

LETTER

Line-field confocal optical coherence tomography can help differentiating melanoma from pigmented basal cell carcinoma: A case report

Dear Editor,

Melanoma and basal cell carcinoma (BCC) are common cancerous skin lesions, and their incidence is steadily increasing.^{1,2} Although both neoplasms require treatment, their associated mortality differs greatly causing a difference in urgency and rapidity of treatment.^{2,3} Thus, adequate differentiation between melanoma and BCC is essential. However, differentiating melanoma from pigmented BCC may sometimes be challenging as clinical, and dermoscopic features of both entities may mimic one another.⁴ For these equivocal lesions, more sophisticated non-invasive imaging techniques such as reflectance confocal microscopy (RCM) may provide significant help,^{4,5} whereas the role of conventional OCT seems to be more marginal in this particular differential diagnosis.⁶

Line-field confocal optical coherence tomography (LC-OCT) is a newly introduced non-invasive imaging tool combining the technical advantages of RCM (high isotropic resolution) and conventional OCT (high in-tissue penetration). It provides images in both vertical and horizontal planes (depth 500 μm), which enables tridimensional (3D)

reconstructions of the skin. It features an integrated dermoscopic camera, which enables dermoscopy-aided LC-OCT probe placement within the examined lesion. Technical details of the device are described elsewhere.⁷

LC-OCT criteria for melanoma and BCC have been suggested,^{8,9} and the technique is able to increase the diagnostic performance of physicians in both cases.^{10,11}

Hereby we report a case of a 62-year-old woman, previously diagnosed with breast cancer treated by mastectomy with sentinel node procedure, chemotherapy and radiotherapy. The patient presented with a shiny nodular lesion on the lateral right upper arm of 6 mm in diameter (Figure 1A). Dermoscopic examination, revealed the following: polymorphous vascular structures including short fine arborizing vessels; brown and blue-grey structureless areas asymmetrically distributed in the periphery; blue-grey globules, blue-white veil-like structures; featureless, erythematous background in a portion of the lesion (Figure 1B). Based on the clinical and dermoscopic features, differential diagnoses included melanoma and pigmented nodular BCC.

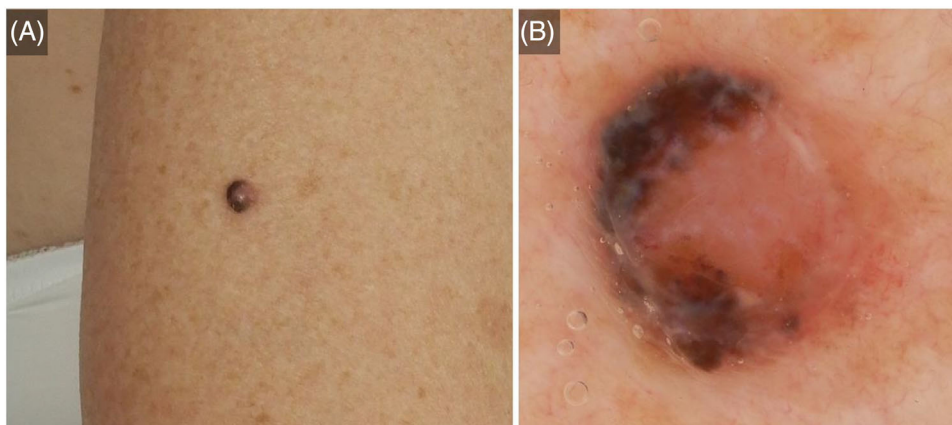


FIGURE 1 Nodular melanoma on the lateral right upper arm of a 62-year-old woman: clinical (A) and dermoscopic (B) presentation.

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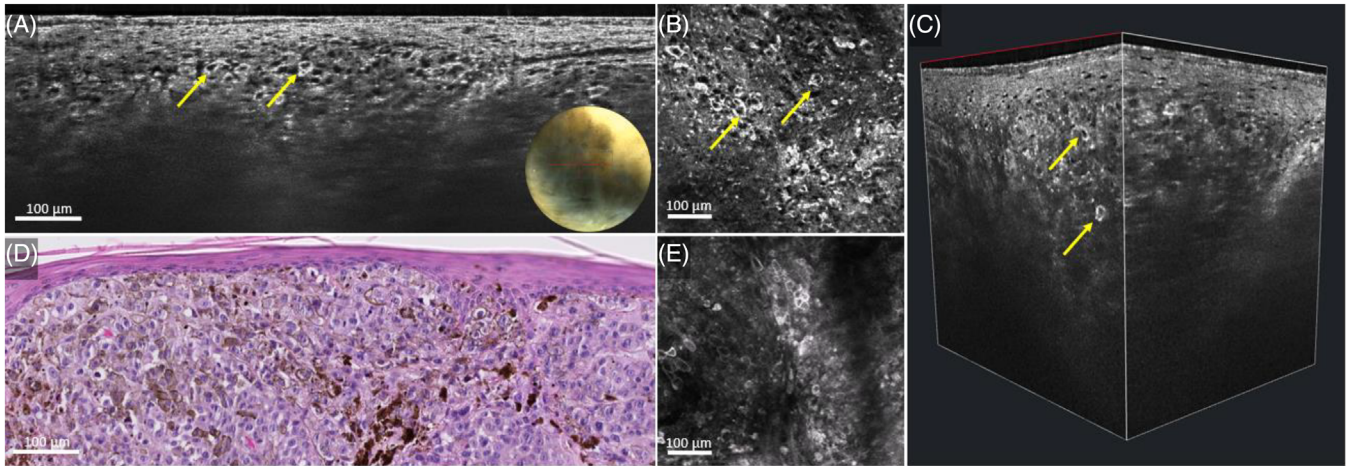


FIGURE 2 Nodular melanoma on the lateral right upper arm of a 62-year-old woman: line-field confocal optical coherence tomography (LC-OCT) (A–C), histopathology (D) and reflectance confocal microscopy (RCM) (E). Vertical LC-OCT examination of the pigmented area (A) showed pleomorphic melanocytes (yellow arrows) arranged in dermal nests, corresponding to the nests on histopathology (D). Horizontal LC-OCT examination (B) showed singularly arranged atypical melanocytes (yellow arrows) under the dermal epidermal junction, which correlated well to RCM (E).

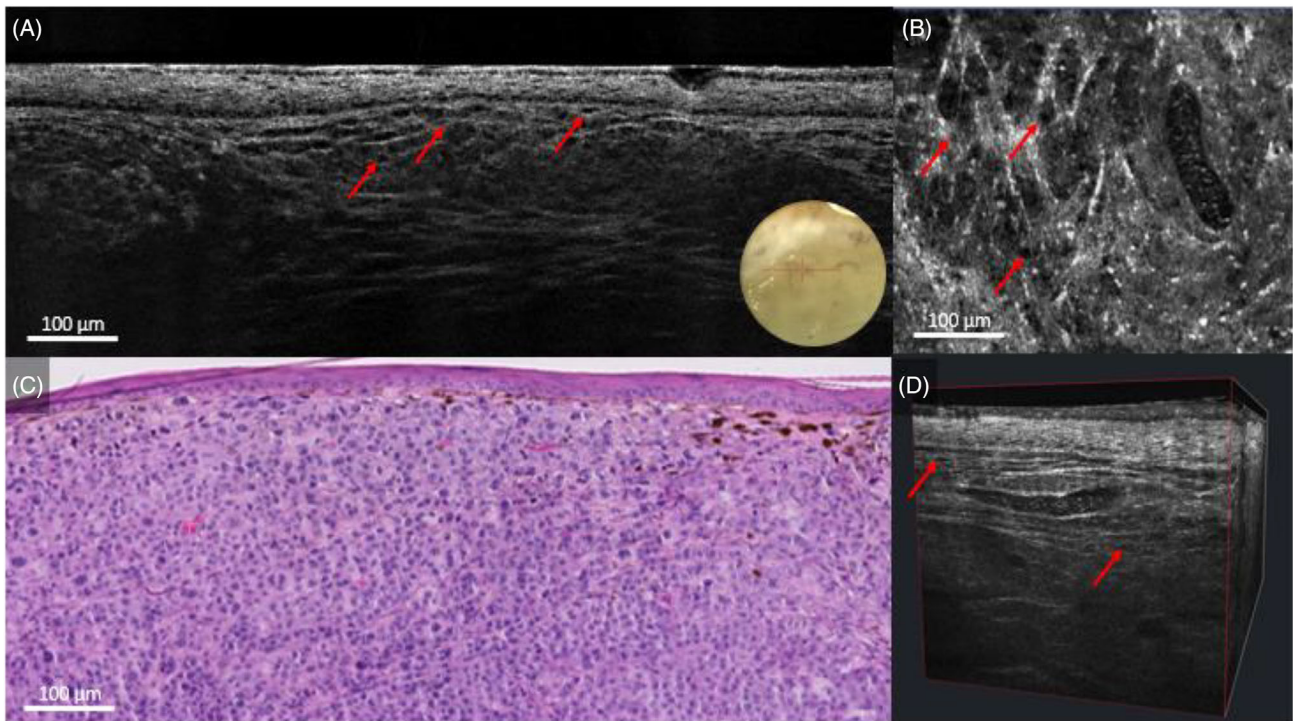


FIGURE 3 Nodular melanoma on the lateral right upper arm of a 62-year-old woman: line-field confocal optical coherence tomography (LC-OCT) (A, B, D) and histopathology (C). Vertical, horizontal, and 3D LC-OCT examination of the non-pigmented area (A, B, D), revealing a hyper-reflective and irregular wave-like pattern with hypo-reflective melanocytes (red arrows), which correlated well with histopathology (C).

LC-OCT examination rapidly prompted us to formulate the diagnosis of nodular melanoma, which was later confirmed on histopathology. Indeed, LC-OCT examination of dermoscopically pigmented areas (Figure 2A–C) revealed dermal lobules containing tightly packed bright pleomorphic cells with dark nuclei and bright cytoplasm corresponding to atypical melanocytes on histopathology (Figure 2D)

and on RCM (Figure 2E). Importantly, the vertical view of the LC-OCT examination showed a good correlation with the histopathology whereas the horizontal view displayed a good correlation with RCM.

Within the dermoscopically non-pigmented areas, LC-OCT displayed nests of hypo-reflective cells, forming a more irregular and more hyper-reflective *wave-like* pattern than the one commonly found in

benign melanocytic proliferations and recently described by Lenoir et al. (Figure 3).¹²

Criteria proper of nodular BCC (such as lobules featuring by the typical *millefeuille* pattern and surrounded by *clefting* and *bright rim*)⁹ were not visualized.

This case illustrates not only the utility of LC-OCT in distinguishing clinically/dermoscopically equivocal lesions non-invasively but also the usefulness of the integrated dermoscopic camera, which enabled us to examine parts of the lesion with different dermoscopic characteristics. Future studies corroborating the available data on diagnostic performance of LC-OCT and examining the association between dermoscopic criteria and LC-OCT features are needed.

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CONFLICT OF INTEREST STATEMENT














The authors declare no conflict of interest.

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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