Dermoscopy with subultraviolet light to distinguish the depth of melanocytes

Raffaele Dante Caposiena Caro, MD, PhD,[a] Giulia Bazzacco, MD,[a,b] Marina Agozzino, MD,[a] Sandro Carlo Sulfaro, MD,[c] Nicola Di Meo, MD,[a] and Iris Zalaudek, MD[a]

Key words: blue nevus; dermoscopy; melanin; melanocytes; nevi; sub-UV wavelength; ultraviolet.

Abbreviations used:

sUVRD: sub-UV reflectance dermoscopy
UV: ultraviolet

CLINICAL CHALLENGE

Accurately identifying the depth of melanocytes is crucial for distinguishing benign from malignant lesions, optimizing treatment, and improving patient outcomes. However, this can be challenging due to ambiguous pigmentation and/or depigmentation when using conventional-dermoscopy.

SOLUTION

To address this issue, we propose using sub-UV reflectance dermoscopy (sUVRD) imaging. In sUVRD, the dermatoscope's light source emits visible violet–blue light, which is part of the visible light spectrum and has lower energy than UV-light. The utility of sUVRD in identifying melanocytic tumors has been well established.[1] Images were captured using a digital camera-integrated dermoscope equipped with a sub-UV wavelength (405 nm) light source, such as the DZ-D100 device (Casio Computer Co, Ltd).

We present a case involving a melanocytic lesion that appeared as a blue-gray structureless macule intermingled by hypopigmented fair follicles under conventional-dermoscopy (Fig 1). Under sUVRD, the pigmented lesion disappeared completely (Fig 2). Histology confirmed the diagnosis of a blue nevus, revealing a dermal proliferation of pigmented melanocytes localized deeper than 300 μm into the skin.

sUVRD enhances the visualization of melanin pigmentation, making it easier to differentiate between lesions and healthy skin.[1] However, sUVRD has an approximate penetration depth of only 200-300 μm, which may limit the visualization of deeper lesions. This limitation likely explains the disappearance of the blue nevus under sUVRD.[2]

In conclusion, our findings highlight both the potential utility of sUVRD, in combination with conventional-dermoscopy, in distinguishing superficial from deep melanocytic lesions, as well as its inherent limitations in visualizing deep lesions.

From the Department of Dermatology and Venerology, Hospital Maggiore of Trieste, University of Trieste, Trieste, Italy[a]; Department of Medicine, Institute of Dermatology, University of Udine, Udine, Italy[b]; and Department of Histopathology, Cattinara Hospital of Trieste, Trieste, Italy.[c]

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Correspondence to: Raffaele Dante Caposiena Caro, MD, PhD, Department of Dermatology Trieste and Gorizia, Hospital Maggiore, University of Trieste, Piazza dell'Ospitale 1, Trieste, 34125, Italy. E-mail: dcaposiena@hotmail.com.

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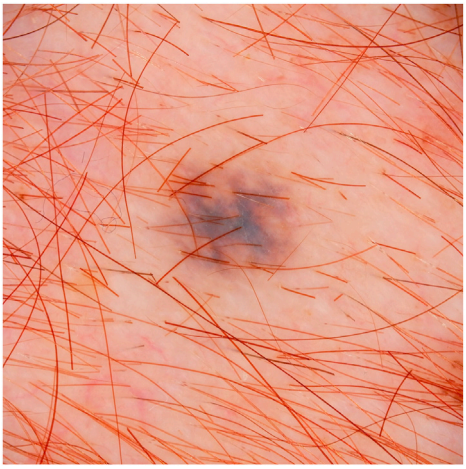

Fig 1. Blue nevus on the temporal area (4 × 5 mm) of a 86-year-old woman at conventional dermoscopy.

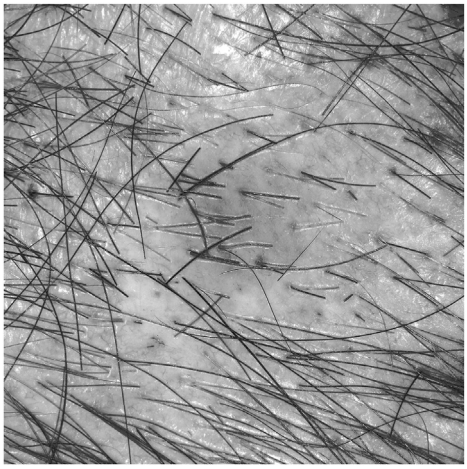

Fig 2. Dermoscopy image of the blue nevus obtained under 405 nm near-ultraviolet light. Both images were taken using a commercially available DZ-D100 dermoscope (Casio Computer Co, Ltd).

Conflicts of interest

Dr Caro has received honoraria for participation in speaker bureaus from Novartis, Eli Lilly, Sanofi, and Pfizer. Dr Meo received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events (Almirall, Sunpharma, MSD, Sanofi, and Pfizer). Dr Zalaudek received data safety monitoring board (Philogen), payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events (Sanofi Genzyme, Sunpharma, Novartis, MSD, BMS, Philogen, Biogena, La Roche Posay, Kyowara Kirin, Fotofinder, Mall.inckrodt, Cieffe Derma, Pierre Fabre, Regeneron, Canova, Almirall, Beiersdorf), support for attending meetings and/or travel (Difa Cooper). Drs Bazzacco, Agozzino, and Sulfaro have no conflicts of interest to declare.

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