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Case Letter

A rare, exophytic tumor on the arm of an elderly female

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Dear Editors,

A woman in her early 90s presented to the clinic with at least a 12-month history of a growing, 3 × 3 cm exophytic tumor on the left lateral arm (Fig. 1A). She was a poor historian owing to underlying dementia and was a resident at a local extended care facility. In addition to her dementia, her medical history included anxiety and a cardiac arrhythmia. She was otherwise healthy and had no unexplained weight loss or night sweats and no history of cancer. Upon presentation, she reported some discomfort at the site of the tumor but denied any additional symptoms. A shave biopsy of the lesion was performed at the clinic (Fig. 1B and C).

Histologic examination revealed atypical nests of melanocytes with bridging of rete ridges, confluence at the dermal–epidermal margin, and pagetoid spread of individual cells (Fig. 1B). Immunohistochemical staining was positive for S100 (Fig. 1C), MART-1, and MITF. There was a proliferation of epithelioid cells with cytologic and nuclear pleomorphism forming keratin pearls on one side of the lesion extending to the margin (Fig. 1D). Immunohistochemical staining of these cells was positive for cytokeratin 5/6 and negative for S100, MART-1, and MITF. The tumor had a Breslow depth of at least 1.7 mm with no histologic evidence of ulceration, consistent with at least a tumor stage of T2a malignant melanoma (MM). These histologic and physical examination findings were consistent with a combined tumor of MM and squamous cell carcinoma (SCC; Fig. 1A).

Combined MM and SCC tumors are rare and usually found on the face of elderly patients, affecting men twice as often as women (Miteva et al., 2009; Satter et al., 2009). These tumors typically present as a purple–black nodular mass associated with bulbous infiltration of melanocytes and abnormal, enlarged epithelioid cells. MM is characterized by abnormal melanocytes that originate in the epidermis and progressively invade into the dermis, which is of major concern because MM is the fifth most frequently occurring invasive cancer in men and the seventh in women in the United States (Linares et al., 2015). Although ultraviolet exposure is a significant risk factor for MM, a family history of melanoma, BRCA2 mutation, pale skin, and light eye color also increases the risk (Linares et al., 2015). SCC typically evolves from an actinic keratosis and shares many of the risk factors of MM. Male sex, human papilloma virus infection, chronic scarring, and chemical exposure to compounds such as arsenic are additional risk factors for cutaneous SCC (Linares et al., 2015). The incidence of cutaneous SCC has steadily increased, ranking second behind basal cell carcinoma as the most common nonmelanoma skin cancer. Additionally, cutaneous SCC, especially those categorized as high risk, can potentially metastasize (Linares et al., 2015).

Several theories of combined tumor development have been proposed, including collision, colonization, cancerization, and interaction. Collision tumors have two distinct cell lines in close proximity that combine solely by chance. The colonization theory suggests that nonmalignant melanocytes colonize a previously established neoplasm due to uninhibited migration through the epidermis. Cancerization theory, on the other hand, suggests that cancer cells retain stem cells that differentiate into a second, distinct neoplasm. Alternatively, field cancerization occurs due to recurrent skin damage that triggers the development of collision tumors in a given area. Lastly, the interaction theory postulates that an initial tumor can signal proliferation of another cell type, such as melanocytes through paracrine signaling (Miteva et al., 2009). Typically, keratinocytes stimulate and regulate the proliferation of melanocytes that are in close proximity. However, in the case of combined MM and SCC, the proliferation of melanocytes is thought to become unregulated if the corresponding keratinocytes are neoplastic, resulting in a combined tumor. Although the true mechanism is unclear, interaction theory is the currently favored hypothesis (Miteva et al., 2009).

Our patient was referred for a wide local excision with 1–2 cm margins in addition to a sentinel lymph node biopsy. The sentinel lymph node biopsy was negative for metastatic spread, and follow up positron emission tomography/computed tomography did not reveal evidence of organ system involvement. No adjunct therapy was pursued; however, the patient will be followed closely by dermatology and oncology to monitor for any local or regional spread.

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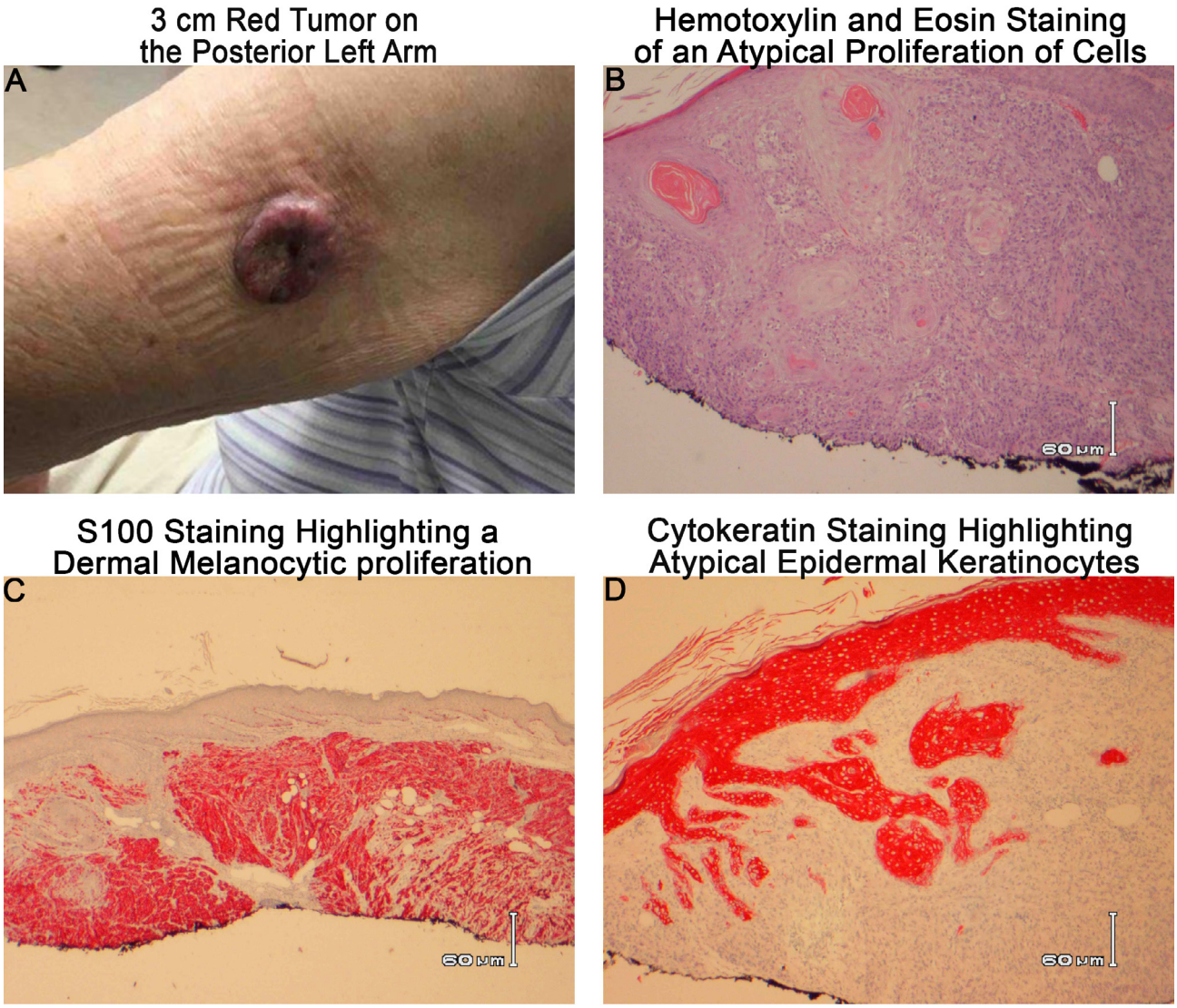

Fig. 1. (A) Large, 3 × 3 cm exophytic tumor on the left lateral arm. (B) Hemotoxylin and eosin staining revealed nests of atypical epithelial cells with keratin pearls extending into the dermis, as well as proliferation of pleomorphic, epitheliod, and spindle-shaped cells in the dermis. (C) Immunohistochemical staining positive for S100, highlighting nests of atypical cells in the dermis. (D) Cytokeratin staining highlighting epithelioid cell proliferation and keratin pearls.

Study approval

N/A.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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