

Breast Hemangioma Investigation – A Rare Condition Documented by Nuclear Medicine, Radiology and Pathology

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The patient was a 45-year-old white, female, who presented with complaint of a lump in her left breast that had not changed in size over recent years. Physical examination revealed a palpable mass in the superolateral quadrant of the left breast with the largest diameter of 1.5 cm and irregular borders without axillary and supraclavicular lymph nodes. There were no palpable nodules in the right breast. The investigation was complemented with mammography, ultrasound, magnetic resonance and scintigraphy (SPECT-CT) using ^{99m}Tc-labeled red blood cells. Mammography showed bilateral lumps located next to the pectoral muscle in the upper quadrant of the right breast and other lumps scattered around the left breast, but was inconclusive in determining the nature of the nodules (Fig. 1). Doppler ultrasound gave rise to a suspicion of hemangioma (Fig. 2).

Magnetic resonance imaging showed a contrast-enhanced lesion in her right breast. Its size and location adjacent to anomalous vascularization were suggestive of malignancy, but the possibility of hemangioma could not be ruled out. The other breast nodules were classified as benign, including the largest one, i.e. the nodule that was palpable in the left breast (Fig. 3).

Scintigraphy using ^{99m}Tc-labeled red blood cells showed a focal accumulation of radiotracer in the

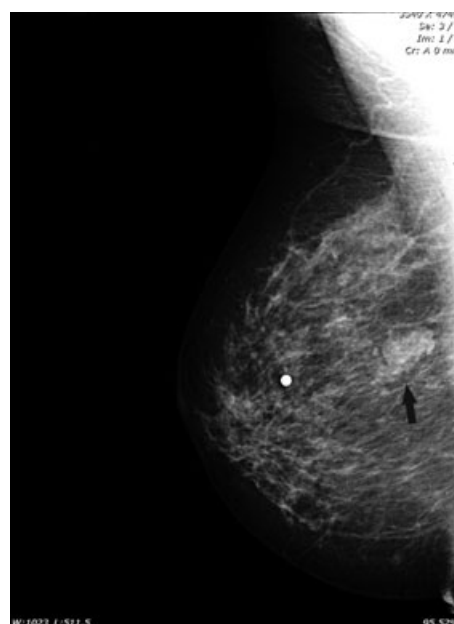


Figure 1. Inconclusive mammography showing a mass in the right breast with outline partially obscured by the breast parenchyma (arrow).

lesion of the right breast in early and later evaluations, and fusion SPECT-CT images that are specific for the diagnosis of hemangioma (Fig. 4).

Given the discrepancy between the methods and the fact that magnetic resonance imaging suggested malignancy, it was decided to excise the lesion in the right breast. Biopsy confirmed the diagnosis of hemangioma, as shown in a pathological evaluation (Fig. 5).

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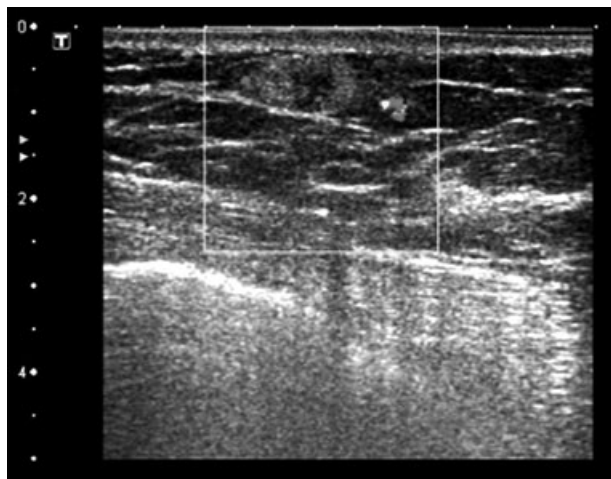


Figure 2. Doppler ultrasound showing well-delimited heterogeneous hyperechoic oval mass in the subcutaneous tissue of the upper inner quadrant of the right breast with peripheral flow.

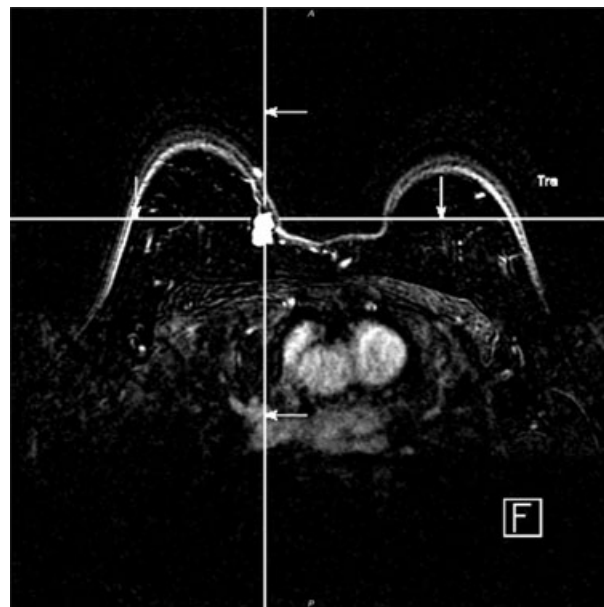


Figure 3. Axial planar magnetic resonance imaging showing well-delimited lobulated mass in the right breast underlying the skin with intense contrast uptake, containing septation with hyposignal, which was suggestive of malignancy.

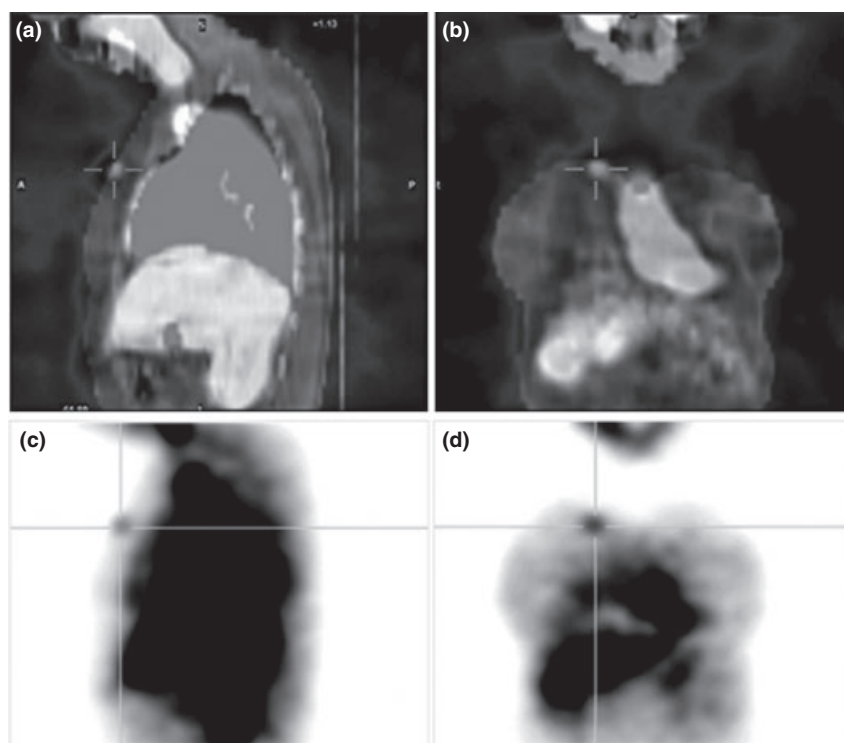


Figure 4. (a and b): Scintigraphy fusion image (SPECT-CT). (c and d): Functional imaging using ^{99m}Tc -labeled red blood cells. Coronal and axial views. Focal uptake in the lesion of the right breast.

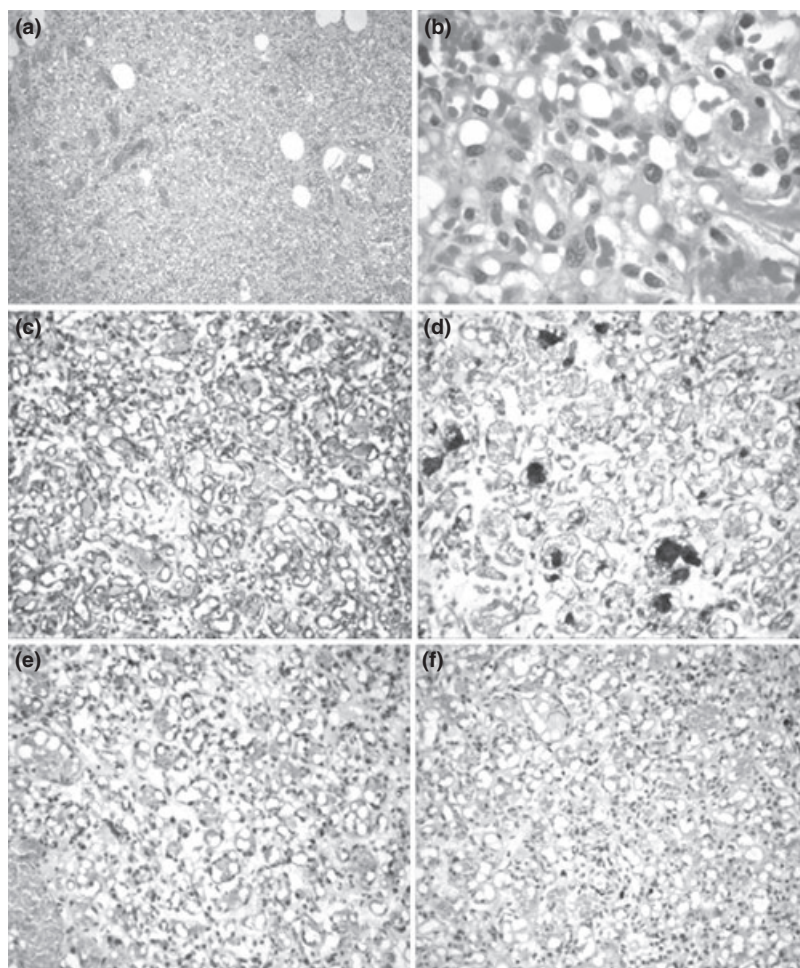


Figure 5. Histology and immunohistochemical profile of breast hemangioma. (a): Dense cluster of capillary structures, permeated by blood vessels little dilated containing erythrocytes. HE ($\times 40$); (b): Small vascular channels lined by single layer of endothelial cells without atypia. Not observed mitotic figures, necrosis or calcification HE ($\times 400$). (c–e): Immunohistochemical staining positive for: CD34; CD31 and FVIII in endothelial cells, respectively ($\times 100$); (f): Ki67 proliferation index down, being positive in about 1% of endothelial cells ($\times 100$).

Invasive Lobular Carcinoma and Lobular Carcinoma In Situ in a Phyllodes Tumor

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Phyllodes tumors are uncommon accounting for less than 1% of all breast tumors. Malignant transformation in the epithelial portion of phyllodes tumor has rarely been reported.