



The Clinicopathological Study of Lichen Planus

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: Lichen planus is an unknown origin subacute or chronic inflammatory, autoimmune disease occurring mainly in the epidermal parts of the body such as skin. Apart from commonly arising on cutaneous surfaces, it was also shown affect the oral mucosa, genital mucosa, scalp, or nails. and significantly affect the life styles of the humans. Lichen planus lesions can be explained the six P's -planar [flat-topped], purple, polygonal, pruritic, papules, and plaques. Lichen planus is said to have no cure and only the symptoms can be relieved or healed. Since there are different types of Lichens planus, it is important to study the types in detail for proper treatment.

Objective: The present study is aimed to explore the spectrum of lesions in Lichen Planus and its prevalence on the patients.

Methodology: Out of 100 cases analyzed in our study, 84 cases were clinically analyzed as Lichen planus of which 80 cases were diagnosed to be Lichen planus both clinically and histopathologically and 4 cases were diagnosed as Lichenoid dermatitis (HPE).

Results: The correlation of clinical and histopathological types of Lichen Planus Sex incidence is higher in females (55%), having the ratio of 1:1.2 with a male to the female. Duration of the disease ranged from 10 days to 8 years. Majority of the cases (73%) showed less than 3 months' duration of the disease.

Conclusion: Our study revealed that the successes of the therapeutic regimes are purely dependent on the types of the lichens and an urgent need to take severe action against it.

Keywords: Lichen planus; keratin; lipids and pigments.

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1. INTRODUCTION

Skin is measured as the major organ and act as a mechanical barrier against the outside atmosphere. It helps in regulation of body temperature and to synthesis keratin, pigments, lipids, provitamin and several enzymes. Sebaceous glands secreted the sebum which delivered to Skin lubrication and waterproofing. The skin, nail, hair and mucous membranes are affected by chronic inflammatory and immune mediated diseases which are known as Lichen Planus (LP). Cutaneous lichen planus (CLP) normally contains the flexor surfaces of the fringes and grants as minor itchy violaceous papules in middle-aged adults. Apart from commonly arising on cutaneous surfaces, it was also shown affect the oral mucosa, genital mucosa, scalp, or nails. The variability in LP population lies strongly based on the individual physiological conditions and genetic make-up. Those variants infrequently occur in individual population and make severe difficulties in their diagnosis and clinical management. The clinical data showed that the incidence of Lichen planus differs from 0.1% to 4% liable upon the people planned; a mainly high incidence rate has been noted in the Indian subcontinent [1,2]. It is frequently seen in over 45years old and is more common among women [3]. Childhood cases are

conveyed to found only 1%- 4% of the total cases of Lichen planus [3,4]. This qualified plenty of lichen planus in Indian population may be due to difference in genetic background. The lichen planus of positive family history is more public among childhood lichen planus cases rather than in adult lichen planus and familial cases are known to have an early onset of disease [5].

The infrequency of the alternates and their atypical performances often resulting in failure of the therapeutic regimes have the higher dependency on the type of lichen planus. Thus the prevalence and the diversity of the lichen planus is an important criteria for planning the successful clinical regiment. The main objective of the present study was to find out the prevalence and diversity of this disease to aid in proper treatment. Hence, the current study was designed to record the diversity spectrum of lesions in LP and to predict its prevalence among the patients.

2. MATERIALS AND METHODS

The present study was carried out in the Department of Pathology in Sree Balaji Medical College and Hospital over a period of 18 months from April 2015 to September 2016. Out of 100

Haematoxylin and Eosin (H&E)

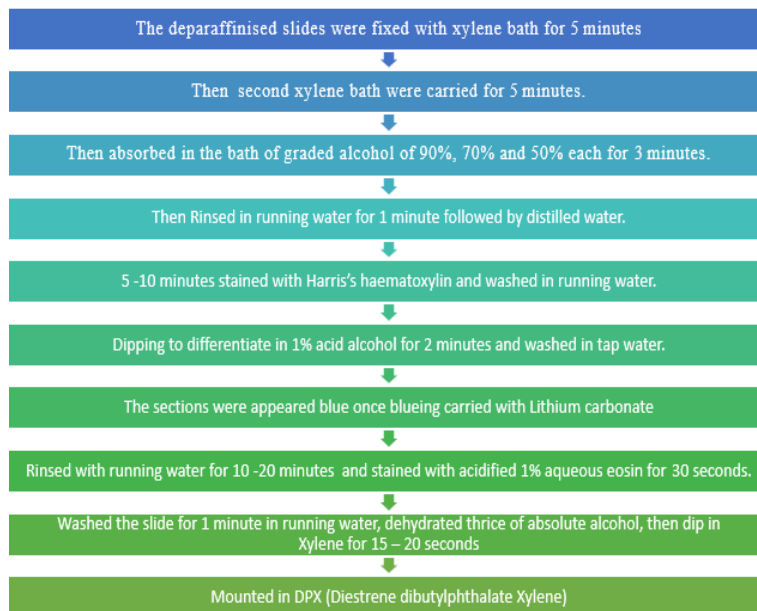


Image 1. Image of Staining Method

cases analyzed in our study, 84 cases were clinically analyzed as Lichen planus of which 80 cases were diagnosed to be Lichen planus both clinically and histopathologically and 4 cases were diagnosed as Lichenoid dermatitis (HPE). In 16 cases diagnosis other than lichen planus was made clinically, which turned out to be lichen planus by histopathology. Clinical features like age, sex, presenting complaints and site of lesion were provided by dermatology department & skin biopsy of the patient was sent to pathology department for histopathological diagnosis in 10% formalin neutral buffer. Haematoxylin and Eosin stained sections of skin biopsy were prepared to assess the histopathological diagnosis.

3. RESULTS

The present study includes 96 histologically proven cases of Lichen planus. The biopsy specimen was received from the department of Dermatology of SBMCH. Among 96 cases, 85 cases were of Classical type of Lichen planus, 4 cases were Hypertrophic, 2 cases were Linear, 2 cases were Lichen planus pigmentosa, 1 case was ulcerative, 1 case was follicular and 1 case was of Bullous type of Lichen planus. Majority of Lichen planus patients (43.75%) were in the age group of 31-50 years (Fig.1). The incidence of Lichen planus was found to be less in paediatric age group (5.2%) when compared with adult age. Mean age for males: 44 and Mean age for females: 38. Out of 5 paediatric patients, 3 were females and 2 were males. In the adult age group, there were 41 males and 50 females (Fig. 2). The occurrence of Lichen planus was observed to be more in female's age group including paediatric, whereas males were more affected in their elderly age of more than 50 years. Majority of the cases (73%) showed less than 3 months duration of the disease (Table 2). The period of the disease which ranged from 10 days to 8 years. Most of the patients had the typical history of Violaceous papules (49.9%) which is of characteristic for Lichen planus. Most of the patients (85.4%) had itchy nature of the lesion.

Out of 96 cases, 84 cases were diagnosed as Lichen planus clinically of which 80 cases were diagnosed as Lichen planus and 4 cases were diagnosed as Lichenoid dermatitis by histopathology. 7 cases of Psoriasis, 5 cases of Erythroplakia, one case of Basal cell carcinoma,

one case of Naevus, one case of Prurigo nodularis and one case of Paraneoplastic pemphigus, were proven to be lichen planus by histopathology. By histological examination of skin biopsies, 96 cases were found to be lichen planus, 4 cases were lichenoid dermatitis (4 cases were included in this study as they identified as lichen planus clinically). Among the 96 cases of histologically diagnosed Lichen planus, 85 cases (89%) were of Classical type of lichen planus, 4 cases (4%) were Hypertrophic, 2 cases (2%) were of Linear, 2 cases (2%) were Lichen planus pigmentosa, 1 case (1%) was ulcerative, 1 case (1%) was follicular type of lichen planus and 1 case (1%) was of Bullous type of Lichen planus. Histologically 96 cases were diagnosed as Lichen planus, 80 cases correlated both clinically and histologically. The overall sensitivity - 83% Diagnostic accuracy - 84%

In our study of 96 patients of Lichen planus, the highest incidence of Lichen planus were seen in the age of 31-50 years (43.75%). Five cases of paediatric population, in the age group of less than or equal to 14 years of age Incidence of Lichen planus in paediatric age group is less when associated with the adult age group.

3.1 Duration of Lesion

Our study showed, 70 Patients (73%) suffered from lichen planus for duration of less than 3 months. Six Patients (6%) had duration of 3 -6 months. Eight Patients (8%) had duration of 6 - 12 months. Twelve Patients (13%) suffered for a duration of more than 1 year.

4. DISCUSSION

Many morphological variants of lichen planus are described which might generate confusion in the diagnosis. Histopathology is required for the confirmation of the diagnosis. Clinical features when considered alone may not be reliable as they variable with both disease duration and treatment. In our study, the youngest patient was 4 years old & oldest patient was 93 years old. Similar findings were seen in the Shankar et al. [6], reported that the youngest patient was 6 years old and oldest patients was 71 years old in a study of 92 cases & Asmita et al. [7], studied a series of 145 cases, reported that the youngest patient was 5 years old and oldest patients was 71 years.

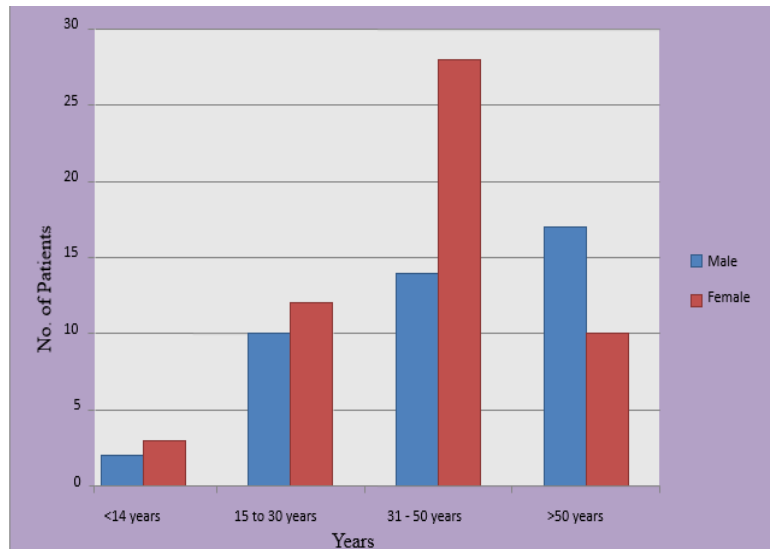


Fig. 1. Age Distribution observed in selected patients having Lichen Planus

Table 1. Sex distribution in selected patients having Lichen planus

Sex	Male	Female
No. of Patients	43	53
Percentage	44.70%	55.20%

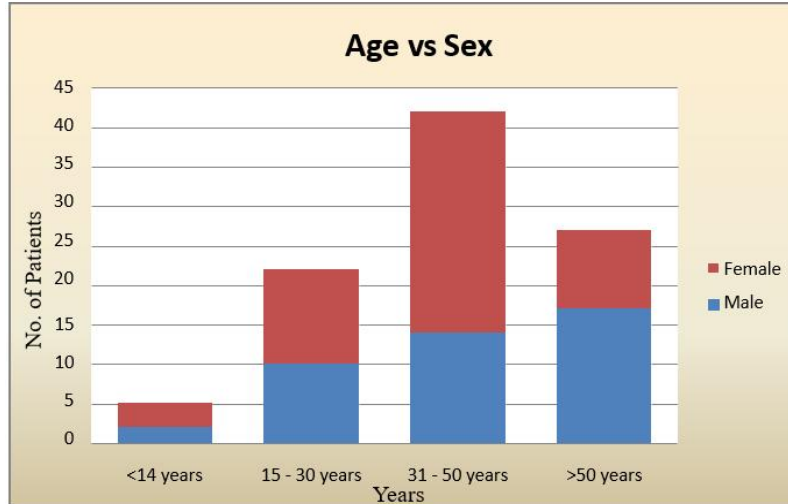


Fig. 2. Age related sex distribution in selected patients having Lichen Planus

Table 2. Duration of the lesion in selected patients having Lichen Planus

Duration of the lesion	No. of patients
0 – 3 months	70
3 – 6 months	6
6 – 12 months	8
>1 years	12



Fig. 3. Single flat topped violaceous plaque seen on the forearm suggestive of Lichen planus

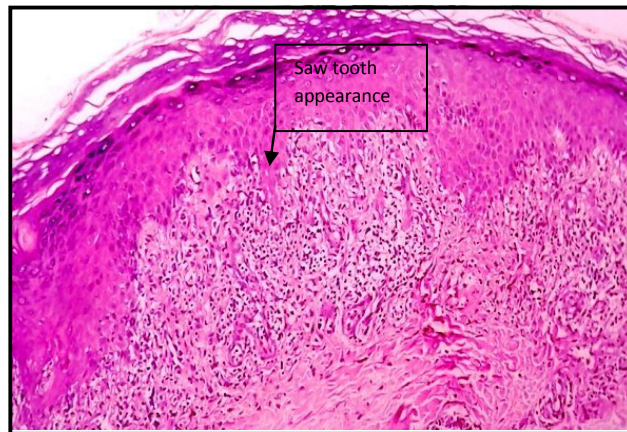


Fig. 4. LPF(100X):H&E: Hyperkeratotic and acanthotic epidermis with irregular elongated saw tooth rete pegs and band like inflammatory cells infiltrate in the dermal-epidermal junction – Classical Lichen planus

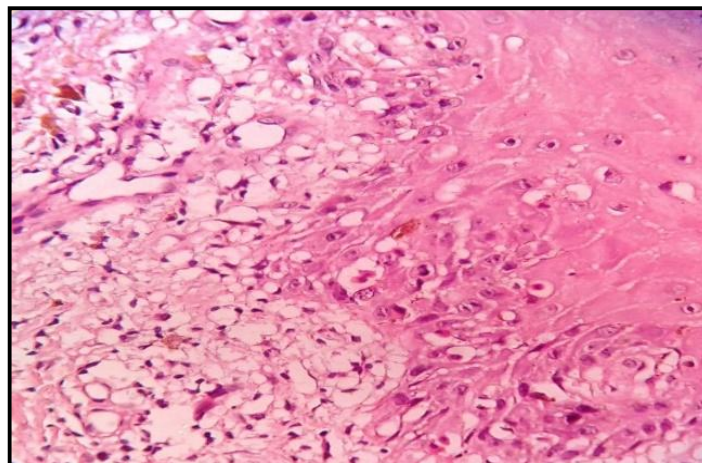


Fig. 5. HPF (400X):H&E: Basal cell vacuolar degeneration, multiple civatte bodies and pigment incontinence



Fig. 6. Multiple raised violaceous plaques and papules seen on the left arm and fore arm

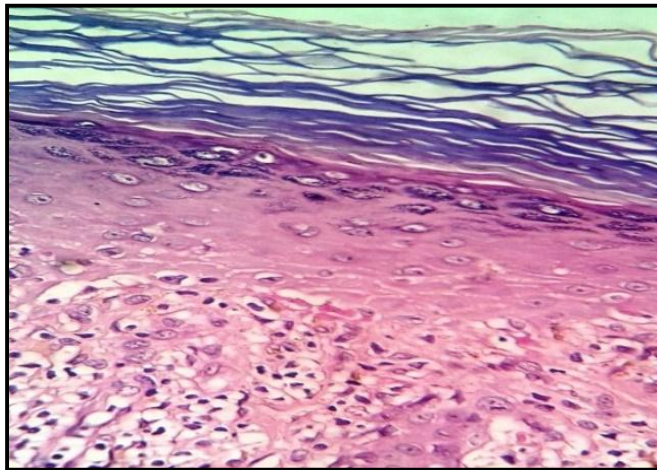


Fig. 7. LPF (100X):H&E: Hyperkeratotic, acantotic, wedge shaped hypergranulosis with basal cell vacuolar degeneration – Classical Lichen planus



Fig. 8. Mutiple small violaceous papules seen on the hand of Lichen Planus patient

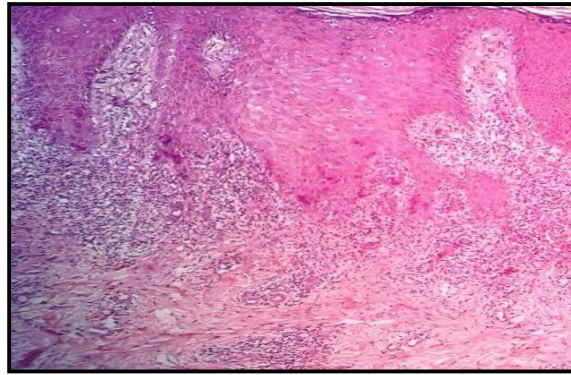


Fig. 9. LPF (100X):H&E: Hyperkeratotic and acanthotic epidermis with irregular elongated rete pegs and dense inflammatory cells infiltrate - upper dermis

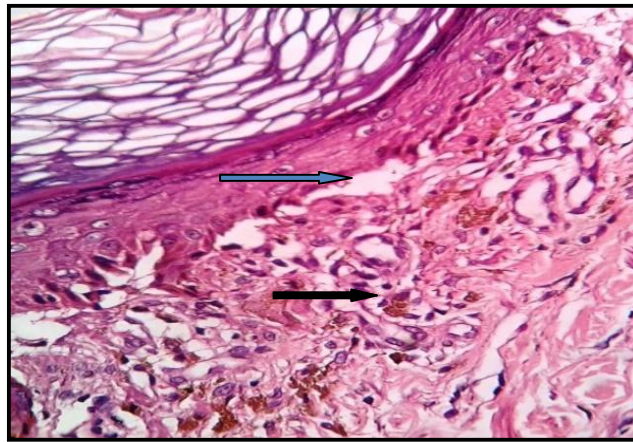


Fig. 10. HPF (400X):H&E: Max-Joseph spaces (blue arrow) and pigment laden macrophages(black arrow) in the dermis – Lichen planus pigmentosus

Raghavendra et al. [8] observed that the youngest patient was 5 years and oldest was 85 years. In our study, Common age group affected was 31 -50 years in which 43.75% cases were seen. This is connection with Kacchawa et al. & Singh et al. [9-10], who found 46.93% & 53.74% cases. Similar findings were also seen in other studies like Singh et al., Bhattacharya et al, Raghavendra et al and Gurusamy et al. Among the 96 cases of histologically diagnosed Lichen planus, 85 cases were of Classical type of Lichen planus, 4 cases were of Hypertrophic, 2 cases were Linear , 2 cases were Lichen planus pigmentosa, 1 case was ulcerative, 1 case was follicular type lichen planus and 1 case was of Bullous type of Lichen planus. Similar findings were seen by Parihar et al [11], studied on 145 cases, 88 (61%) were of classical type, 40 (27.5%) were of lichen planus pigmentosus and 17 (11.5%) were of lichen planopilaris. Bangaru

et al. [12-15]. studied on 90 patients, they concluded that classical Lichen Planus (67%), hypertrophic type (11%), linear variant (5.5%), eruptive type (4%) and Lichen Planus pigmentosus (3%) respectively.

The microscopic features were consistent with the histopathology of the skin lesion of patients involved in the reading. In our study, the most common histological findings were orthokeratosis (100%), acanthosis (95%), pointed rete pegs (88%), hyper granulosus (93%), basal cell vacuolar degeneration (100%), Band like inflammatory cell infiltrate (97%), Pigment incontinence (100%), Civatte bodies (41%) and Max Joseph spaces (31%). Similar findings were observed by Parihar et al, (2015), reported that Orthokeratosis (100%), Acanthosis (94%), Pointed rete ridges (76%) Hypergranulosis (96.5%), Basal cell vacuolar degeneration

(100%), dermal infiltrate (94%), Civatte bodies (82%), Pigment incontinence (99%) cases and Max Joseph spaces (29.5%) cases respectively.

Bangaru et al. [16], showed orthokeratosis (86%), hypergranulosis (86%), acanthosis (78%), saw toothing of rete ridges (59%), liquefaction degeneration of basal cells (73%), civatte bodies were seen in 10% of cases, band like infiltrate (89) and melanin incontinence (77.7%). Gurusamy et al., (2016) showed orthokeratosis (84%), acanthosis (78%), Pointed rete pegs (78%), hypergranulosis (80%), basal cell vacuolar degeneration (100%), band like inflammatory cell infiltrate (97%), pigment incontinence (100%), civatte bodies (46%). Raghavendra et al. [17,18], showed that Orthokeratosis (87%), Acanthosis (89%), Pointed rete ridges (85%) Hypergranulosis (82%), Basal cell vacuolar degeneration (93%), Dermal infiltrate (82%), Civatte bodies (8%), Pigment incontinence (95%) cases and Max Joseph spaces (2%) cases. In the present study, out of 100 cases of Lichen planus, 96 cases were diagnosed as Lichen planus histologically, whereas 84 patients came with the clinical diagnosis of Lichen planus.

5. CONCLUSION

Histologically 96 cases were diagnosed as Lichen planus, 80 cases correlated both clinically and histologically. The scarcity of the alternatives and their strange performances make their suitable diagnosis and organization more difficult in the clinical setting. Our study revealed that the success of the therapeutic regimes are purely dependent on the types of the lichens and that histopathological examination remains the gold standard in diagnosis and helps in differentiating its variants. The present study provides insight regarding lichen planus clinico-pathological behavior gender-wise among patients. Further studies in this direction will be helpful in exploring this unknown terrain thereby helping in quicker diagnosis and better treatment.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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