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Primary Cutaneous or Primary Breast: Nuances of Ancillary Immunohistochemistry in Epithelioid Malignancies of Cutaneous Breast Lesions

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A 63-year-old female presented with an ulcerated, fungating cutaneous and soft tissue mass on the right breast with surrounding erythema. A punch biopsy revealed a malignant proliferation of epithelioid appearing cells growing in cords and sheets with large areas of necrosis. Focal extension into the epidermis was noted at the biopsy edge. Immunohistochemistry showed strong positivity for CK5/6, CK7 and Sox-10, with focal blush positivity for GATA-3, complicating the diagnosis. Sox-10 can be positive in both melanoma and breast carcinoma. CK5/6 can be positive in both squamous cell carcinoma and ductal breast carcinoma. In addition, GATA-3 strongly stained the keratinocytes of the lower half of the epidermis in this case, supporting GATA-3 as a potential marker for squamous carcinoma as well as breast carcinoma. Additional immunohistochemistry for p40 and Melan-A were negative, enabling exclusion of an epithelioid squamous cell carcinoma and malignant melanoma, respectively. Other negative immunohistochemical studies included BRST-2, mammaglobin, estrogen receptor, and progesterone receptor, all of which when positive can help in the diagnosis of breast carcinoma. Given the Sox-10, CK5/6, and CK7 positivity with negative p40 and Melan-A, a diagnosis of primary breast adenocarcinoma was made. The patient is currently scheduled for a PET CT to evaluate for metastasis, and multidisciplinary treatment planning is underway. This case emphasizes careful interpretation of ancillary immunohistochemistry for cutaneous breast epithelioid malignancies, to include use of a panel because of overlapping histologic and immunohistochemical ancillary studies, especially in equivocal cases to prevent misdiagnosis as squamous cell carcinoma or melanoma.

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