



Diagnosis and management of facial pigmented macules

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Abstract The differential diagnosis of pigmented macules on the mottled chronic sun-damaged skin of the face is challenging and includes lentigo maligna (LM), pigmented actinic (solar) keratosis, solar lentigo, and lichen-planus-like keratosis. Although dermatoscopy improves the diagnostic accuracy of the unaided eye, the accurate diagnosis and management of pigmented facial macules remains one of the most challenging scenarios in daily practice. This is related to the fact that pigmented actinic (solar) keratosis, lichen-planus-like keratosis, and LM may reveal overlapping criteria, making their differential diagnosis clinically difficult. For this reason, practical rules have been introduced, which should help to minimize the risk for inappropriate diagnosis and management of LM.

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Introduction

The differential diagnosis of pigmented macules on the mottled chronic sun-damaged skin of the face is challenging and includes lentigo maligna (LM), pigmented actinic (solar) keratosis (PAK), solar lentigo (SL), and lichen-planus-like keratosis (LPLK).^{1,2} Given that the natural course and prognosis vary significantly among these different entities, accurate diagnosis is mandatory to ensure appropriate management.

Dermatoscopy improves the diagnostic accuracy compared with the unaided eye and accordingly, dermatoscopy became an integral part of the clinical examination of skin tumors³; however, the accurate diagnosis and management of pigmented macules on the face remains one of the most challenging scenarios in daily practice, even if coupled with dermatoscopy.⁴

Clinical features of facial pigmented macules

LM, SL, seborrheic keratosis (SK), LPLK, and PAK are common facial lesions that typically develop after the fourth decade of life.^{1,2,5,6} They share the clinical appearance of a flat, pigmented macule of different size and color. Accordingly, neither age nor clinical criteria appear useful for differentiating between these entities; however, there are some clinical differences between LM and the other nonmelanocytic skin lesions that should be considered in the differential diagnosis.

First, LM and PAK reveal significant sex-related differences. Whereas PAK occurs at higher frequency in men, LM has a certain predilection for women^{7,8}; thus, sex should be always considered in the differential diagnosis of pigmented macules on the face.

Second, whereas PAK typically reveals a scaly and rough surface, LM appears smooth on palpation.^{1,2} Accordingly, palpation of a given facial lesion represents an important part of the clinical examination.

Finally, LM develops more commonly as solitary or different-looking lesion compared with SL and PAK, which

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typically present as multiple spots with a similar appearance.^{1,2,9} Accordingly, a solitary lesion appears to be more suggestive of LM, whereas multiple similar lesions favor somewhat the diagnosis of SL or PAK.

Dermatoscopic patterns of facial pigmented macules

The dermatoscopic aspects of facial melanocytic lesions differ from the ones described for other locations (Figure 1). A pigment network representing the dermatoscopic hallmark of melanocytic tumors on the torso and extremities is only rarely detected in facial melanocytic skin tumors.⁹ This is reasonable, because pigment network results from epidermal melanin (either in melanocytes or keratinocytes) along elongated rete ridges, whereby the tips of the rete ridges appear as network holes and the lateral borders as network lines.¹⁰

Instead, the dermoepidermal junction of chronically sun-damaged facial skin appears flattened and may even lack rete ridges. Pigmented keratinocytes or melanocytes along this flattened dermoepidermal junction appear as structureless diffuse brown pigmentation on dermatoscopy; however, this otherwise structureless diffuse brown pigmentation on the face is interrupted by numerous, variable broad and hypopigmented “holes,” which correspond to hair follicles and sweat gland openings. Because the combination of diffuse brown pigmentation and nonpigmented adnexal openings is reminiscent of a kind of network, the pattern of

facial melanocytic and nonmelanocytic pigmented macules is also called a “pseudonetwork” pattern.^{9,11}

It is important to emphasize that the pseudonetwork pattern occurs likewise in melanocytic and nonmelanocytic lesions.^{11,12} Accordingly, the diagnosis of a given pigmented facial macule relies on the detection of additional specific criteria. The specific dermatoscopic criteria of melanocytic and nonmelanocytic skin lesions are summarized in Table 1.

A dermatoscopic model in the progression of LM

A 2000 study proposed based on dermatoscopic criteria a four-step model in the progression of LM.¹³ According to this model, asymmetric pigmented follicular openings (also called *gray circles*), gray dots within the follicular opening or so-called circles within circles, represent the very initial criteria in the development of LM. These structures subsequently develop into a so-called annular-granular pattern, which consists of aggregated fine gray dots, gray globules, and streaks around the follicle. With further progression, these streaks become longer and intersect with neighboring streaks, forming finally rhomboidal structures (ie, angulated lines between hair follicles). Finally, beginning invasion is characterized by the development of obliterated hair follicles (filled with black or blue-gray blotches) and structureless blue areas, white scarlike areas, and milky-red areas (Figure 2).

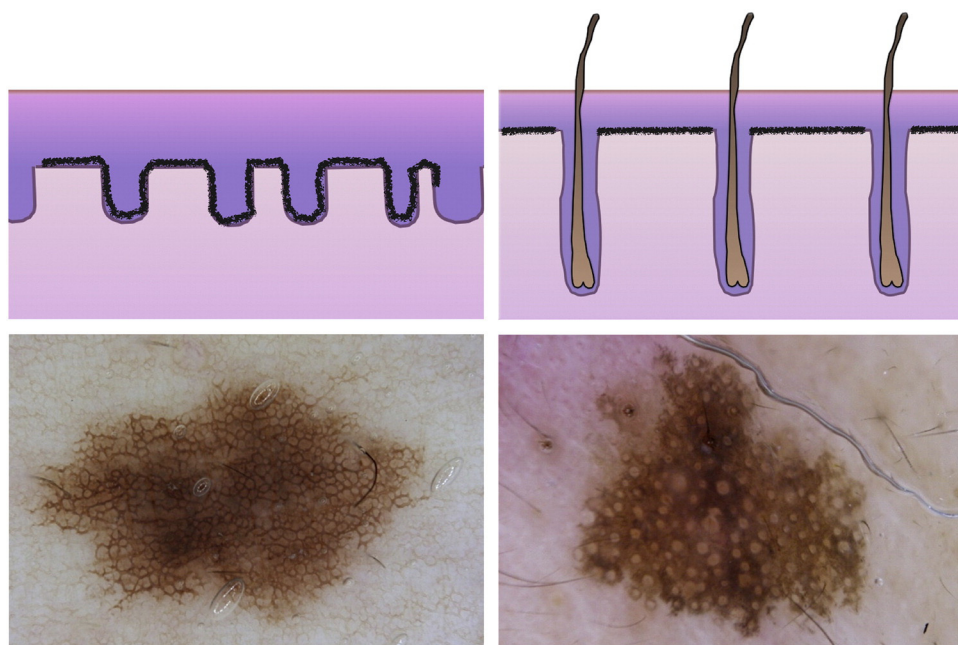


Fig. 1 Dermatoscopic-histopathologic correlates of pigment network (left upper and lower images) and facial pseudonetwork (right upper and lower image). True pigment network correlates with pigmentation along elongated rete ridges, whereas pseudonetwork results from a structureless brown pigmentation, which is intermingled by nonpigmented follicular openings. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this contribution.)

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