

A Collision Tumor: Reflectance Confocal Microscopy Features and Correlation between Dermoscopy and Histopathology

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Abstract

Coexistence of two types of malignant neoplasms, called 'a collision tumor', is relatively uncommon. Basal cell carcinomas (BCCs) are known to coexist with other cutaneous lesions, but the collision of BCC with malignant melanoma is rare. We report a rare case of BCC with underlying lentigo maligna melanoma, focusing on dermoscopic and reflectance confocal microscopic (RCM) findings and their correlation with histopathology. RCM and dermoscopy seem to offer important clues to increase clinical suspicion of collision tumors and improve clinical diagnosis.

KEY WORDS: Basal cell carcinoma, collision tumor, melanoma, reflectance confocal microscopy

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Introduction

Coexistence of two types of malignant neoplasms, known as 'a collision tumor', is relatively uncommon. Basal cell carcinomas (BCCs) are known to coexist with other cutaneous lesions, but the collision of BCC with malignant melanoma is rare.^[1] The clinical diagnosis in these cases is usually extremely difficult, particularly if one of the lesions is pigmented.^[2] Dermoscopy and reflectance confocal microscopy (RCM) are noninvasive imaging techniques that allow *in vivo* visualization of cutaneous morphologic structures. RCM provides high-resolution sectioning at the cellular level and allows visualization of the skin *in vivo* to the level of upper reticular dermis. In recent years, RCM has been commonly used as a complementary tool for diagnosis and follow-up of melanocytic and nonmelanocytic skin tumors.^[3] This technique offers useful data for assessing pigmented lesions, including cutaneous pigmented collision tumors.^[2,4] Here, we describe the clinical, dermoscopic, RCM, and histologic characteristics of a tumor that corresponded to the collision of melanoma and BCC.

Case History

An 80-year-old woman presented with an 8-year history of an asymptomatic pigmented lesion on the nose. The lesion had increased in size and become darker during the last year. The clinical examination showed a translucent beige-light brown 5-mm papule on a 3 cm × 4 cm, well-circumscribed, irregular pigmented patch on the right side of the nose. Dermoscopic and RCM imaging were performed before biopsy. Then, a 4-mm punch biopsy was taken including the papule and the surrounding pigmented patch.

Dermoscopically, there were atypical network, irregularly pigmented follicular openings, and a blue white veil and white homogeneous area corresponding to a beige-light brown papule [Figure 1a and b]. RCM revealed round and dendritic pagetoid cells disrupting the epidermis at the level of the lower epidermis [Figure 2a], and

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How to cite this article: Savas S, Yuksel EI, Erdemir AV, Gurel MS, Leblebici C. A collision tumor: Reflectance confocal microscopy features and correlation between dermoscopy and histopathology. Indian J Dermatol 2019;64:155-7.

Received: May, 2017. **Accepted:** December, 2018.

Access this article online

Quick Response Code:



Website: www.e-ijd.org

DOI: 10.4103/ijd.IJD_278_17

nonhomogeneous hyperreflective nests and multiple pagetoid cells surrounding the follicular opening at the level of the dermoepidermal junction (DEJ) [Figure 2b and c]. On the RCM mosaic at the level of the dermis, dermal islands of atypical basaloid cells and peritumoral clefting and well-defined dark spaces were also determined [Figure 2d].

The histopathologic analysis of the single 4-mm punch biopsy showed broad proliferation of melanocytes arranged as solitary units and nests of different size and shapes along DEJ. The melanocytes have hyperchromatic irregular nuclei. The pagetoid spread of atypical melanocytes was seen in the epidermis. In many foci, the atypical melanocytes involved the epithelial structures of adnexa, characteristic of lentigo maligna melanoma (LMM) *in situ* [Figure 3a and b]. The islands of basaloid cells with the characteristics of BCC, including peripheral palisading and stromal reaction, were noted in the middle of the biopsy material [Figure 3c]. The atypical melanocytes not only extended peripheral to BCC but also colonized the islands of BCC [Figure 3d]. The lesion was completely excised with adequate margin. On excision, atypical melanocytes were found in the reticular dermis (Clark's level 4, 1.1 mm Breslow thickness). A diagnosis of a collision tumor of an LMM and BCC was made, which involved the colonization of basaloid cell nests by malignant melanocytes of melanoma.

Discussion

The combination of two or more distinct cell populations is well documented but uncommon entities, e.g., collision of melanoma and BCC, are even more unusual, with only few cases having been reported to date.^[1,5] Dermoscopy and RCM allow visualization of morphologic features not visible to naked eye, thus making preoperative diagnosis of these lesions possible.^[2,6,7]

A review of the literature showed that Satter *et al.* proposed to simplify the terminology used for these lesions and categorize them as collision, combined, colonized, or biphenotypic tumors.^[8] Our case is an example of a collision tumor due to two distinct neoplasms with well-demarcated boundaries occurring within close proximity of each other, and immunohistochemical stains showed that atypical melanocytes of LMM were not confined to the epidermis and epithelial adnexa but also colonized BCC.

In this report, we want to emphasize the importance of RCM in assisting the diagnosis of collision tumors. Our RCM findings were consistent with melanoma and multiple tumor islands, presenting them as dark silhouettes consistent with the histology of BCC.

The lesion dermoscopically demonstrated features

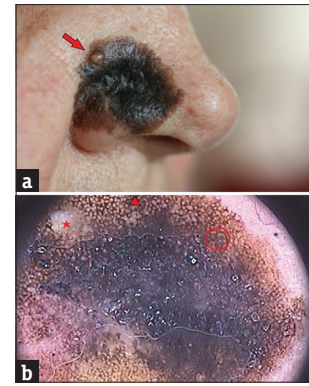


Figure 1: (a) Beige-light brown papule set on a pigmented patch (arrow). (b) Dermoscopic image shows atypical network (arrowhead), irregularly pigmented follicular openings (circle) and white homogeneous area (star)

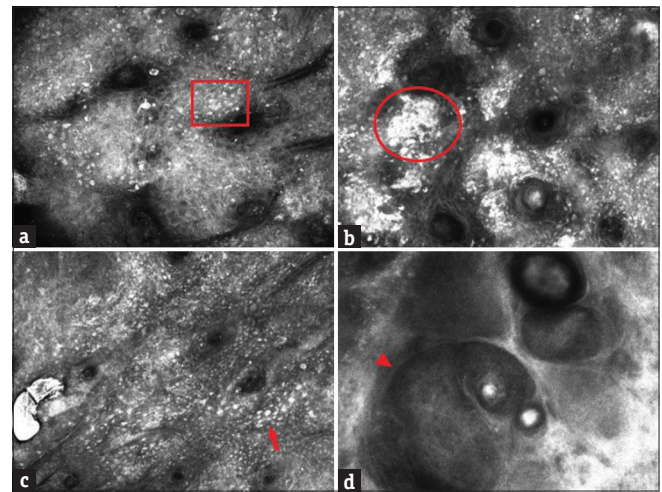


Figure 2: (a) RCM Mosaic at the level of the lower epidermis shows round and dendritic pagetoid cells disrupting the epidermis (square). (b) At the DEJ shows nonhomogeneous hyperreflective nests (circle). (c) At the level of the DEJ shows pagetoid cells surrounding the follicular opening (arrow). (d) At the level of the dermis reveals well-defined dark spaces, clefting correspond to BCC island (arrowhead)

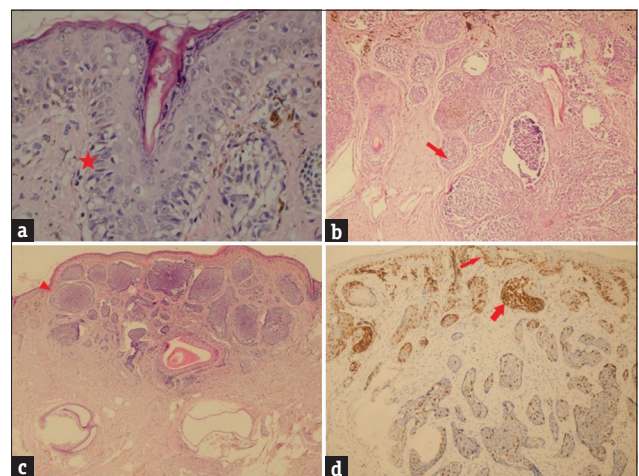


Figure 3: (a) Histopathology reveals increased density of atypical melanocytes in the basal layer and pagetoid spread of melanocytes (star) (H and E, $\times 400$). (b) Population of atypical melanocytes extending along the periphery of a hair follicle (arrow) (H and E, $\times 100$). (c) Dermal islands of atypical basaloid cells (arrowhead) (H and E, $\times 40$). (d) Immunohistochemical evaluation shows that Melan A staining is positive in atypical melanocytes (thin arrow) and BCC tumor islands (thick arrow) (Immunohistochemistry, $\times 100$)

suggestive of an atypical melanocytic neoplasm. Although the BCC component was identified with RCM, specific dermoscopic criteria for the presence of a collision with BCC were not observed.

New technologies, especially RCM, provide useful information for identifying collision tumors prior to skin biopsy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Boyd AS, Rapini RP. Cutaneous collision tumors. An analysis of 69 cases and review of the literature. *Am J Dermatopathol* 1994;16:253-7.
2. Menezes N, Rita G, Ines L, Paulo V, Armando B. Letter: Collision tumor: Importance of the new auxiliary tools for diagnosis (an illustrative case report). *Dermatol Online J* 2011;17:12.
3. Hofmann-Wellenhof R, editor. *Reflectance Confocal Microscopy for Skin Diseases*, 1st ed. Berlin Heidelberg: Springer-Verlag; 2012.
4. Moscarella E, Rabinovitz H, Oliviero MC, Brown L, Longo C, Zalaudek I, et al. The role of reflectance confocal microscopy as an aid in the diagnosis of collision tumors. *Dermatology* 2013;227:109-17.
5. Pierard GE, Fazaa B, Henry F, Kamoun MR, Pierard-Franchimont C. Collision of primary malignant neoplasms on the skin: The connection between malignant melanoma and basal cell carcinoma. *Dermatology* 1997;194:378-9.
6. Salerni G, Lovatto L, Carrera C, Palou J, Alos L, Puig-Butille JA, et al. Correlation among dermoscopy, confocal reflectance microscopy, and histologic features of melanoma and basal cell carcinoma collision tumor. *Dermatol Surg* 2011;37:275-9.
7. Guitera P, Menzies SW, Longo C, Cesinaro AM, Scolyer RA, Pellacani G. *In vivo* confocal microscopy for diagnosis of melanoma and basal cell carcinoma using a two-step method: Analysis of 710 consecutive clinically equivocal cases. *J Invest Dermatol* 2012;132:2386-94.
8. Satter EK, Metcalf J, Lountzis N, Elston DM. Tumors composed of malignant epithelial and melanocytic populations: A case series and review of the literature. *J Cutan Pathol* 2009;36:211-9.