

Optical Super-High Magnification Dermoscopy of Solar Lentigo and Lichen Planus-Like Keratosis

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Introduction

Solar lentigo (SL) and lichen planus-like keratosis (LPLK) are common hyperpigmentation disorders, frequently occurring on the sun-exposed areas of the skin in the middle-aged and elderly population. Although benign, they can clinically and even dermoscopically mimic melanoma. Due to the possibility of obtaining an up to 400x magnification, optical super-high magnification dermoscopy (OSHMD) enables observation of individual cells, including assisting in differentiating between keratinocytes and melanocytes. Thus, OSHMD can be a helpful modality, especially in problematic dermoscopy cases [1].

Case Presentations

A 73-year-old woman presented with a pigmented macule of the left cheek. Dermoscopy revealed light brown

homogenous pigmentation with brown circles around the follicular openings (Figure 1A). OSHMD revealed clearly visible brown-reddish uniform polygonal structures corresponding to keratinocytes that contoured follicular openings (Figures 1B and C).

Moreover, feature typically found in standard dermoscopy and labelled “moth-eaten” borders, in OSHMD consisted of areas of dense arrangement of brown polygonal structures with well-defined borders (Figure 1C). After biopsy, the diagnosis of SL was confirmed histopathologically (Figure 1D).

A 55-year-old woman presented with a dark brown-gray macule of the right arm. Dermoscopy revealed gray-brown dots distributed on a structureless light brown background (Figure 2A) that corresponded in OSHMD to melanophages, visible as numerous out-of-focus blue-purple large structures (Figure 2B). Moreover, straight linear vessels were also

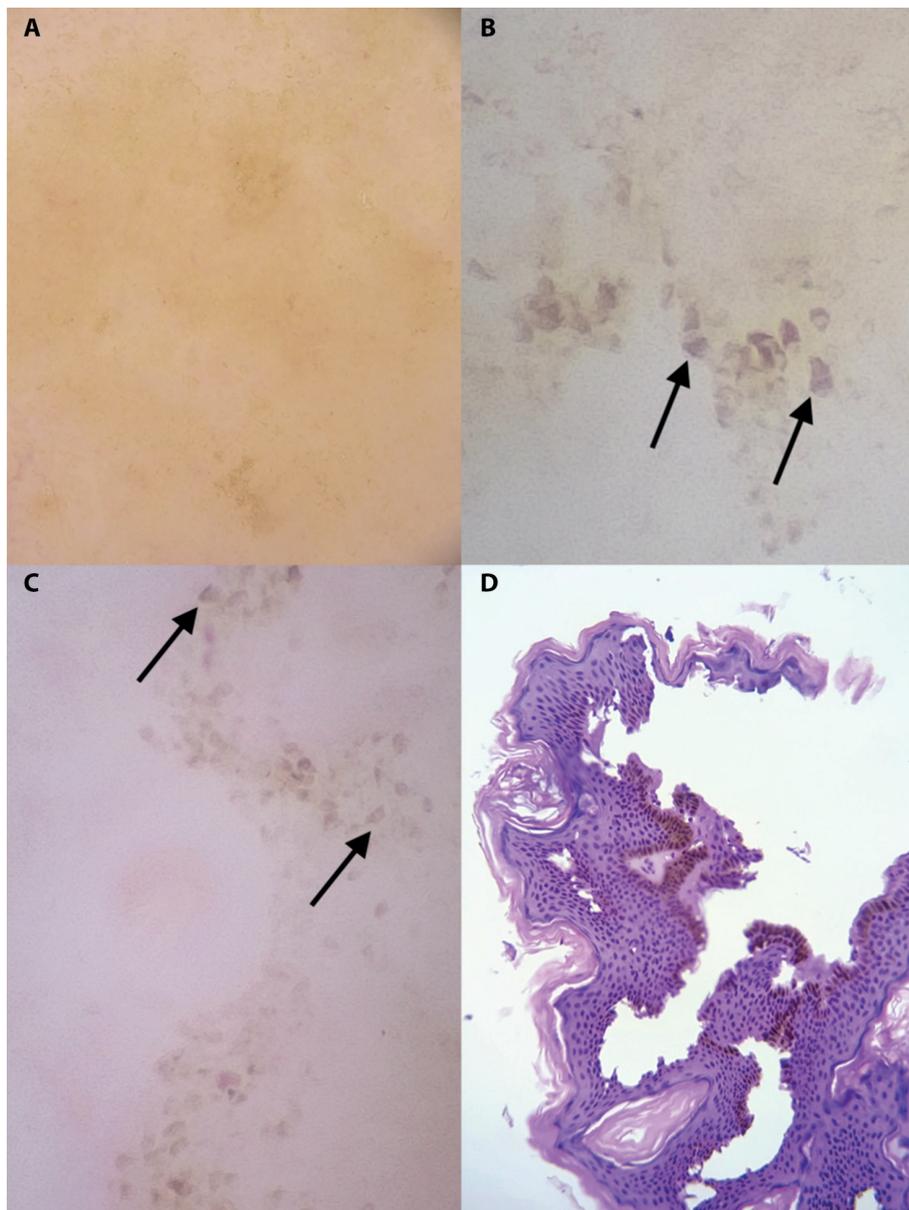


Figure 1. Solar lentigo (SL) image in standard and optical super-high magnification dermoscopy (OSHMD) and histopathology. (A) A brown homogenous pigmentation with brown circles around follicular openings in standard dermoscopy (20x magnification). (B) Follicular opening surrounded by polygonal structures corresponding to keratinocytes, indicated by black arrows in OSHMD (400x magnification). (C) “Moth-eaten” structures visible in OSHMD, consisting of a dense arrangement of brown polygonal structures indicated by black arrows (400x magnification). (D) Histopathology image of the SL, demonstrating pigmented keratinocytes of the basal layer. All dermoscopy images taken with Medicam 1000 (FotoFinder Systems GmbH).

visible. Histopathology of the lesion confirmed the dermoscopic diagnosis of LPLK (Figure 2C).

Due to the significant overlap of standard dermoscopy features, diagnosing flat pigmented lesions of the face is challenging. New imaging modalities like OSHMD or line-field confocal optical coherence tomography (LC-OCT) may visualize important diagnostic details, therefore enabling their differentiation [2].

Dermoscopic features of solar lentigo are the presence of sharply demarcated borders and homogenous brown

pigmentation sparing adnexa. LPLK, which corresponds to SL in regression phase, can be without dermoscopic features of a pre-existing lesion, and due to the presence of gray dots, may raise suspicion of melanoma with regression.

OSHMD findings in SL corresponded to expected histological features, with hyperpigmented keratinocytes [3]. The thickening and pigmentation of the epidermis, which is characteristic of SL, is most likely due to the enlargement and discoloration of individual keratinocytes which accumulated the melanin pigment [3, 4].

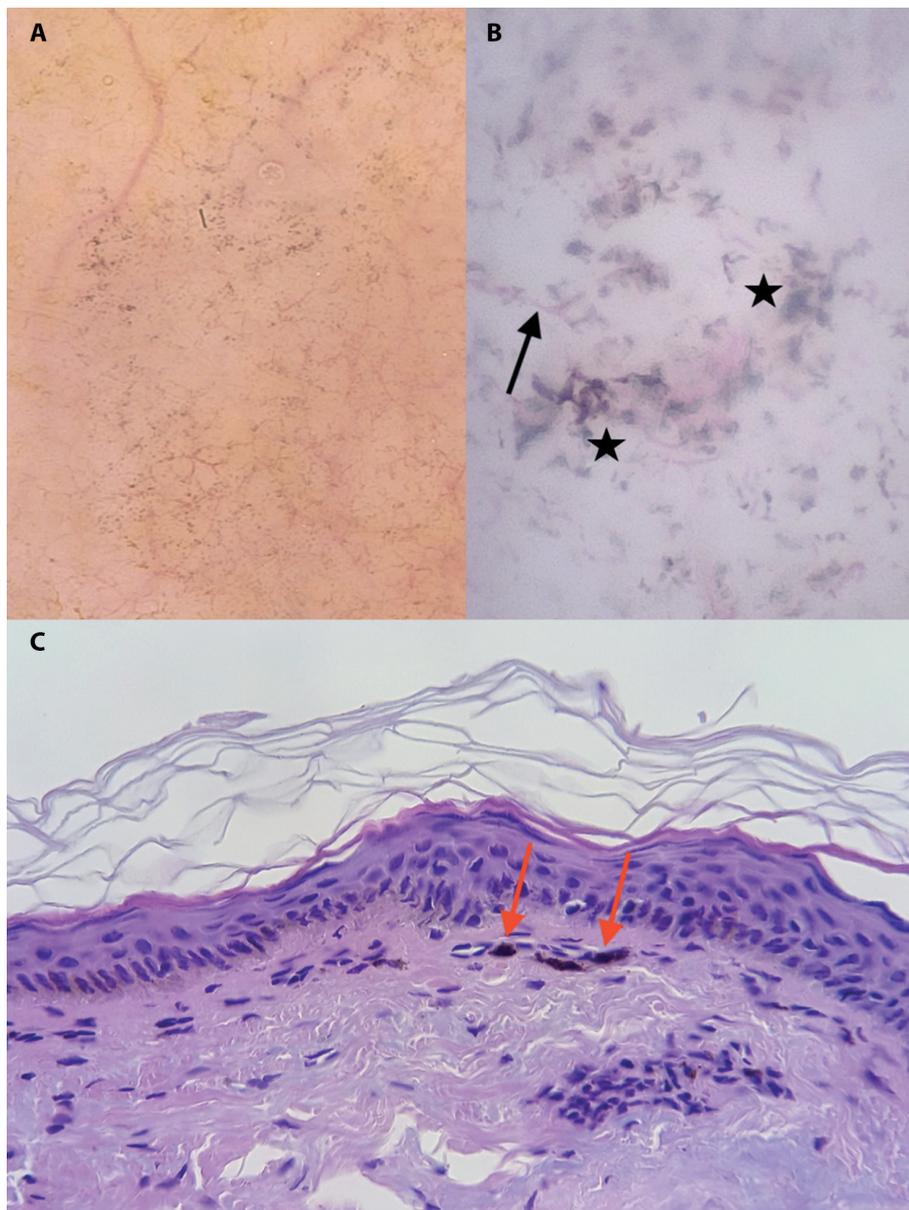


Figure 2. Lichen planus-like keratosis (LPLK) in standard and optical super-high magnification dermoscopy and histopathology. (A) Gray dots homogeneously distributed on a structureless light brown background in standard dermoscopy (20x magnification). (B) Numerous out-of-focus blue-purple structures indicated with asterisks, and a straight linear vessel indicated with a black arrow (400x magnification). (C) Histopathology image of the LPLK with melanophages indicated by the red arrows. All dermoscopy images taken with Medicam 1000 (FotoFinder Systems GmbH).

LPLK is characterized by inflammation and regression of a pre-existing lesion. OSHMD showed melanophages, what explains the origin of black dots visible in standard dermoscopy [5].

Conclusions

Because OSHMD provides more detailed features, which to some degree correspond to histopathology, it allows for a better understanding of the structures visible in standard dermoscopy. Thanks to the detailed depiction of individual

cells in the described lesions, OSHMD can be useful for the diagnosis of SL and LPLK in daily practice [6].

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