Dermatoscopy and Reflectance Confocal Microscopy Correlations in Nonmelanocytic Disorders

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KEYWORDS

• Reflectance confocal microscopy • Dermatoscopy • Histopathology • Nonmelanocytic disorders

KEY POINTS

- Dermatoscopy and in vivo reflectance confocal microscopy are noninvasive techniques that are increasingly used in different fields of dermatology for diagnosis and treatment monitoring.
- Some studies have reported interesting correlations between dermatoscopic and confocal reflectance features in selected cutaneous disorders.
- The combined use of both techniques represents a promising option to reach a definitive diagnosis without the need of invasive procedures.

INTRODUCTION

Dermatoscopy and in vivo reflectance confocal microscopy (RCM) are noninvasive techniques mainly used for pigmented skin lesion evaluation that however may assist the clinical diagnosis in a variety of inflammatory and infectious cutaneous disorders.[1–12] Both techniques provide a horizontal approach, with an en face view of the skin structures. Dermatoscopy allows the magnified observation from the top, of the skin structures from the surface to the mid-dermis. RCM provides real-time virtual skin biopsies offering microscopic details of the different skin layers up to the papillary dermis. The aim of this article, based on the existing literature and on the authors' personal experience, is to correlate the features obtained with these techniques along with the histopathologic findings in a series of skin disorders (**Table 1**).

PSORIASIS

Psoriasis is an inflammatory, chronic-relapsing, erythematous-desquamative dermatosis affecting about 3% of the overall population of the world. Plaque-type psoriasis is the most common presentation and is characterized by reddish plaques covered by silver/white scales.

Dermatoscopy at ×10 of psoriatic lesions (**Fig. 1**A) shows the presence of diffuse white scales and uniformly distributed pinpoint red capillaries or red dots over a light-red background.[8,13–15] At high magnification (≥×100), the red dots appear as dilated and twisted capillaries, with a typical bushy or basket-like appearance (**Fig. 1**B); each bush measures about 70 to 90 μm in diameter vs 15–25 μm of the normal capillary loops of healthy skin.[16–24]

The whitish scales seen at dermatoscopy correspond at RCM and histopathology to a thickened

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Table 1
Main dermatoscopy and reflectance confocal microscopy findings and their histopathologic correlation in some cutaneous disorders

	Dermatoscopy	RCM	Histopathology
Inflammatory Disorders			
Psoriasis	Whitish scales	Thickened stratum corneum with parakeratosis	Thickened stratum corneum with parakeratosis
	Red dots (×10)/bushy capillaries (>×100)	Uplocated, enlarged dermal papillae (roundish dark areas) filled with prominent round or linear dark, canalicular structures	Tortuous, ectatic capillaries within elongated dermal papillae
Eczematous dermatitis	Yellowish scales	Disrupted stratum corneum	Exudates within the stratum corneum
	—	Broadband intercellular spaces, intraepidermal dark areas, and small, mildly refractive cells	Spongiosis, vesicles, and epidermal and dermal inflammatory cells
	Irregularly distributed dotted vessels on an erythematous background	Dilated vessels in the upper dermis	Dilated dermal vessels
Seborrheic dermatitis	Whitish/yellowish scales	Thickened stratum corneum	Thickened stratum corneum
	—	Broadband intercellular spaces and small, mildly refractive cells	Spongiosis and inflammatory cells in the upper dermis
	Pinpoint and linear vessels	Focal areas of dilated and crowded dermal papillae and horizontally distributed vessels	Dilated vessels in the dermis
Cutaneous discoid lupus erythematous (active lesions)	Follicular yellowish plugs with a perifollicular whitish halo	Large, roundish hyper-reflective, amorphous areas	Follicular hyperkeratosis
	Disappearance of the normal capillary loops	Dermoepidermal junction obscuration (multiple, small, bright cells at the level of the interface between the epidermis and the upper dermis with focal disappearance of the normal edged papillae)	Inflammatory cells infiltrate modifying the normal aspect of the dermoepidermal junction (interface dermatitis)
Cutaneous discoid lupus erythematous (late-stage lesions)	Whitish structureless areas, telangiectatic vessels	Epidermal atrophy and hyper-reflecting thickened fibers in the upper dermis	Epidermal atrophy and diffuse dermal fibrosis
	Hyperpigmentation	Polygonal, plump, bright cells located in the upper dermis	Melanophages in the upper dermis