Basal cell carcinoma and malignant melanoma cutaneous collision tumor

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ABSTRACT

Malignant tumors composed of both epithelial and melanocytic populations are exceedingly rare. Because the etiology of these malignant tumors is not yet defined, several authors have argued for the continued cataloging of these lesions. We present a 67-year-old man with a suspicious-appearing lesion on the right forearm; initial biopsy was consistent with a pigmented basal cell carcinoma. On re-excision, a collision of malignant melanoma and basal cell was identified.

KEYWORDS Basal cell carcinoma; collision tumor; malignant melanoma

Malignant tumors composed of both epithelial and melanocytic populations are uncommon.^{1,2} Upon reviewing 78,000 excisions of cutaneous tumors, Pierard et al identified only 11 tumors with both basal cell carcinoma and malignant melanoma components.² A variety of terms have been applied to these mixed-cell type malignant tumors, including *collision*, *combined*, *biophenic*, and *colonized* tumors.^{3,4} Recently, Satter et al clarified the nomenclature of these subtypes. Collision tumors are defined as two independent neoplasms that occur in close proximity to one another but maintain distinct borders.⁴ Accurately categorizing these tumors becomes important for documentation and for increasing knowledge but also for providing prognostic information and properly managing the lesion. Here we present a case of a cutaneous collision tumor of basal cell carcinoma and malignant melanoma.

CASE DESCRIPTION

A 67-year-old man presented to his primary care physician with an ill-defined, variegated plaque on the right dorsal forearm. A biopsy was performed and microscopic examination demonstrated a pigmented basal cell carcinoma. The patient underwent wide excision, yielding a 4.0 × 1.2 × 0.6 cm tissue sample with negative margins. Histologically, nests of basaloid tumor cells were seen with peripheral palisading and focal architectural clefting

between the tumor cells and adjacent fibromyxoid stroma. In addition, colonizing the basal cell carcinoma, there was an in situ melanoma composed of large, variably sized nests and single melanocytes. There was also an associated invasive component of melanoma composed of similarly atypical melanocytes (*Figures 1a–1c*). Immunohistochemical stains for S-100 protein, MART-1, and SOX10 highlighted the melanoma (*Figure 1d*). Immunohistochemical stains for high-molecular-weight cytokeratin and Ber-EP4 highlighted the basal cell carcinoma. The patient had a negative sentinel lymph node biopsy and has remained free of recurrence for 18 months.

DISCUSSION

The etiology of the collision between basal cell carcinoma and melanoma remains unknown. Some authors believe that this is a coincidental event, whereas others suspect a field cancerization effect of sun-damaged skin.^{1,5} Mancebo et al reported a case in which basal cell carcinoma was thought to be the conduit for the extension of the malignant melanoma cells.⁶ These authors also theorized that the increase in cytokines and growth factors secreted from the basal cell carcinoma provides the ideal environment for unchecked melanocytic proliferation.⁶ According to Burkhalter and White, the basal cell carcinoma provides the vessel for extension of atypical melanocytes, though this would not be considered true invasion.⁷ There have, however, been reports of true invasive

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Figure 1. (a) Low-power ($\times 10$) and (b, c) mid-power ($\times 20$) hematoxylin and eosin stains showing basal cell carcinoma (black arrows) and melanoma (blue arrow). (d) Positive MART-1 staining within melanoma and absence of staining in basal cell carcinoma.

melanoma outside of the confines of the coexistent basal cell carcinoma.⁸

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