

Original Research Article

Diagnostic dermoscopic features and the correlation between dermoscopic and histopathologic features in lichen planus

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ABSTRACT

Background: Lichen planus (LP) is an autoimmune dermatosis characterized by pruritic violaceous flat-topped polygonal papules predominantly over the extremities but can also affect trunk, mucosa, scalp, palms, soles and nails. Dermoscopy is a novel non-invasive imaging modality and the presence of salient dermoscopic features will help to obviate the need for skin biopsies in many doubtful cases.

Methods: This was a descriptive study of 108 cases of classical lichen planus cases conducted at a tertiary care hospital in South India over a period of one year. Dermoscopic examination of the LP lesions were carried out using DermLite DL3N and histopathological samples were analyzed in 35 cases.

Results: The dermoscopic features were blue globules in 100%, Wickham's striae in 92.6% and comedo like openings in 49.1%. Vascular patterns were noted only in 13%. On correlating Wickham's striae in dermoscopy with wedge shaped hyper granulosities on histopathology using the chi-square test we found agreement (kappa value 0.242). We also found that dermoscopy was 93.75% sensitive and 33.33% specific regarding Wickham's striae in relation to wedge shaped hyper granulosities. In 85% of cases blue globules were present dermoscopically and dermal melanophages were found histopathologically.

Conclusions: Wickham's striae can be considered as a diagnostic dermoscopic finding in lichen planus whereas findings like bluish pigmentation and vascular structures depended on the skin colour of the patient. We also found agreement between dermoscopic and histopathologic features namely Wickham's striae with wedge shaped hyper granulosities and blue globules with dermal melanophages.

Keywords: Lichen planus, Dermoscopy, Autoimmune dermatosis

INTRODUCTION

Lichen planus (LP) is a chronic inflammatory and immune mediated disease that affects the skin, nails, hair and mucous membranes. Cutaneous lichen planus most commonly involves the flexor surfaces of the extremities and presents as small itchy violaceous papules. "Pruritic, purple, polygonal, planar, papules and plaques" are the traditional 6 "P's" of lichen planus.¹ Dermoscopy is a non-invasive tool that is widely recognized and used in the diagnosis of skin tumours. In recent years dermoscopy has

been used for other dermatologic diseases including psoriasis, lichen planus, hair disorders and skin infestations.² Dermoscopy helps in confirmation of clinical diagnosis, often obviating the need for a skin biopsy, although a skin biopsy and clinicopathological correlation (CPC) remain the gold standard for cutaneous diagnosis.³

This study was undertaken with the primary objective to study the dermoscopic features of classical lichen planus. As a secondary objective we tried to find correlation

between the dermoscopic and histopathologic features in classical lichen planus.

METHODS

This was a descriptive cross-sectional study conducted at dermatology out-patient department Government medical college hospital, Kottayam, Kerala over a period of eighteen months from April 2016 to September 2017.

108 patients with clinically diagnosed classical lichen planus who attended the out-patient department during the study period were selected. Patients on any treatment that were likely to alter the results of the study were excluded. The history and clinical examination were recorded. Dermoscopic images were recorded from each patient using a hand-held dermoscope DermLite DL3N equipped with a camera. All dermoscopic images were evaluated by both authors for the presence of specific features. The global and local features of each lesion were recorded. The specific features that we looked for in the dermoscopic evaluation were Wickham’s striae blue grey globules, comedo-like openings, red dots and globules.

Skin biopsy was done in thirty-five patients who consented for the biopsy procedure. The histopathological samples were analysed by a single pathologist who was blinded to the dermoscopic diagnosis. The histopathological variables evaluated were orthokeratosis, hyperkeratosis, acanthosis, wedge shaped hyper granulosus, vacuolar degeneration of basal layer, dermal melanophages, dilated blood vessels and dilated follicular openings.

The demographic data and dermoscopic features in all 108 patients were recorded. The dermoscopic features and their corresponding histopathological correlates were recorded in the 35 patients.

The data obtained in the study was coded and entered in Microsoft excel and was statistically analysed using (Statistical Package for the Social Sciences) SPSS 16 software. Dermoscopic features in all 108 cases were described using percentages while the correlation between dermoscopic and histopathologic features were analysed using kappa values in the thirty-five cases were histopathology was studied.

The study was approved by the Institutional review board, Government medical college Kottayam (IRB No: 44/2016) and written informed consent were obtained from all patients prior to enrolling in the study.

RESULTS

In the 108 cases of classical lichen planus that we studied 66 cases were males and 42 were females. The mean age of our study population was 50.3 years.

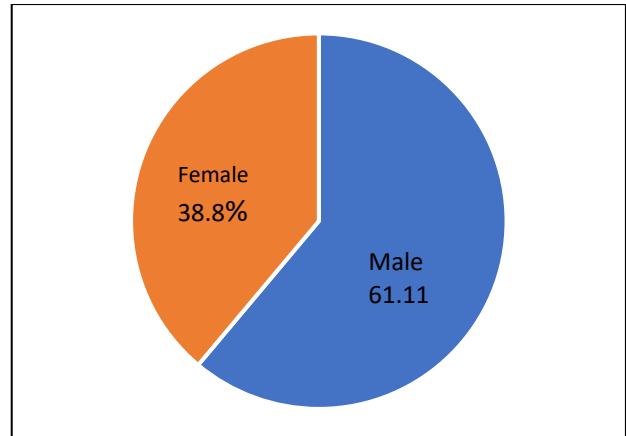


Figure 1: Gender distribution of patients.

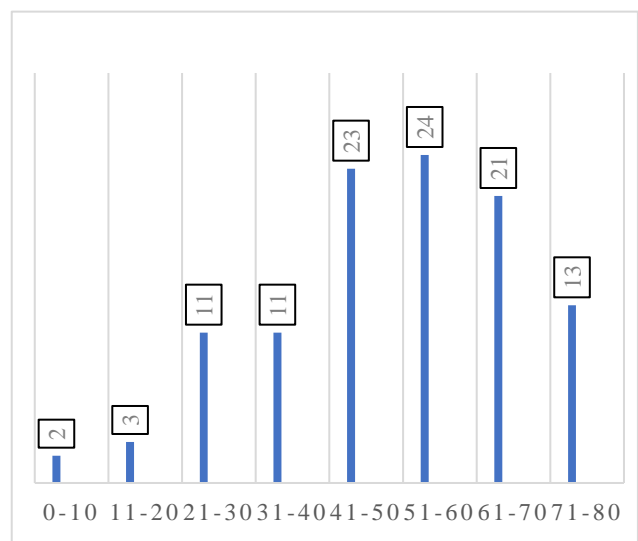


Figure 2: Age distribution of patients.

Dermoscopic features we obtained in our study were Wickham’s striae, blue globules, comedo-like openings and vascular structures. The dermoscopic findings are tabulated below.

Table 1: Dermoscopic features in Lichen planus.

Dermoscopic features	No. of patients (N)	Percentage (%)
Blue globules	108	100
Wickham’s striae	100	92.6
Comedo like openings	53	49.1
Vascular patterns (red lines and red globules)	14	13

Histopathology was obtained in 35 patients. Orthokeratosis was noted in 100%, hyperkeratosis in 91.4%, acanthosis in 85.7%, wedge shaped hyper granulosus in 91.4%, vacuolar degeneration in 88.6%,

melanophages in dermis in 85.7% and interface dermatitis in 91.4%.

On correlating Wickham’s striae on dermoscopy with wedge shaped hyper granulosi s on histopathology using the chi-square test we obtained an agreement with a kappa value of 0.242. We could also find that dermoscopy was 93.75% sensitive and 33.33% specific regarding Wickham’s striae in relation to wedge shaped hyper granulosi s on histopathology. The correlation between blue globules in dermoscopy and melanophages in dermis on histology could not be assessed using the chi square test.

Table 2: Correlation between dermoscopic and histopathologic findings.

Dermoscopic feature	Histopathologic feature	Kappa value
Wickham’s striae	Wedge shaped hyper granulosi s	0.242
Blue globules	Dermal melanophages	NA

DISCUSSION

In this study we included 108 cases of classical lichen planus. The background pigmentation was blue in all our patients. Blue globules were found in all patients (100%), wickham’s striae (WS) were found in 92.6%, comedo like (CL) openings were seen in 49.1%. Miliu m like (ML) cysts were not observed in our patients. Vascular patterns like red lines and red globules were found only in 14 patients (13%). In a similar study in north india by Garg et al which included 15 cases of classical lichen planus similar findings were noted.⁴ Non-vascular findings were more common than vascular findings similar to our study. Wickham’s striae were noted in 93.33%, bluish black to brown pigmentation was found in 73.3%, comedo like openings in 20%, milia like cysts in 6.67% and vascular structures in 33.3%. In a western study by Lallas et al which included 25 cases of lichen planus, Wickham’s striae were noted in 96%.⁵ The most common background pigmentation shade was dull red in 64% and vascular structures were seen in all cases. In a Chinese study by Tan et al which included 43 lesions of lichen planus, vascular structures were seen in 34.8%.⁶ Wickham’s striae were found to be a common feature in all studies irrespective of racial variations. The difference in colour of background pigment and lower incidence of vascular patterns in our study can be attributed to the darker skin type of our patients compared to fair skinned population.

Wedge shaped hyper granulosi s on histopathology corresponds to Wickham’s striae dermoscopically and blue globules on dermoscopy corresponds to melanophages in dermis histologically.^{7,8} On correlating Wickham’s striae on dermoscopy with wedge shaped hyper granulosi s on histopathology using the chi square

test we obtained an agreement with a kappa value of 0.242. we could also find that dermoscopy was 93.75% sensitive and 33.33% specific in finding Wickham’s striae in relation to wedge shaped hyper granulosi s on histopathology.⁴ In Garg et al study Wickham’s striae and laminated hyperkeratosis were associated with a kappa of -0.133 and bluish pigmentation and pigmented melanophages with a kappa value of 0.056.



Figure 3: Dermoscopy of lichen planus showing Wickham’s striae.

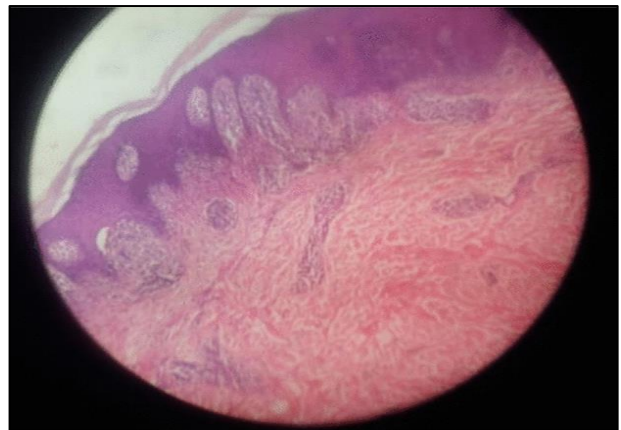


Figure 4: Histopathology of lichen planus (H and E, 10x).

The correlation between blue globules in dermoscopy and melanophages in dermis on histology could not be assessed using the chi-square test as blue globules were a universal finding. But we could conclude that in 85% cases blue globules were present dermoscopically and dermal melanophages were found histopathologically.

CONCLUSION

Wickham’s striae were observed in all studies on dermoscopy of lichen planus irrespective of ethnic variation while the color of pigmentation and presence of vascular structures were not a constant finding. Thus, Wickham’s striae could be considered as a diagnostic dermoscopic finding in lichen planus. On dermoscopy, the

differences we observed in our patients compared to western studies were the less prominent vascular structures and the increased incidence of bluish pigmentation. This striking difference could be attributed to the difference in skin pigmentation in Indians. We also found that dermoscopy is a sensitive tool in assessing Wickham's striae in correlation with its histopathologic counterpart and that blue globules can be correlated with dermal melanophages.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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