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Case Series

Dermoscopic features in different types of lichen planus: a case series

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ABSTRACT

Lichen planus is a chronic inflammatory skin disorder that affects the skin, scalp, nails, and mucous membranes. It is characterized by distinctive purplish, flat-topped papules, often accompanied by intense pruritus. The etiology of LP remains largely idiopathic, although immune-mediated mechanisms, including T-cell mediated responses, are thought to play a significant role in its pathogenesis. Its prevalence is estimated at 0.22% to 1% of the adult population, with oral lichen planus occurring in 1-4% of individuals. Dermoscopy is a useful non-invasive tool for evaluating lichen planus, allowing detailed visualization of skin lesions and aiding in diagnosis. This technique is particularly beneficial in cases where clinical evaluation alone might be insufficient. Dermoscopy not only supports the diagnosis but also provides insights into disease activity and progression, and identifying complications such as scarring or malignant transformation in rare cases. making it an essential tool for dermatologists in managing lichen planus. This paper explores various dermoscopic findings associated with different variants of lichen planus, including classical, actinic, planopilaris, pigmentosus and hypertrophic lichen planus (HLP).

Keywords: Lichen planus, Dermoscopy, Diagnosis

INTRODUCTION

Lichen planus typically presents with characteristic dermoscopic features that can aid in diagnosis. In this research paper different dermoscopic findings of different variants of lichen planus is described (classical, actinic, planopilaris, hypertrophic and pigmentosus).

Wickham striae are white, reticulated crossing lines commonly seen in lichen planus, a chronic inflammatory skin condition with autoimmune origin. These striae indicate hypergranulosis and help differentiate lichen planus from other similar conditions, such as lichenoid dermatoses, guttate psoriasis, and prurigo simplex, papular urticaria, pityriasis rosea and lichenoid sarcoidosis.[1,2] Wickham striae may be seen by the bare eyes but dermoscope enhances the visibility of these striae, which appear as a distinctive white reticular pattern. Other dermoscopic features include red dots, radial capillaries, and varying pigmentation patterns.[1,3] Wickham striae are crucial for diagnosing lichen planus and monitoring treatment response, as they disappear with effective treatment, serving as an indicator of disease activity.

In this series of lichen planus patients, we use polarised mode of dermoscope and with 20× magnification.

CASE SERIES

A 46-year-old female, housewife by occupation presented with a history of pruritic, violaceous, flat-topped papules appeared initially over wrist and ankle, with time progressed to other areas of the body including legs, front and back of trunk since 2 months. In addition, she developed painful white lesions over her buccal mucosa which she finds uncomfortable on eating. There was no history of drug intake by the patient.

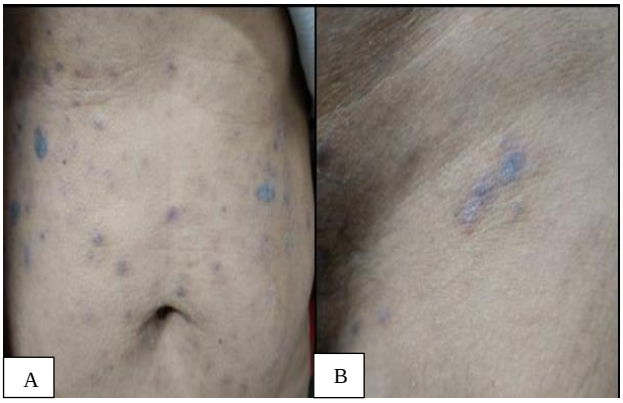

Figure 1 (A and B): Clinical picture of a classical lichen planus patient who came in our OPD.

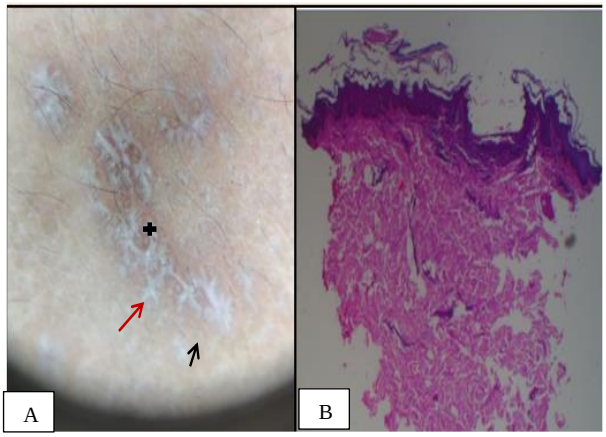

Figure 2 (A and B): The forearm lesions were studied with a hand held dermoscope (left) and histopath was done (right) Dermatoscopic finding revealed yellow dot (black arrow) and wickham striae (red arrow) surrounded by radial linear and dotted capillaries. Matured lesions also revealed peripheral pigmented dots (black plus) and diffuse scale distribution.

Biopsy shows moderately dense superficial perivascular lichenoid lymphoistiocytic infiltrate with irregular epidermal hyperplasia and wedge shaped bypergranulosis. The dermo-epidermal junction shows extensive basal cell vacuolization and replacement of basal cells by squamous cells at places. Scattered necrotic keratinocytes and colloid bodies are seen at the interface. Stratum corneum shows compact orthohyperkeratosis.

The diagnosis of lichen planus was considered after clinical and dermoscopic correlation and confirmed histologically.

Screening for hep B and hep C was done.

The patient was prescribed oral methylprednisolone along with topical corticosteroids creams which was tapered over time. Oral dapsone was given along with it. The lesions got resolved in around 3 months with residual hyperpigmentation.

A 36-year-old Indian female presented with asymptomatic brown to black macule, few of them coalescing into a patch starting from neck and extending to lateral side of face, periorbital area and malar region. No active red border was seen. No lesions were seen in palms, soles, nails and mucous membrane. Lesions had been present for several months. Mild pruritus is very rarely seen. Patient observed darkening of pigmentation on exposure to sunlight. Patient denied of using any photosensitising agents such as mustard oil. No history of hepatitis C or high risk behaviour was found.

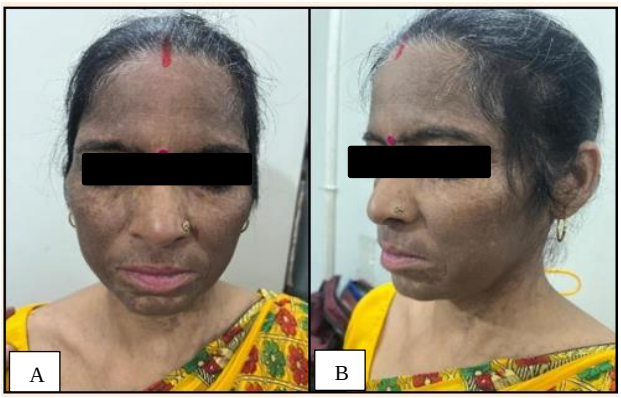

Figure 3 (A and B): Clinical images of a patient of lichen planus pigmentosus who came in our OPD.

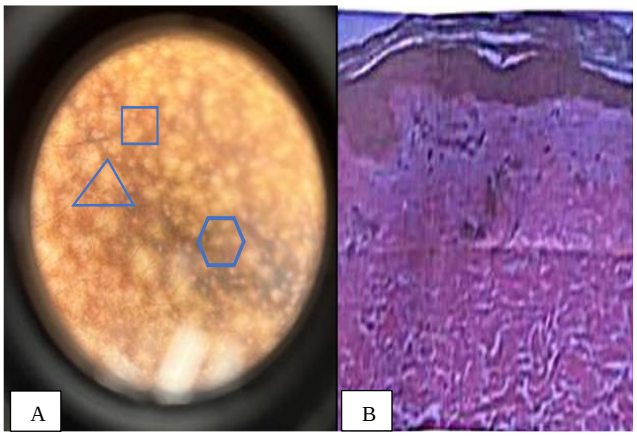

Figure 4 (A and B): On dermoscopy (left) brown violet dots and globules of reticulate pattern (blue hexagon) were seen as predominant pigment structure. Honeycomb pattern of pigment network (blue squared) and a target pattern of blue brown dots around the peri follicular area (blue triangle). Histopathology of the lesion was also done (right).

Biopsy shows sparse superficial perivascular infiltrate of numerous melanophages within the papillary dermis. The papillary dermis is slightly thickened and shows delicate fibroplasia and mucin. Within foci numerous colloid bodies, some of them in groups can be seen at the dermo-epidermal junction and within the papillary dermis. There is focal lymphocytic infiltrate involving the lower epidermis or the dermo-epidermal junction.

Impression: Consistent with lichen planus pigmentosus-active lesion.

This patient was given oral isotretinoin along with oral corticosteroids in tapering dose. in topicals topical calcineurin inhibitors along with sun protection was advised. The lesions progression was stopped but complete resolution was not seen till date.

A male of age 39 years presented with multiple hyperkeratotic violaceous plaque and nodules on the extensor aspect of lower extremities associated with intense itching. It was associated with chalky scales. Lesions healed with hyperpigmentation and scarring.

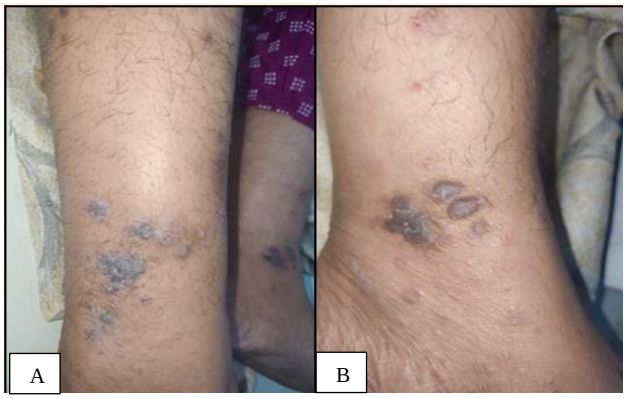

Figure 5 (A and B): Clinical image of a case of lichen planus hypertrophicus who came in our department for treatment.

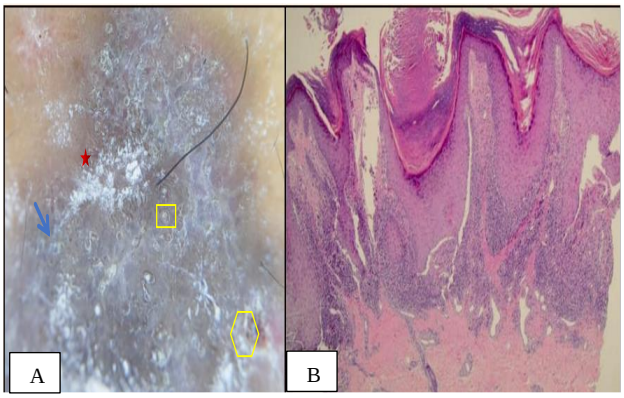

Figure 6 (A and B): On dermatoscopy-comedo like openings [yellow square] with grey blue globules (blue arrow) with red dots (yellow hexagon) and structureless white areas are seen (red star).

On histopathology (right)-pseudo-epitheliomatous hyperplasia with hyperkeratosis and irregular acanthosis. The interface is less band like. Cystic dilatation of hair follicles. Collagen bundles and fibrosis is seen in dermis.

The patient was prescribed oral methylprednisolone along with topical potent corticosteroids creams which was tapered over time. In some of the hypertrophic lesions intralesional triamcinolone was given. The lesions got resolved in around 4 months with residual hyperpigmentation.

A 26 years old male came to the OPD with erythematous brownish plaque with an annular configuration and central scarring which is seen on exposed areas such as face and lip. Concealed areas of the body and mucous membrane were spared.

Figure 7 (A and B): Clinical image of the patient who was diagnosed with actinic lichen planus.

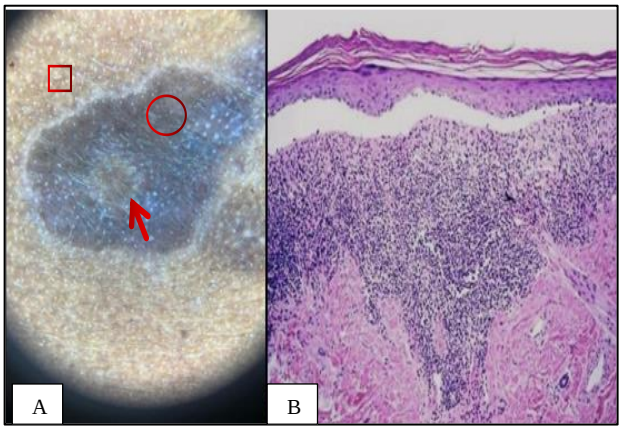

Figure 8 (A and B): On dermoscopy, diffuse brown-violaceous background with follicular openings (red circle) and peripheral partial loss of pigment network (red rectangle) inter-spread with brown dots and globules (red arrow) is seen. On histopathology (right)-slightly thinned out epidermis is seen. Linear band like infilterates (mostly lymphocytyes), saw toothed ridges and dense hyper-granulosis with orthokeratosis. Abundant melanophages and pigment incontinence is seen.

In this patient oral retinoids was prescribed along with sun protection and topical corticosteroids. On face topical calcineurin inhibitors was given to apply as steroid sparring agent.

A male of age 32 years presented with patchy scarring alopecia with violaceous pigmentation associated with

itching since 2 years which was progressive in nature. Multiple erythematous violaceous papules and keratotic follicular lesions are also present over extensor aspect of lower leg.

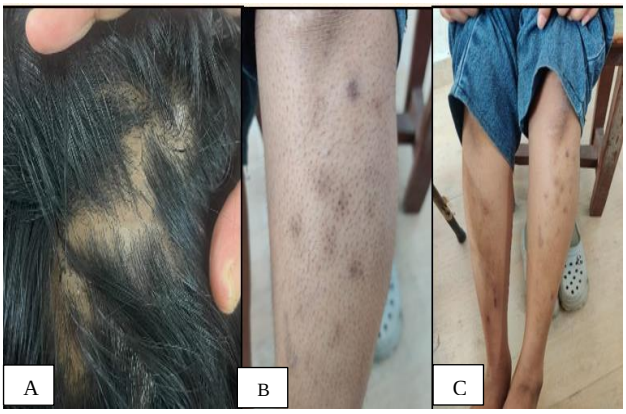

Figure 9 (A-C): Clinical picture of a patient who had scarring alopecia on the scalp and grouped follicular lesions on the lower limbs diagnosed with lichen plano pilaris.

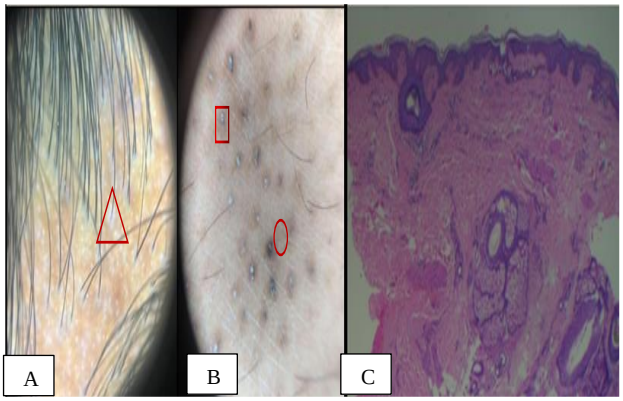

Figure 10 (A-C): On dermoscopy-follicular plugging (red square), white and blue grey dots (red circle) along with erythema and perifollicular scaling (red triangle) is seen. On the right side histopathological image of the lesion is shown.

Biopsy shows sparse superficial perivascular lymphocytic infiltrate with marked reduction of number of hair follicles in foci. In these foci, the sites of former hair follicles are marked by vertically orientated fibrous tracts and presence of arrector pilorum muscle bundles. The papillary dermis shows delicate fibroplasia and melanophages. Above this focus, the epidermis shows partial flattening of rete ridges. The terminal follicular infundibula in the rest of the biopsy show moderate perifollicular fibroplasia. Impression was cicatricial alopecia due to follicular lichen planus.

The patient was given oral methylprednisolone along with topical corticosteroids creams which was tapered over the time. Oral methotrexate was given as weekly dose. The lesions got resolved in around 5 months with residual pigmentation.

DISCUSSION

The classic skin lesion features flat-topped, polygonal, slightly erythematous to violaceous papules with a thin, adherent scale. Reticular or pinpoint whitish structures, known as Wickham striae (WS), are pathognomonic.[4]

On dermatoscopy WS appears as polymorphic pearly white structures, often reticular or radial in pattern, arboriform "fern leaf" projections are characteristic.

Vascular patterns: Linear vessels (radial capillaries) along the borders and erythematous globules may also be present.

WS patterns: Reticular: Most common, net-like white lines. Circular: Rounded white structures. Radial streaming: Linear projections extending outward. Leaf venation: Delicate branching striae resembling snow crystal structures. Starry sky/white dots: Clustered follicular white dots. Dermoscopy findings include polymorphic pearly white structures with arboriform "fern leaf" projections. Linear vessels (radial capillaries), erythematous globules can be seen at borders.[5]

Dermoscopy is crucial for differentiating lichen planus from conditions like pityriasis rosea and psoriasis, with the WS being a key diagnostic feature.[6,7,8]

Lichen planopilaris (LPP) is marked by keratotic follicular papules that form plaques, and in advanced stages, it results in cicatricial alopecia with irregular, scarred areas on the scalp, perifollicular erythema, and absent follicular openings, accompanied by follicular plugging.[9]

Trichoscopy of LPP reveals multiple irregular cicatricial alopecic areas with distinct features. These include perifollicular whitish-gray scaling, erythema, arboriform vessels, absence of follicular openings, and follicular plugging.

Dermoscopic findings vary with disease progression.

Early stages-perifollicular inflammation leads to whitish-gray scales (peripilar casts) and perifollicular erythema with arboriform vessels. This selective follicular inflammation helps distinguish LPP from other causes of cicatricial alopecia, like chronic discoid lupus.[10,11]

Fibrotic stage-the areas appear whitish or milky-red with irregular whitish dots, indicative of fibrous tracts due to follicular loss. Additionally, blue-violet and blue-gray dots may reflect perifollicular pigmentary changes.[12]

LPP is a variant of lichen planus characterized by hyperpigmented macules, typically found in sun-exposed

areas and flexures. It is most commonly observed in Indian patients.[13]

Dermoscopy of LPP shows an absence of Wickham striae and vascular features. Key findings include a pigment pattern of slate grey-to-blue dots and globules, along with perifollicular and peri-eccrine pigment deposition. A hem-like pigment pattern may also be seen, with a brown background color.[3,14,15] Dermoscopy helps differentiate LPP from other facial melanoses, such as melasma and pigmented contact dermatitis, which shows a regular distribution of brown-to-grey dots and globules. Dermoscopy can serve as an adjunct to histopathology when a biopsy is not desired.

HLP, or LP verrucosus, typically affects the extremities, especially the shins and interphalangeal joints, and is the most pruritic form. Lesions are thickened, elevated, purplish or reddish-brown, hyperkeratotic, and may feature raised follicular induration and chalky scales. Healing often results in scarring and changes in pigmentation, either hyper- or hypopigmentation peripheral striations with pearly white areas-The most notable dermoscopic features in HLP (PN) are.[16-18]

Comedo-like opening-corresponds to dilatation, plugging, and hypergranulosis of hair follicle infundibula, suggesting transepithelial elimination.[18,19]

Blue-gray globules-found in 40% of HLP cases, were specific for diagnosis and indicated pigment-laden melanophages, suggesting regressing lesions.[20]

Yellow structures-present in 53.3% of HLP cases, reflected spongiosis and vacuolar degeneration of the basal layer.[18]

Brownish-black globules-representing melanocytes in the epidermis, appeared in a diffuse pattern glomerular vessels-indicate malignant changes in HLP.[17,18]

Actinic lichen planus is a rare variant, also known by terms like lichen planus subtropicus, tropicus, and actinicus. It typically affects young adults and appears in sun-exposed areas, especially the face, during spring or summer. The condition presents in three forms: annular, pigmented, and dyschromic, with the annular type being the most common. These lesions are erythematous brown plaques, often in an annular shape, and may be associated with atrophy.[21]

Dermoscopy of lichen planus can be observed in two phases: active and resolution, active phase-Wickham striae-structured white areas-are present in almost all cases, correlating with epidermal changes like hypergranulosis and acanthosis, which obscure blood vessels. Some patients also show diffuse brown pigmentation, indicating epidermal pigmentation, resolution phase-erythema and blood vessels are absent, and Wickham striae disappear. However, a diffuse brown background with gray-blue dots, along with various brown to black dot patterns, may persist, showing that while the pigment patterns remain resistant to treatment, the Wickham striae fade.[23]

CONCLUSION

Dermatoscopy has proven to be a valuable tool in the diagnosis and management of lichen planus, offering enhanced visualization of key clinical features that may not be easily appreciated through routine clinical examination. The identification of characteristic dermatoscopic patterns, such as Wickham striae and specific vascular changes, aids in differentiating lichen planus from other skin conditions with similar presentations. Moreover, dermatoscopy assists in monitoring disease progression, assessing treatment responses, and detecting potential complications such as scarring or malignancy. Its non-invasive nature makes it an ideal adjunct to conventional clinical methods, ensuring a more comprehensive understanding of the condition. As research into dermatoscopy in lichen planus continues to evolve, it holds the potential for further refining diagnostic accuracy, guiding treatment decisions, and improving overall patient outcomes. In summary, dermatoscopy has become an essential tool in the management of lichen planus, offering clinicians a more comprehensive, accurate, and non-invasive way to diagnose, monitor, and treat the condition effectively.

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