Is it really a Hematoma? Rare Presentation of Invasive Breast Carcinoma

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ABSTRACT

Breast cancer typically presents as a solid mass, architectural distortion, or calcifications on mammography, though it can also uncommonly present as a cystic mass based on subtype [1]. Hematoma usually presents as a cystic mass with internal echoes in hyperacute stage, subsequently turning to complicated cyst. In later stages, they appear as complex cysts with debris and thick echogenic wall with avascular mural nodule. Peripheral vascularity associated with the mass may represent interval inflammation. Clinical history of recent trauma or surgery is of great importance in the diagnosis. In the absence of recent history to account for the imaging findings, biopsy should be recommended [1]. This case report illustrates an unusual presentation of invasive ductal breast carcinoma as a hematoma in an elderly patient with history of frequent falls and offers several learning points to prevent misdiagnosis.

CASE REPORT

CASE REPORT

88-year-old woman presented for a diagnostic mammogram with a palpable mass with overlying skin discoloration. She was a poor historian with history of frequent falls, but no recollection of a recent fall. She underwent diagnostic mammographic workup (Figure 1) and ultrasound of the palpable mass (Figure 2).

Imaging Findings

The diagnostic exam included spot compression and tangential views of the palpable site in the left upper outer breast. The focal asymmetry corresponding to the palpable site showed mixed fat and tissue density with mild stranding extending to the skin (Figure 3). The right breast was negative. Ultrasound (Figure 4) demonstrated a mixed echogenicity, predominantly hyperechoic mass measuring 3.6 x 1.4 x 4.1 cm with indistinct margins, posterior shadowing and increased peripheral vascularity.

Differential Diagnosis

Based on imaging appearance and patient's history of frequent falls, this likely represented a hematoma. The ultrasound evaluation of the left axilla was negative. Given only minimal discoloration noted on the skin surface and increased peripheral vascularity, an ultrasound guided biopsy was recommended for further assessment of this mass at low suspicion for malignancy. Post clip mammogram showed the biopsy clip within initial mammographic finding of concern at the palpable site (Figure 5).

Diagnosis

Invasive Ductal Carcinoma, Grade 1, ER, PR positive, HER2 negative

DISCUSSION

This case illustrates a challenging and unusual presentation of a solid mass mimicking hematoma in its presentation with a number of learning points. First, the relatively benign mammographic feature such as mixed density can be misleading. At mammography hematomas can mimic malignancy [1]. Breast hematomas may have no associated image on mammograms, or can present as subtle, ill-defined opacity or focal asymmetry. The mammographic finding usually decreases in density over time and completely resolve over the course of a few weeks or months. In case of larger hematoma, mammography may show

well-defined dense mass, possibly with air-fluid level (*e.g.,* in post-operative period or if the hematoma is ruptured through the skin) [2]. On contrast-enhanced mammography, acute hematomas – that are often seen after percutaneous biopsy – usually do not enhance [3].

Second on ultrasound, this presented as a mixed echogenicity, predominantly hyperechoic mass. Hematoma is localized hemorrhage, often secondary to recent biopsy, surgery or trauma. An evolving hematoma is typically hypoechoic initially, mixed appearance at subacute stage and hyperechoic in late presentation. Sometimes, new hematomas can be ill defined and hyperechoic [1]. On ultrasound, smaller acute breast hematoma may not be detectable or can present as faint areas of increased echogenicity in fat tissue, associated with small cystic lesions [4]. Larger acute hematomas, like post-procedural hematoma, may present as a cystic lesion with avascular thin internal septations, fluid-debris levels or pseudosolid content [4,5]. Hematomas are typically do not demonstrate associated vascularity, though this patient had minimal peripheral vascularity which made it a suspicious feature, prompting biopsy.

Third, this 88-year-old patient was a poor historian with history of multiple remote falls, but no recollection of a recent fall. On examination, there was mild discoloration but no large apparent bruise to correlate with the size of the ultrasound findings. Correlation with patient's clinical history is key to making the diagnosis [6]. Typically, short term follow up is recommended to assess for interval improvement or complete resolution of a possible hematoma. However, a developing or new echogenic mass with corresponding mammographic asymmetry in a post-menopausal patient without clear trauma history warrants biopsy. Breast MRI is not routinely indicated in the acute setting. It may show well-defined cystic lesion with spontaneous T1 hyperintensity on fat-suppressed images and fluid-fluid level on T_2-weighted images. One possible mechanism of such presentation is the erosion of a large breast vessel by a rapidly growing tumor. In this case, hematoma may be the predominant imaging feature and occult other suspicious features.

Fortunately, this was a low grade, slow growing cancer that had not spread to the lymph nodes. Grade 1 tumors are typically well differentiated, slower-growing and less likely to spread. These cells have many of the characteristics of noncancerous breast cells. These tumors are less likely to spread and have better treatment outcomes [7]. The patient chose medical management and declined surgery. She is under close medical surveillance for the known cancer.

TEACHING POINTS

1. The relatively benign mammographic feature such as mixed density can be misleading. At mammography hematomas can mimic malignancy.
2. Sonographically, hematoma is localized hemorrhage, often secondary to recent biopsy, surgery or trauma. An evolving hematoma is typically hypoechoic initially, mixed appearance at subacute stage and hyperechoic in late presentation. It is important to consider the timeline in relation to sonographic appearance of the mass.

A developing or new echogenic mass with corresponding mammographic asymmetry in a post-menopausal patient without clear trauma history warrants biopsy.

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FIGURES

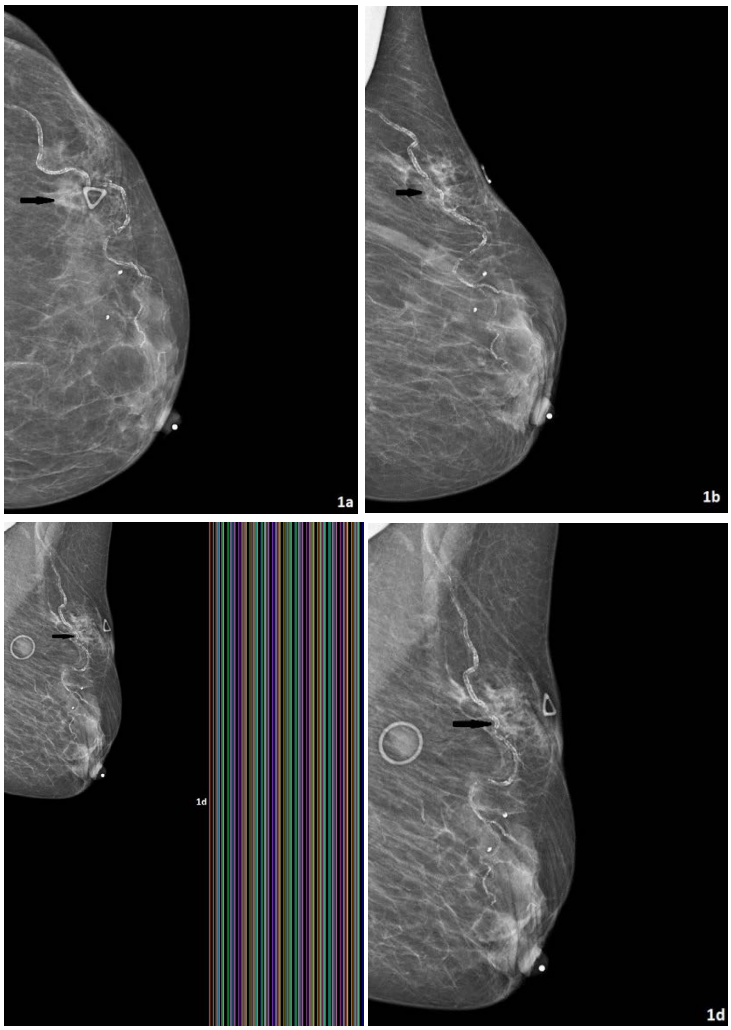

Figure 1: The left craniocaudal (CC) (a) and mediolateral oblique (MLO) (b) views from the diagnostic mammogram show a mixed density focal asymmetry (arrows) in the upper outer breast at the palpable abnormality. CC spot compression (c) and ML (d) views performed subsequently during diagnostic imaging show that the mixed density focal asymmetry (arrows) persists on additional images and has indistinct margins.

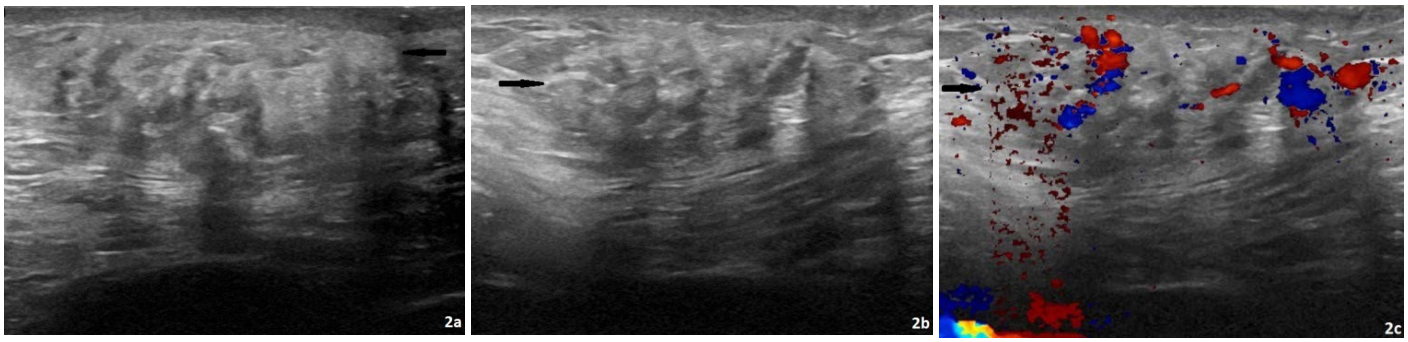

Figure 2: The left breast targeted ultrasound transverse (a) and sagittal (b) images depict a mixed echogenicity, predominantly hyperechoic mass (arrows) with posterior shadowing and increased vascularity (c) in the upper outer breast at palpable site. The left breast targeted ultrasound sagittal color flow (c) image shows increased vascularity (arrow) in the upper outer breast at palpable site.

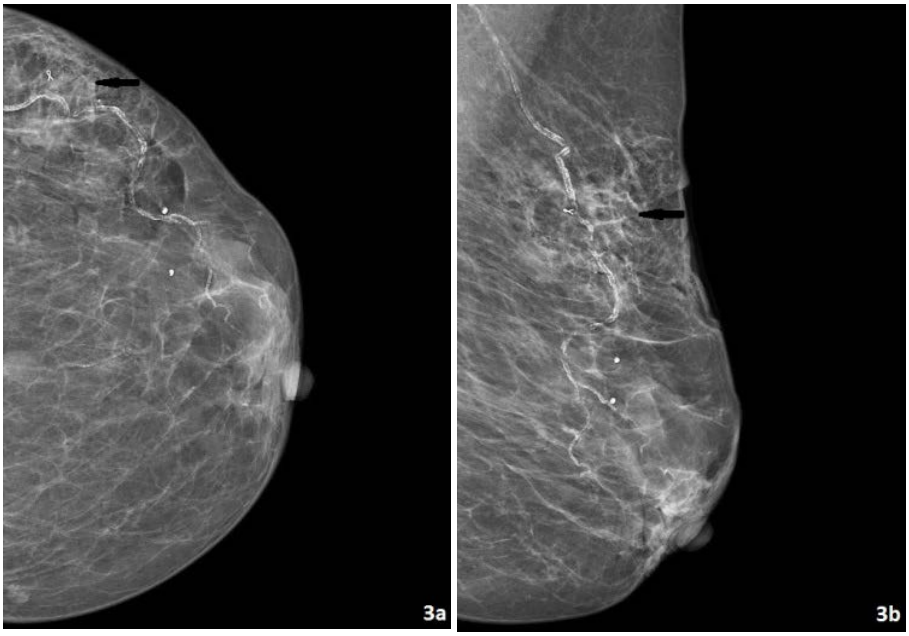

Figure 3: The left CC (a) and MLO (b) views from the post clip mammogram show the ribbon clip (arrows) at the biopsy site.

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