

Basal cell carcinoma and balloon cell nevus collision mimicking a melanoma on reflectance confocal microscopy



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Key words: basal cell carcinoma; balloon cells; collision tumor; intradermal nevus; pitfall; reflectance confocal microscopy.

CLINICAL PRESENTATION

A preexisting intradermal nevus (IDN) on the chest of a 30-year-old patient changed compared with her baseline total body photography. Clinical examination found a 6-mm shiny pink papule (Fig 1, inset). Clinical differential diagnosis included irritated IDN, basal cell carcinoma (BCC), nodular melanoma, nevoid melanoma, and melanoma arising in a nevus.

Dermoscopy

Dermoscopy showed arborizing vessels characteristic of a BCC (Fig 1). Based on the history, the differential diagnosis expanded to include a collision between a BCC and an IDN.

Reflectance confocal microscopy

Reflectance confocal microscopy (RCM) showed focal areas of lobulated dermal tumor islands with palisading and peritumoral clefting, features diagnostic of BCC (Fig 2, A). Adjacent to the BCC nodules there were nonhomogeneous round nucleated cells with variable size and cytoplasmic brightness (Fig 2, A), features suggestive of melanocytic neoplasia. In addition, nonhomogeneous dense and sparse nests composed of large bright pleomorphic cells were present in the lower epidermis and superficial dermis (Fig 2, B), features concerning for invasive amelanotic melanoma with pagetoid spread.

Histopathology

A collision between BCC and IDN was identified (Fig 3); however, the pagetoid-appearing melanocytes that confounded the diagnosis of melanoma on

Abbreviations used:

BCC: basal cell carcinoma
 IDN: intradermal nevus
 RCM: reflectance confocal microscopy

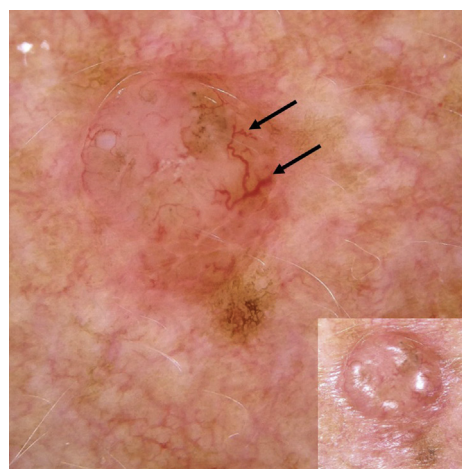


Fig 1. BCC-IDN collision in which balloon cells mimicked melanoma. Dermoscopy shows arborizing vessels (*black arrows*). Inset shows the clinical image of a 6-mm shiny pink papule on the chest with slightly rolled borders.

RCM were identified as balloon cells within the most superficial area of the IDN.

DISCUSSION

Although the presence of aggregated white^{1,2} to yellow globules³ in a nevus is the hallmark of

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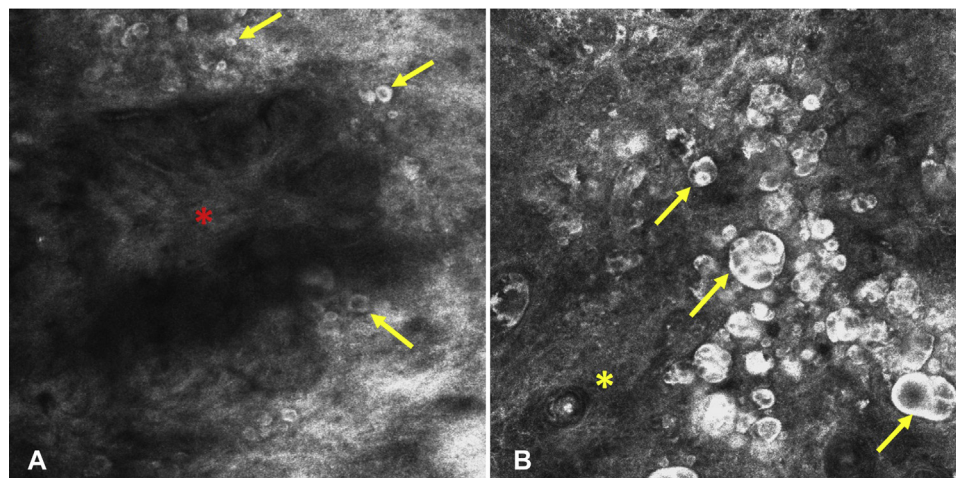


Fig 2. BCC-IDN collision in which balloon cells mimicked melanoma: RCM images (0.5 mm × 0.5 mm) show (A) a lobulated BCC tumor island (red asterisk) with peritumoral dark spaces colliding with the nonhomogenous round bright nucleated melanocytic cells (yellow arrows) in the dermis and (B) large pleomorphic nucleated cells (yellow arrows) with abundant bright cytoplasm (yellow arrows) that appears within the epidermis (yellow asterisk) concerning for pagetoid cells of melanoma.

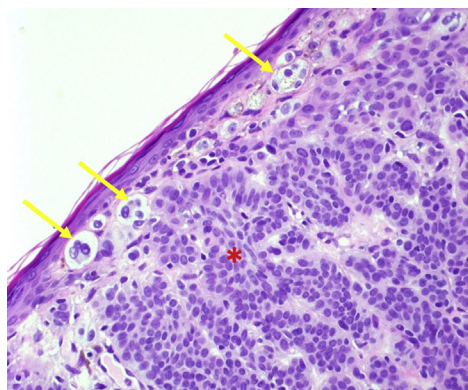


Fig 3. BCC-IDN collision in which balloon cells mimicked melanoma. Histopathology findings show melanocytes with balloon cell change (arrows) beneath the flattened epidermis and overlying the lobule of BCC (red asterisk). (Hematoxylin-eosin stain; original magnification: ×20.)

balloon cell nevus (BCN) on dermoscopy, not all melanocytic lesions with balloon cells will have this feature as evident in our case. Only 1 case report documents the RCM features of BCN as homogenous dense nests with bright and vacuolated cytoplasm.⁴ Here we describe a case of BCC colliding with an IDN in which balloon cell changes mimicked melanoma with pagetoid spread.

The history, clinical, dermoscopy, and RCM findings culminated in a broad differential diagnosis. Based on classical clinical morphology of an IDN and stability of the nevus for more than 5 years of follow-up, we were confident that the original lesion was an IDN. However, the lack of yellow/white globules on dermoscopy

precluded us from contemplating the diagnosis of BCN.¹⁻³ The observed clinical change within this preexisting nevus raised concern for melanoma arising in a nevus; however, the dermoscopy feature of arborizing vessels suggested a BCC-IDN collision. RCM was performed to determine whether this was a melanoma arising in a nevus or a collision between an IDN and BCC. In addition to identifying dermal BCC tumor nodules and monomorphic nucleated cells of IDN, large bright pleomorphic nucleated cells were identified in the epidermis and papillary dermis, raising suspicion for melanoma. We hypothesize that the nodular component of BCC pushed the IDN component (including cells with balloon cell changes) against the flattened overlying epidermis, which led to the misinterpretation that the atypical cells were within the epidermis on the en face RCM sections. This case highlights that balloon cell change in nevi may at times mimic melanoma on RCM. This case also underscores that despite advances in noninvasive imaging technologies, histopathology remains the final arbitrator.

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