Invasive Lobular Carcinoma Arising in a Hamartoma of the Breast: A Case Report

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Clinical Practice Points

- The fact that malignant breast lesions can arise inside a benign lesion as a hamartoma is not well known in clinical practice. There are only few case reports on this subject.
- To our knowledge, this is the first time the use of DCE-MR is illustrated in the context of detection of malignant foci in a hamartoma.
- Increased awareness and use of this tool can help radiologists with the characterisation of hamartomas with atypical appearance on mammogram and ultrasound in everyday clinical practice.

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Introduction

We present the unusual case of a patient with invasive lobular carcinoma in a breast hamartoma. Breast ultrasonography, mammography, and magnetic resonance imaging (MRI) were performed. Ultrasonographically guided core biopsy results confirmed the diagnosis. To our knowledge, this case represents the fourth reported case of invasive lobular carcinoma arising in a breast hamartoma. It is, however, the first case of carcinoma within a hamartoma that has an MRI correlation. The additional value of dynamic contrast-enhanced (DCE) MRI is also illustrated.

Case Report

A 42-year-old woman was referred for a mammogram and ultrasonographic examination of the breasts. Clinical examination had revealed a mobile palpable nodule in the left upper quadrant of her left breast. She stated that the lesion had been there for years. No previous images were available. However, a report was found in the radiology information system of a previous mammogram and ultrasonographic examination from 1999. A nodular mass with largest dimension of 4 cm was described in the report. The size of this lesion was unchanged on the most recent imaging studies. The characteristics of the nodular lesion, with its oval shape and sharp borders, were benign on the mammogram (Figure 1). Inside the mass, however, ultrasonography revealed septations and focal spots of heterogeneous echogenicity (Figure 2). Therefore, a core biopsy was performed to obtain a histologic diagnosis of this large nodular mass. Two of 3 acquired tissue cylinders contained invasive carcinoma.

MRI of the breasts excluded multifocality or bilateral involvement and clearly depicted the hamartoma (Figure 3). DCE MRI showed a focal intralesional spot with type 3 enhancement curves suspicious of malignancy (Figure 4).

The anatomopathologic report from the resection specimen confirmed the presence of foci of invasive lobular carcinoma in a breast hamartoma (Figure 5). After complete surgical excision, adjuvant treatment with tamoxifen was initiated.

Discussion

Hamartoma of the breast is a rare benign tumor, with a prevalence of $< 1\%$ of all breast lesions. This prevalence is generally underestimated because the tumor is often asymptomatic and therefore remains frequently undiagnosed.

First described by Arrigoni et al, this tumor is also referred to as a "breast in a breast," because all breast components are typically found within the lesion.[1] Alternatively, the terms fibroadenolipoma, adenolipoma, or lipofibroadenoma are used, depending on the predominant amount of the individual tissue types.[2] The typical appearance of a breast hamartoma on mammography is a well-defined lesion with mixed density and a radiolucent pseudocapsule.[3] On ultrasonography, the breast hamartoma typically appears as a well-circumscribed heterogeneous oval solid mass, but sometimes it can be difficult to distinguish a hamartoma from the surrounding breast tissue.[3,4]

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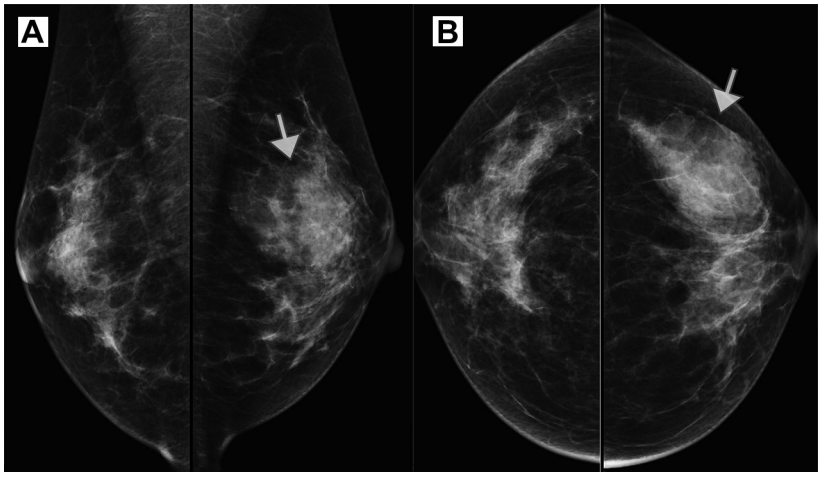
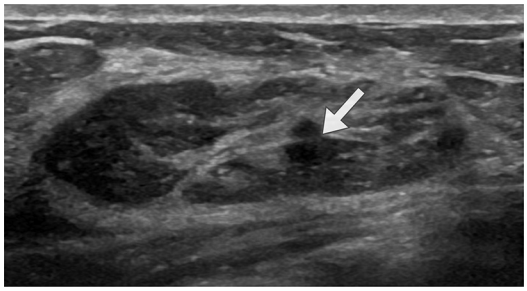
Figure 1 Mammograms of the Left and Right Breast. (A) Craniocaudal View. (B) Mediolateral Oblique View. Arrow Shows a Well-Circumscribed Lesion With a Pseudocapsule. No Microcalcifications are Visible



Because a breast hamartoma is a nonmalignant tumor, it is not thought to be associated with breast cancer. Nevertheless, a few publications on different types of carcinoma arising in breast hamartomas can be found in the literature.[2,5-13] Only 3 of these articles reported on invasive lobular breast carcinoma in a breast hamartoma, and none of them mentioned using MRI of the breasts.[7,10,11] Microcalcifications have been reported to occur in the hamartoma when malignant breast carcinoma was found inside.[2,7,8,12] In the hamartoma in our case, however, no microcalcifications were present. The hamartoma in our patient was clearly visible with ultrasonography, and it was the marked hypoechogenicity of a focal spot in the central zone of the hamartoma that made the radiologist decide to perform an ultrasonographically guided core biopsy of the lesion.

Figure 2 Ultrasonographic Image of the Well-Described Lesion in the Left Breast. The Lesion Is Surrounded by Hyperechogenic Compressed Fibroglandular Tissue. A Small Hypoechoic Zone in the Central Part of the Lesion Appeared Atypical and was Targeted for a Core Biopsy Procedure (Arrow)



MRI of the breasts was performed to further investigate the histologically confirmed malignancy. On the MR images, the lesion also had the benign characteristics of a hamartoma with a little fat. The DCE MRI kinetic analysis software, however,

Figure 3 Magnetic Resonance (MR) Images of the Breasts. Arrows Show a Large Oval-Shaped Sharply Delineated Tumor in the Left Breast, With an Overall Benign Appearance. Top, Unenhanced THRIVE (Philips Ingenia [3.0 T]) T1-Weighted Image Shows Heterogeneous Signal Intensity in the Tumor as Well as the Presence of Some Fat. Bottom, Homogeneously Low Signal Intensity in the Tumor on a Turbo Spin Echo T2-Weighted Image