

Dermatoscopic features of Koebner phenomenon in lichen planus on light and dark skin

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Abstract

The Koebner phenomenon is well described and well known in clinical practice. Sometimes it can take on a linear appearance, the diagnosis of which can be facilitated by the use of dermatoscopy. In this case, we present a comparison between a linear Koebner phenomenon on light and dark skin, reporting the salient dermatoscopic characteristics and relating them to histopathology.

Keywords: dermoscopy, inflammatory, lichen planus, inflammoscopy, Koebner, light skin, dark skin

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Introduction

Lichen planus (LP) is a chronic, inflammatory, and immune-mediated papulosquamous dermatosis that involves the skin, scalp, nails, and mucous membranes. LP most commonly involves the flexor surfaces of the extremities and presents as small itchy violaceous papules in middle-aged adults (1). Its pathogenesis is still unknown, but it seems that an imbalance in cellular immunological reactivity plays an important role (2). Although the diagnosis of LP can be made clinically, sometimes a histopathological examination is required. Histopathologically, LP shows orthokeratosis, hypergranulosis, compact and lamellated hyperkeratosis, and elongation of rete ridges. Basal cell damage is usually confined to the tips of rete ridges and may be missed on casual observation. Band-like infiltration is distinctly missing in the dermis. Dermatoscopy is a widely recognized non-invasive technique used in the diagnosis of pigmented and non-pigmented skin tumors. In recent years, dermoscopy has also been increasingly useful for the diagnosis of inflammatory skin disorders, including psoriasis, LP, alopecia, and skin infestations.

The main dermatoscopic features of LP are Wickham striae. Other dermatoscopic characteristics frequently recognized are vascular and nonvascular structures, including radial capillaries, red dots, and whitish striae; a brownish diffuse pattern is described as hyperpigmented areas. Other common dermatoscopic findings are gray-blue dots, comedones, and milium-like cysts (3–5).

We focus on the various dermatoscopic features of Koebner phenomenon and its characteristics in the context of light and dark skin (6, 7).

Case reports

Two patients (one with light skin and one with dark skin) were referred to the Trieste Dermatological Clinic for a history of itching and the appearance of a papular rash on the skin, with months of evolution, involving the arms, chest, and back.

Upon clinical examination, both patients presented with flat-topped, purplish, itchy papules and linear lesions that appeared after days of scratching, compatible with the Koebner phenomenon (Fig. 1a, b). The dermatoscopic evaluation of these Koebner lesions showed two different aspects; in Figure 1a they have the

classical features of LP with white reticular Wickham striae on a pink background, whereas in Figure 1b there is reticular pigmentation on a brown background with blue-gray Wickham striae and brownish globules.

Pearly white areas (Wickham striae) and peripheral striations correspond to compact orthokeratosis above zones of wedge-shaped hypergranulosis, acanthosis, and dermal fibrosis (3, 4). On dark skin, the blue-gray Wickham striae and brownish globules correspond to dermal melanophages and epidermal melanocytes, respectively.

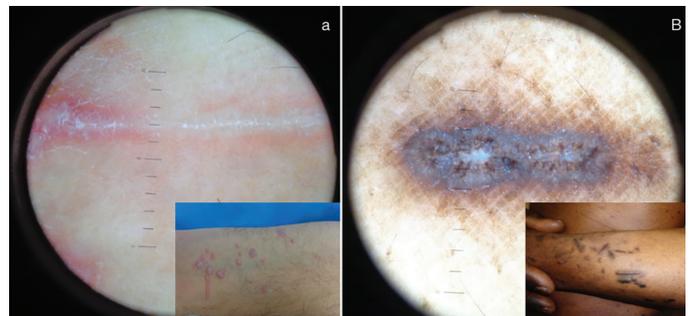


Figure 1a, b | Clinical and dermatoscopic features of the Koebner phenomenon in lichen planus. a) On light skin, Koebner phenomenon appears as reticular pearly white areas (Wickham striae) on a pink background b) whereas on dark skin it is a reticular pigmentation on a brown background with blue-gray Wickham striae and brownish globules.

Discussion

The development of a Koebner phenomenon in LP is well known and it is described as the appearance of new skin lesions on areas of cutaneous injury or trauma in otherwise healthy skin. It is due to a non-specific inflammatory response through the production of stress proteins, cytokines, and adhesion molecules involving the exposure of autoantigens from normally sequestered intracellular compartments (7, 8).

Wickham striae are a pathognomonic sign of LP and histologically represent the focal thickening of the granular layer of the epidermis. Wickham striae can be presented with several structural patterns, including circular, reticular, and radial linear. Globular, perpendicular, and structureless veil-like shapes are more rarely described.

Although the presence of Wickham striae strongly indicates

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the diagnosis of LP, their absence cannot rule out the diagnosis with certainty. In fact, previously treated LP, LP pigmentosus, or the actinic form may not have this common finding (9).

Conclusion

This article highlights how knowledge of dermoscopic patterns

corresponding to histopathologic features is important for understanding why the same phenomenon, in this case Wickham striae, manifests with two different dermoscopic aspects based on different characteristics of the skin.

References

1. Kumar V, Abbas A, Aster J. Robbins & Cotran pathologic basis of disease. 8th ed. Philadelphia: Saunders; 2009.
2. Güngör Ş, Topal IO, Göncü EK. Dermoscopic patterns in active and regressive lichen planus and lichen planus variants: a morphological study. *Dermatol Pract Concept*. 2015;5:45–53.
3. Friedman P, Sabban EC, Marcucci C, Peralta R, Cabo H. Dermoscopic findings in different clinical variants of lichen planus. Is dermoscopy useful? *Dermatol Pract Concept*. 2015;5:51–5.
4. Ankad BS, Beergouder SL. Hypertrophic lichen planus versus prurigo nodularis: a dermoscopic perspective. *Dermatol Pract Concept*. 2016;6:9–15.
5. Vázquez-López F, Manjón-Haces JA, Maldonado-Seral C, Raya-Aguado C, Pérez-Oliva N, Marghood AA. Dermoscopic features of plaque psoriasis and lichen planus: new observations. *Dermatology*. 2003;207:151–6.
6. Sagi L, Trau H. The Koebner phenomenon. *Clin Dermatol*. 2011;29:231–6.
7. Lallas A, Kyrgidis A, Tzellos TG, Apalla Z, Karakryiou E, Karatolias A, et al. Accuracy of dermoscopic criteria for the diagnosis of psoriasis, dermatitis, lichen planus and pityriasis rosea. *Br J Dermatol* 2012;166:1198–205.
8. Litaïem N, Mansour Y, Jones M, Zeqlaoui F. Dermoscopic signs of lichen planus. *BMJ Case Rep*. 2016; 2016. pii:bct2015213923.
9. Zalaudek I, Argenziano G. Dermoscopy subpatterns of inflammatory skin disorders. *Arch Dermatol*. 2006;142:808.