

# A histopathological study of lichen planus in Indian population

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## Abstract

lichen planus is an idiopathic subacute or chronic inflammatory disease of the skin, mucous membranes and nails. Exact pathogenesis of lichen planus is still unclear. We studied the histopathological profile of lichen planus in indian population. A total of 40 cases of histologically diagnosed lichen planus samples were included. Clinical features like age, sex, site of lesion were noted from the case record form. Histological features of lichen planus were studied. statistical analysis chi square test and fisher's exact test was used to assess associations between various variables. Peak incidence was seen at 3rd decade with 8/40 (22.5%) cases. The most commonly involved site of lesion being lower leg with 16/40 (40%). Most common histological finding was formation of civette bodies with 35/40 (87.5%) followed by hyperkeratosis 33/40 (82.5%) and pigment incontinence 34/40 (72.5%). Lichen planus is a disease of adults (20–40 years) according to western data, but in Indian population it is also common. Classical lichen planus has a strong association of involvement of the lower limbs in the younger age group. Involvement of upper limb is more common in female patients in lichen planus.

**Keywords:** lichen planus; histopathology; civette bodies.

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## INTRODUCTION

Lichen planus (LP) is an idiopathic subacute or chronic inflammatory disease of the skin, mucous membranes and nails. (Boyd and Neldner, 1991) Exact pathogenesis of lichen planus is still unclear. Several hypotheses have been made regarding its aetiology, including genetic, infective, psychogenic and autoimmune factors (Sugerman *et al.*, 2000; Sontheimer, 2009). Recent studies provide evidence that auto reactive cytotoxic T lymphocytes are the effector cells which cause degeneration and destruction of keratinocytes (Sontheimer, 2009). Cutaneous lichen planus is characterized by polygonal flat-topped, violaceous papules and plaques, which in some cases can be

intensely itchy. The lesions may result in Long standing residual Hyperpigmentation, especially in darkskinned patients. LP has characteristic Histopathological features which make the diagnosis. Cutaneous LP has worldwide distribution with its incidence varying from 0.22% to 1% depending Upon geographic location (Boyd and Neldner, 1991). According to one study LP represents 0.38% of all dermatology outpatients in India. (Bhattacharya *et al.* 2000). However, there is a paucity of Indian literature describing the pathological profile of lichen planus. Therefore, we conducted this study to document and analyse the pathological profile of LP in Indian population.

## MATERIALS AND METHODS

A total of 40 cases of histologically diagnosed lichen planus samples were included. Clinical features like age, sex, site of lesion were noted from the case record form. Histological features of lichen planus were studied. Statistical analysis Chi Square test and Fisher's Exact test was used to assess associations between various variables.

## RESULTS

In our study 40 cases were studied, age range from 1 year to 80 year was considered. Peak incidence was seen at 3rd decade with 8/40 (22.5%) falling into this group however there were 2/40(4%) cases in less than 10 year of age. There was a slight Male preponderance with 22/40(55%) cases. The most commonly involved site of lesion was lower leg with 16/40 (40%) followed by upper limbs (27.5%) and sites like chest, axilla, thigh showed only 1/40 cases each.

**Table 1:** Anatomic distribution of different types of lichen planus

Head and neck	17.5%
Trunk	10%
Upper limb	27.5%
Lower limb	40.0%
Others	5.0%

Among the various histological variants of lichen planus the conventional presentation was most common with 21/40(52.5%) cases followed by lichen planus pigmentosus with 13/40 (32.5%) cases. Hypertrophic lichen planus showed 6/40(15%) cases and atrophic lichen planus showed 1/40(2.5%).

**Table 2:** Characteristics and histopathological features observed were as follows

Pigment Incontinence	72.5%
Dermal Infiltrate	47.5%
Civette bodies	87.5%
Acanthosis	52.2%
Hypergranulosis	70.0%
Hyperkeratosis	80%

Most common histological finding was formation of civette bodies with 35/40 (87.5%) followed by hyperkeratosis 33/40(82.5%), pigment incontinence 34/40(72.5%), hypergranulosis 28/40(70%) and Dermal infiltrate 19/40(47.5%). However 2/40 cases Showed parakeratosis.

## DISCUSSION

The present study describes the details of clinical and pathological characteristics of patients with lichen planus. In our series, maximum numbers of patients were seen in the age group of 30–40 years. This correlates with other studies that describes data of Indian population (Bhattacharya *et al.*, 2000; Singh and Kanwar, 1976). However in the western literature (Andreason, 1968; Scully, 1985) an older age is reported. In our study we found that male gender is more Commonly affected with lichen planus than females. In the literature there has been no consistency regarding any sex preference of LP (White, 1919; Altman and Perry, 1961) but most of the studies have shown that females are more commonly

affected than males (Little, 1919; White, 1919; Altman and Perry, 1961). In our series, we observed that classical lichen planus was the most common, constituting 52.5% of total cases A similar dominance of classical lichen planus over other variants has been reported in the literature by various authors (Bhattacharya *et al.*, 2000). Most of the characteristic histopathologic features of LP were encountered with regularity in our study. Most frequently observed findings were orthokeratosis, basal layer vacuolation, civatte bodies, pigment incontinence, wedge shaped hypergranulosis, band like infiltrate and irregular acanthosis. These changes were present in more than 90% of cases. Other findings were those of, pointed rete ridges and dome shaped papillae which were seen in approximately 80% of cases. The results of our study correlate with that of Ellis *et al* (Ellis, 1967) except for the frequencies of irregular acanthosis, civatte bodies and Max Joseph space. The Frequencies of these variables were higher in our study. Lichen planus pigmentosus (LPP) LPP is a common pigmentary disorder seen in the Indian population, having distinct clinical and histological characteristics as observed in the current study. Although distribution is variable, we observed that face and neck were the most frequent initial sites of involvement followed by the trunk. Upper and lower extremities were less frequently involved. Similar findings have been reported in previous studies (Bhutani *et al* al., 1974; Kanwar *et al.*, 2003). Associated nail and mucosal involvement was infrequent. In our study, the histopathological changes Most frequently observed in lichen planus pigmentosus were Epidermal thinning and pigment incontinence in the dermis seen in 100% of cases.

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