival stomatitis or desquamative gingivitis. The palate, floor of the mouth, retromolar pads, and lips may also be affected. Because of the prolonged course and associated pain and discomfort, patients with oral LP tend to be depressed, and psychological help should be offered to them. Reports of isolated lip or eyelid LP have been documented.<sup>1</sup>

Although the exact etiology of LP is not completely known, immunopathological mechanisms are implicated in its pathogenesis.<sup>3</sup> Some disorders are associated with LP more frequently than is expected by chance. In the past few years, LP has been linked to HCV infection, with studies demonstrating a higher prevalence of anti-HCV antibody titers in patients with cutaneous and oral LP compared with control subjects.<sup>13,14</sup> The reported rates of association have differed widely, probably because of varying study designs, oral versus cutaneous LP and geography. Though the manner in which HCV infection predisposes patients to the development of LP is not clearly understood, it is thought that long-term viral infection leads to an aberrant immunologic response.<sup>15</sup>

Lichen planus is very often seen in association with HCV infection. The hepatitis C virus was first discovered in 1989.<sup>16</sup> Several subsequent studies documented the high prevalence of HCV infection in patients with LP. Nagao conducted a study in a region of Japan where the prevalence of HCV infection was the highest in the country.<sup>17</sup> He observed that 62% of the patients with LP had HCV infection.

The type of LP associated with HCV was reported to be oral LP in most of the studies.<sup>18,19</sup> We, however, recorded high percentage of hypertrophic and mixed morphological pattern of LP in patients with anti HCV seropositivity. Therefore, account must be taken of the prevalence of HCV infection not only in oral lichen planus but also in other variants of LP. Considering the current high prevalence of HCV infection in

our community,<sup>20</sup> it is appropriate to screen all patients with LP for HCV infection.

### Conclusion

Lichen planus in association with HCV infection may present in diverse morphological types. Since HCV infection is very prevalent in our community, all patients presenting with any morphological variety of LP may be screened for associated anti HCV antibodies.

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