

Dermoscopic findings in different clinical variants of lichen planus. Is dermoscopy useful?

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ABSTRACT Lichen planus (LP) is a papulosquamous dermatosis that involves the skin, scalp, nails and mucous membranes. Although its pathogenesis is still unknown, there is evidence that an imbalance of immunologic cellular reactivity plays an important role. Histopathologic examination reveals characteristic interface dermatitis.

Dermoscopy is a non-invasive tool, useful in the assessment of inflammatory dermatoses, such as lichen planus. In this paper we describe the dermoscopic findings of different variants of LP (ungual, cutaneous, planopilaris, pigmentosus).

Introduction

Dermoscopy is a non-invasive tool that allows us to recognize key structures of lichen planus, which is useful for its diagnosis, follow-up and prognosis.

Case reports

Case 1

A 50-year-old female patient with no relevant history was seen in the hospital due to a pruritic erythematous papule with months of evolution on the anterior side of her right lower limb associated with asymptomatic confluent whitish papules on buccal mucosa. Two weeks later it had evolved with an eruption of pruritic violaceous plaques in the neck area.

Dermoscopy of the lesion on the patient's thigh revealed small pinpoint vessels associated with whitish striations (projections) with a “fern leaf” aspect on an erythematous background (Figure 1).

Pathological examination revealed: sawtooth acanthosis, orthokeratotic hyperkeratosis, hypergranulosis, hydropic degeneration of the basal layer, and band-like lymphocytic infiltrate compatible with lichen planus.

Case 2

A 36-year-old female patient, with no medical history, sought medical attention due to multiple alopecic areas on the scalp of uneven distribution, erythema and follicular plugging.

A trichoscopy revealed multiple irregular cicatricial alopecic areas with perifollicular whitish-gray scaling associated

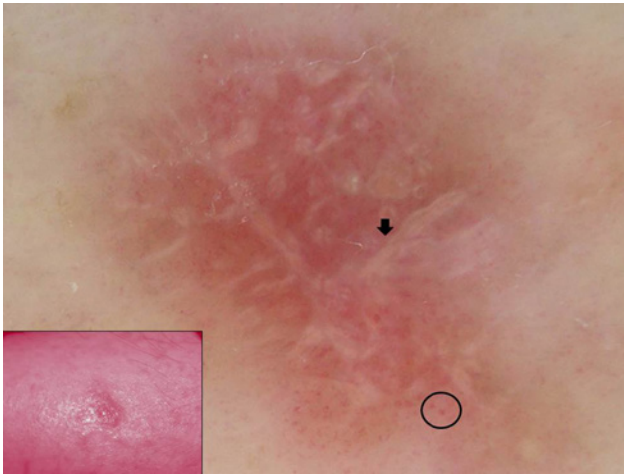


Figure 1. Leaf venation pattern. White pearly structures corresponding to WS with arboriform projections of “fern leaf” aspect (arrow), erythematous globules at their edges (circle). [Copyright: ©2015 Friedman et al.]

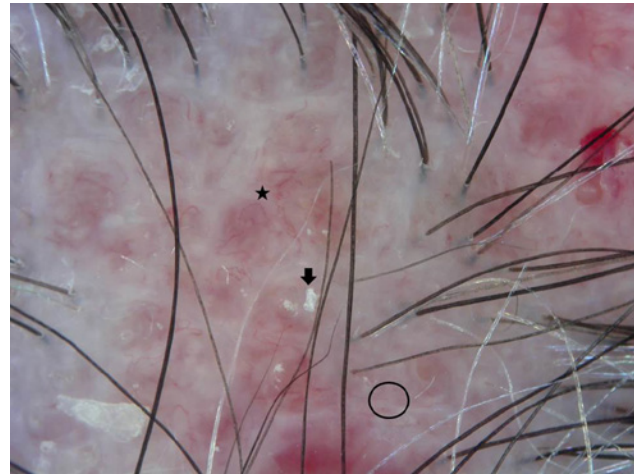


Figure 3. Absence of follicular openings (circle), whitish-gray scales (arrow), arboriform vessels (star). [Copyright: ©2015 Friedman et al.]

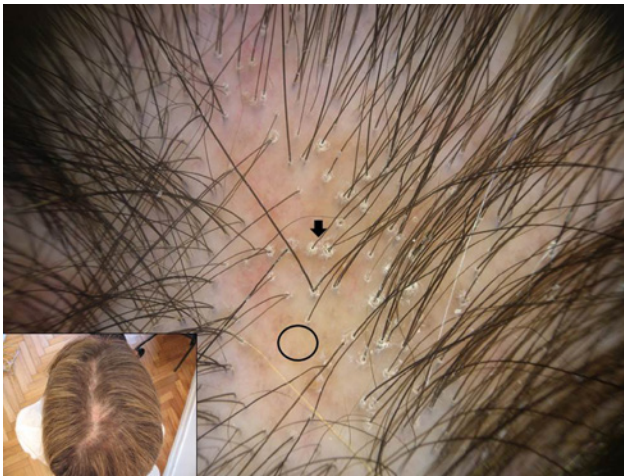


Figure 2. Absence of follicular openings (circle), erythema, perifollicular scales (arrow). [Copyright: ©2015 Friedman et al.]



Figure 4. (a & c) Destruction of nail plate; (b) fissuring, thinning, fragility, longitudinal ridging; (d) chromonychia, trachyonychia. [Copyright: ©2015 Friedman et al.]

with erythema, arboriform vessels, absence of follicular openings, and follicular plugging (Figures 2, 3).

Pathological examination (Protocol 14-03006, Dr. Calb) revealed: hair follicles with vacuolar degeneration of follicular wall basal cells and numerous perifollicular lymphocytes; the histological image was compatible with lichen planopilaris.

Case 3

A 59-year-old male patient with no medical history was seen in the hospital due to an active and progressive onychodystrophy of the first, fourth and fifth fingers of both hands, and the third finger of the left hand, of 1 year’s evolution. Within the nail, there was pterygium, thinning, and destruction of the nail plate, longitudinal ridging, fissuring, onycholysis and subungual hyperkeratosis. The rest of the physical examination was unremarkable (Figure 4).

On dermoscopy, we observed chromonychia, subungual hyperkeratosis, onycholysis, and destruction of the nail plate (Figure 5).



Figure 5. (a) Destruction of nail plate; (b) onycholysis; (c) subungual hyperkeratosis; (d) chromonychia. [Copyright: ©2015 Friedman et al.]

Mycological exam, X-ray of both hands, routine laboratory tests and HBV, HCV and HIV serologies were unremarkable.

Pathological examination of the nail bed and plate (Protocol 133239, Dr. Casas) revealed: hyperkeratosis, para-

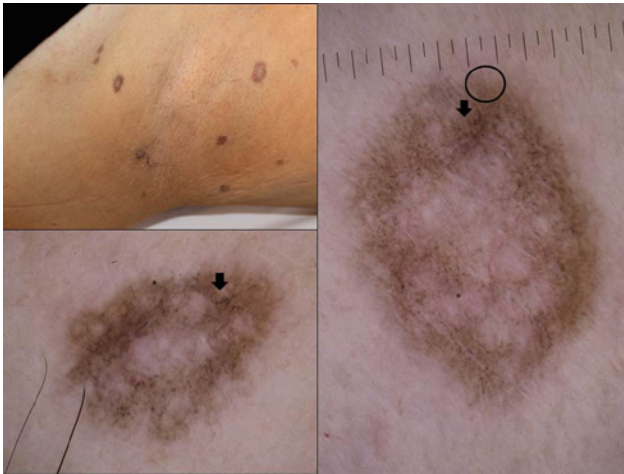


Figure 6. Mixed pattern: blue, gray, brown dots (arrow). Brownish structureless areas (circle). [Copyright: ©2015 Friedman et al.]

keratosis, focal hypergranulosis, and inflammatory activity, consisting of band-like lymphocyte infiltration that involved the epithelial connective interface, compatible with lichen planus of the nail bed.

Case 4

A 59-year-old female patient with no medical history sought medical attention since she had bilateral brownish-violet macules localized to her armpits and groin that had evolved over years. They exhibited a lighter center, had well-defined limits, and were 0.5 to 1 cm in diameter. They were slightly itchy. There was no nail or mucous involvement.

The dermoscopy image revealed a mixed pattern, characterized by brownish-gray dots with diffuse brownish areas (Figure 6).

Pathological examination (Protocol 14-06238, Dr. Calb) revealed hyperkeratosis, hypergranulosis, acanthosis, interpapillary ridges of irregular outline, vacuolated basal cell with juxtaposed lymphocytes, colloid bodies in the epidermis. The superficial dermis revealed melanophages and band-like lymphocytic infiltrate compatible with lichen planus.

Discussion

Cutaneous lichen planus

The classic skin lesion consists of a flat-topped polygonal papule that is slightly erythematous to violaceous. A thin and adherent scale can be observed on top of it. On the surface there are reticular or pinpoint whitish structures, known as Wickham striae (WS), pathognomonic of this entity [1].

Dermoscopy findings consist of polymorphic pearly whitish structures that correspond to WS with arboriform “fern leaf” projections. At the borders linear vessels (radial capillaries) and erythematous globules may be observed (Figure 1), WS dermoscopic patterns [2] (Table I):

- Reticular (the most common)
- Circular
- Radial streaming
- Leaf venation: characterized by delicate secondary striae branching from the centered WS venation, linked together at either end, mimicking the crystal structure of snow
- Starry sky/white dots: clustered, follicular white dots

At dermoscopy, the WS is the diagnostic key to differentiate lichen planus from other entities such as the pityriasis rosea and psoriasis [3,4,5].

Lichen planopilaris

Lichen planopilaris (LPP) is characterized by keratotic follicular papules that coalesce, forming plaques. At the final stage, the scalp shows multiple cicatricial alopecic areas with irregular aspect, perifollicular erythema and absence of follicular openings with follicular plugging [6].

Trichoscopy reveals multiple irregular cicatricial alopecic areas with perifollicular whitish-gray scaling associated with erythema, arboriform vessels, absence of follicular openings and follicular plugging (Figures 2, 3).

Dermoscopic findings vary according to the stage of evolution and the degree of disease activity. In early stages, perifollicular inflammation leads to the appearance of whitish-gray scales (peripilar casts) associated with perifollicular erythema, characterized by the presence of arboriform ves-

Table I: CUTANEOUS LICHEN PLANUS

| CUTANEOUS LICHEN PLANUS | |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WS dermoscopic patterns | <ul style="list-style-type: none"> Reticular Circular Radial Streaming Leaf venation* Starry sky/White dots* |

*New dermoscopic patterns

Table II: LICHEN PLANOPIILARIS

| LICHEN PLANOPIILARIS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ❖ Irregular alopecic areas ❖ Perifollicular whitish-gray scaling ❖ Perifollicular erythema (arboriform vessels) ❖ Absence of follicular openings ❖ Follicular plugging |

Table III: NAIL LICHEN PLANUS

| NAIL LICHEN PLANUS | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Matrix Compromise | Nail Bed Compromise |
| <ul style="list-style-type: none"> ❖ Plate nail destruction ❖ Trachyonychia ❖ Anonychia ❖ Dorsal pterygium ❖ Longitudinal ridging ❖ Red lunula ❖ Pitting | <ul style="list-style-type: none"> ❖ Onycholysis ❖ Chromonychia ❖ Subungual hyperkeratosis |

Table IV: LICHEN PLANUS PIGMENTOSUS INVERSUS

| LICHEN PLANUS PIGMENTOSUS INVERSUS |
|------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ❖ Diffuse pattern ❖ Dotted pattern ❖ Mixed pattern |

sels. In LPP, the inflammatory phenomenon usually affects the hair follicles in a selective manner with respect to the interfollicular epidermis (this sign helps its differentiation from other causes of cicatricial alopecia, such as chronic discoid lupus) [7,8].

In the fibrotic stage, whitish or milky-red areas are observed, covered by “classic irregular whitish dots” (fibrous tracts as a result of a variable loss of follicular units). Additionally, there are blue-violet areas and blue-gray dots reflecting perifollicular incontinencia pigmenti [9] (Table II).

Nail lichen planus

The clinical manifestations of nail lichen planus are thinning, fragility, and destruction of the plate nail, longitudinal ridging, fissuring, onycholysis, trachyonychia, chromonychia and subungual hyperkeratosis [10] (Figure 4).

Dermoscopy findings demonstrate the compromise of the matrix that leads to the thinning and consequent fragility of the nail plate with fissuring, pitting, and its progression to trachyonychia, longitudinal ridging, dorsal pterygium, erythematous patches in the lunula, erythonychia, melanonychia and atrophy.

The compromise in the nailbed would explain the subungual hyperkeratosis, chromonychia and the onycholysis [11] (Figure 5) (Table III).

Lichen planus pigmentosus inversus

Lichen planus pigmentosus inversus is an uncommon variant of lichen planus pigmentosus involving predominantly folds, characterized by the presence of well-defined, brownish-purple oval macules, whose size varies from few millimeters to several centimeters and which may adopt a linear configuration. The lesions tend to be bilateral and asymptomatic, although some patients report mild pruritus. They heal belatedly, leaving an area of atrophic and hyperpigmented skin [12].

Dermoscopic patterns (Table IV):

- Diffuse: characterized by diffuse, structureless, brownish areas probably associated with epidermal pigmentation
- Dotted: fine or coarse gray-blue or brown dots or globules related to dermal melanophages
- Mixed: combining diffuse brownish areas with dotted structures

Dermoscopic findings are of prognostic value, since those lesions with a dotted pattern tend to be persistent because the pigment is localized deeper [13].

Conclusion

We describe the key dermoscopic findings of lichen planus and the different clinical variants, highlighting that dermoscopy can improve the diagnosis and follow-up of patients with this dermatosis.

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