

Ultrasound Challenge: Secondary Breast Angiosarcoma Mimicking Lipoma

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This is the case of a 46-year-old woman who presented with a palpable nonmobile mass in the upper inner quadrant of her left breast. No associated skin changes were noted. The patient's anamnesis consisted with a history of invasive ductal carcinoma of the left breast, previously (9 years ago) treated by breast-conserving surgery and axillary lymph node dissection. She also received adjuvant local radiation therapy and chemotherapy.

Conventional imaging was initially performed. Mammograms were unremarkable due to high glandular density. Breast ultrasound (US) showed a hyperechoic oval circumscribed nodule with lobulated margins that corresponded to the palpable finding (Fig. 1). The lesion extended into the overlying subcutaneous fatty tissue without expressing any acoustic shadow. The findings were suggestive for a benign lipoma as no suspicious US features were demonstrated.

Dynamic Enhanced Breast MRI was further performed. MR showed a mass like lesion with low signal intensity on T1-weighted images and markedly high signal intensity on T2-weighted images (Fig. 2). Dynamic MR series demonstrated a rapid initial followed by a persistent and prolonged enhancement (enhancement curve type I, atypical for breast carcinomas; Fig. 3). A second-look US and a vacuum-assisted breast biopsy (VABB) of the hyperechoic nodule were performed and the pathology diagnosis was "suspect of low grade angiosarcoma."

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Further imaging (including abdominal ultrasound and chest x-ray) showed no signs of additional disease (breast angiosarcoma tends to metastasize hematogenously, rather than through the lymphatic channels). Considering

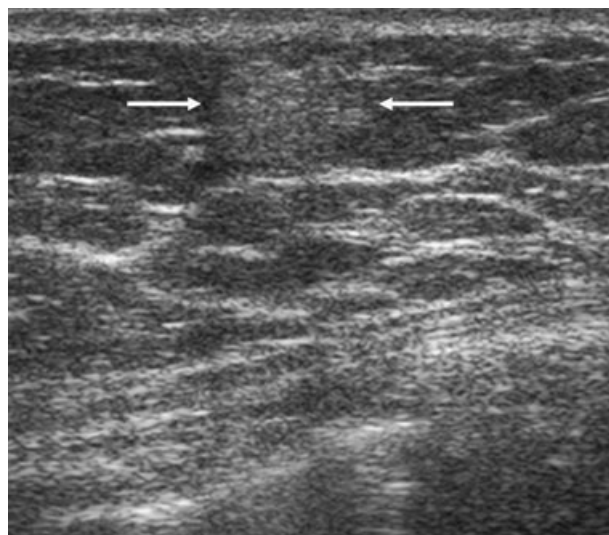


Figure 1. Ultrasound pitfall: angiosarcoma mistaken for a lipoma.

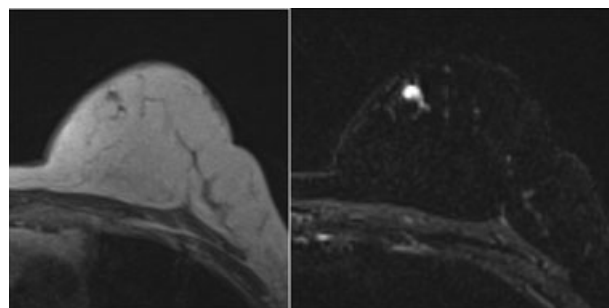


Figure 2. T1-weighted image showing a hypointense lesion (left) with associated marked T2 signal hyperintensity (right).

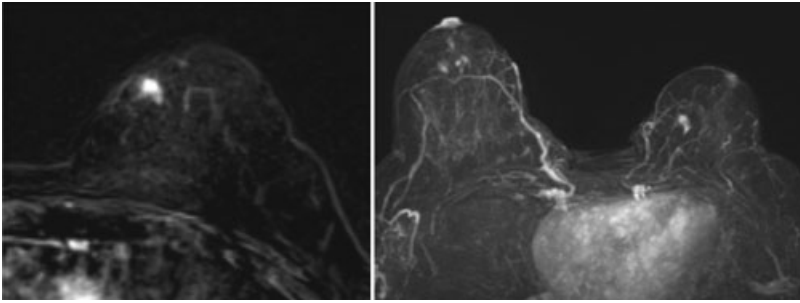


Figure 3. Dynamic Enhanced Breast MRI images show a suspicious enhancing lesion in the left breast.

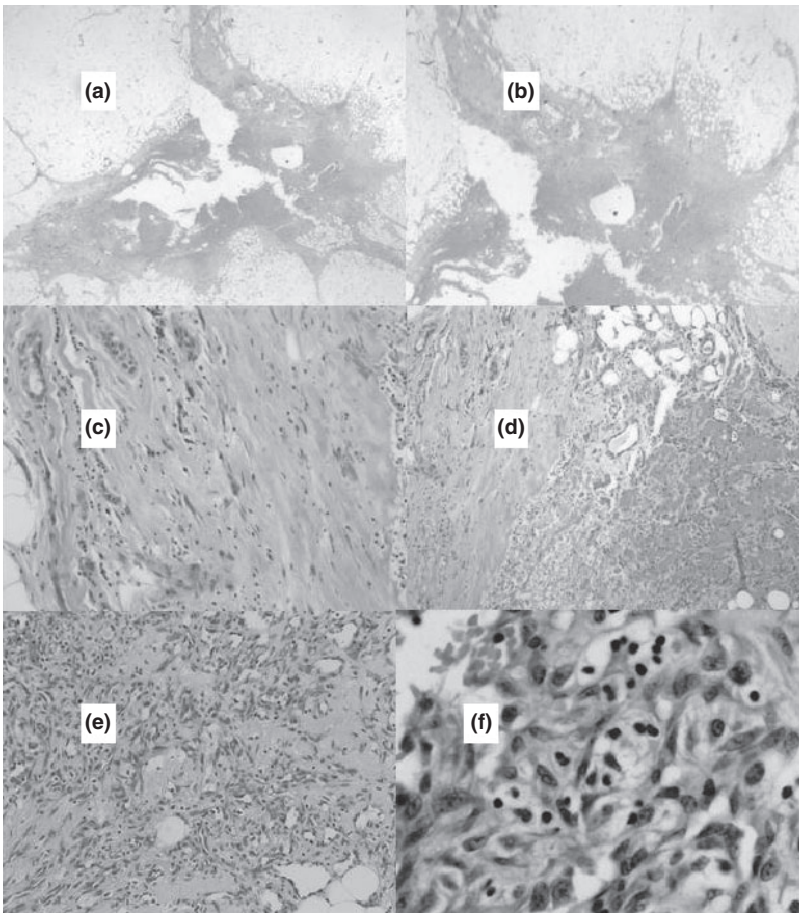


Figure 4. Section of breast revealing the hemorrhagic area (a and b) and the angiosarcoma in peri biopsy adipose tissue (c and d). The angiosarcoma consists of proliferations of atypical vessels lined by enlarged, hyperchromatic mitotically active nuclei with macronuclei (e and f; hematoxylin and eosin).

the patient's personal history of malignancy and the fact that the radiologic and pathologic findings were highly suspicious for angiosarcoma, a left mastectomy was performed. Microscopically, the surgical specimen showed an hemorrhagic area with surround proliferations of atypical vessels lined by enlarged, hyperchromatic mitotically active nuclei with macronuclei, CD31⁺, consistent with angiosarcoma (Fig. 4).

This is a case of secondary angiosarcoma related to previous radiation therapy in a patient treated by con-

servative surgery of the same breast. The tumor presented as a palpable suspicious mass with benign, ultrasound features that mislead and resulted in a relative delay of the diagnosis. Due to the nonspecific radiologic findings (wide spectrum of appearances ranging from a hypoechoic to a heterogeneous aspect, with or without acoustic shadowing), angiosarcoma may be easily overlooked. MRI proved to be an useful tool and guided to the correct diagnosis and treatment.