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## Sonographically Unusual Breast Carcinomas, 2 Case Reports

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**Background:**

For infiltrative breast lesions; sonography might not always be as helpful as mammography and MRI (magnetic resonance imaging). For higher sensitivity and specificity, these 3 imaging methods should be carried out together. Radiologists should be aware of the patient's history and complaints. Patients who have a specific history like a long-term drug treatment or a palpable tumour should be approached differently.

**Case Report:**

We would like to present 2 cases with atypical sonographic findings. The first case is an infiltrative breast cancer with occult sonography findings in a patient with a history of a long-term immunosuppressive drug treatment due to kidney transplantation and the second case is a malignant breast tumour which is hyperechogenic on sonography.

**Conclusions:**

Overall breast sonography should always be correlated with mammography in patients over 40 years old and the images should be interpreted along with the patient's history and clinical status.

**MeSH Keywords:**

**Breast • Carcinoma, Ductal, Breast • Ultrasonography, Mammary**

**PDF file:**

<http://www.polradiol.com/abstract/index/idArt/897780>

### Background

For malignant breast lesions, sonography might not always be as helpful as mammography and MRI (magnetic resonance imaging). For higher sensitivity and specificity, these 3 imaging methods should be carried out together. We present 2 cases of breast malignancy. The first patient had a history of kidney transplant and long-term immunosuppressive therapy and the second patient had a palpable hyperechogenic breast mass.

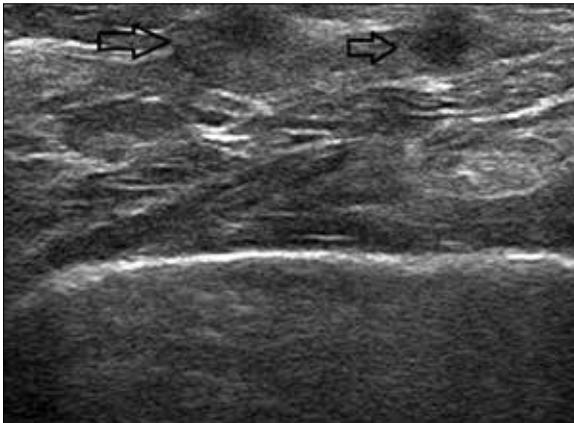
### Case Report

#### Case 1

*Hidden infiltrative tumour in a long-term immunosuppressed patient*

A 49-year-old woman with a history of kidney transplantation, was referred to the radiology department for breast imaging. She had her first kidney transplantation in 1992. She had subacute rejection. The second and final transplantation was carried out in 2007. Since then,

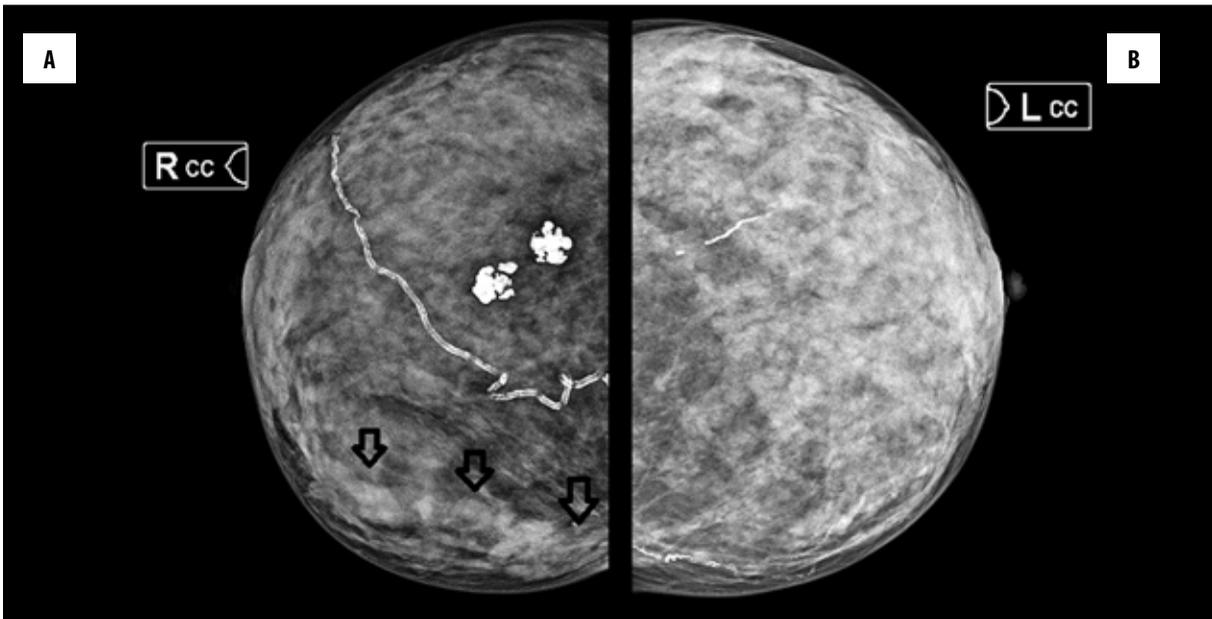
she had been on a combined drug treatment consisting of tacrolimus, mycophenolic acid, doxazosin, ramipril, aspirin, prednisolone and vitamin d. Her physical examination was unremarkable except for some palpable masses in her right breast. The patient was referred to the radiology department for mammographic and sonographic imaging. Mammography was performed with computed radiography (CR) (Siemens Mammomat 1000) and sonographic exam was performed with Esaote MyLab70x vision, 7.5 MHz linear probe. Along with the findings, further imaging was required. Contrast-enhanced MRI was performed. Glomerular filtration rate of the patient was 90 ml/min. and there was no contraindication for contrast administration. MRI was performed with a 1.5 Tesla magnet (25 mT/m: Magnetom Vision Plus; Siemens, Erlangen, Germany). With the findings on MRI, the patient was scheduled for ultrasound-guided percutaneous breast biopsy with an 18-G automatic needle. On the mammographic examination the breast tissue was very dense. There was non-mass-like, asymmetrical opacity in the right lower inner quadrant. (Figure 1). On sonographic examination, there were 2 hypoechogenic, lobulated, well-contoured



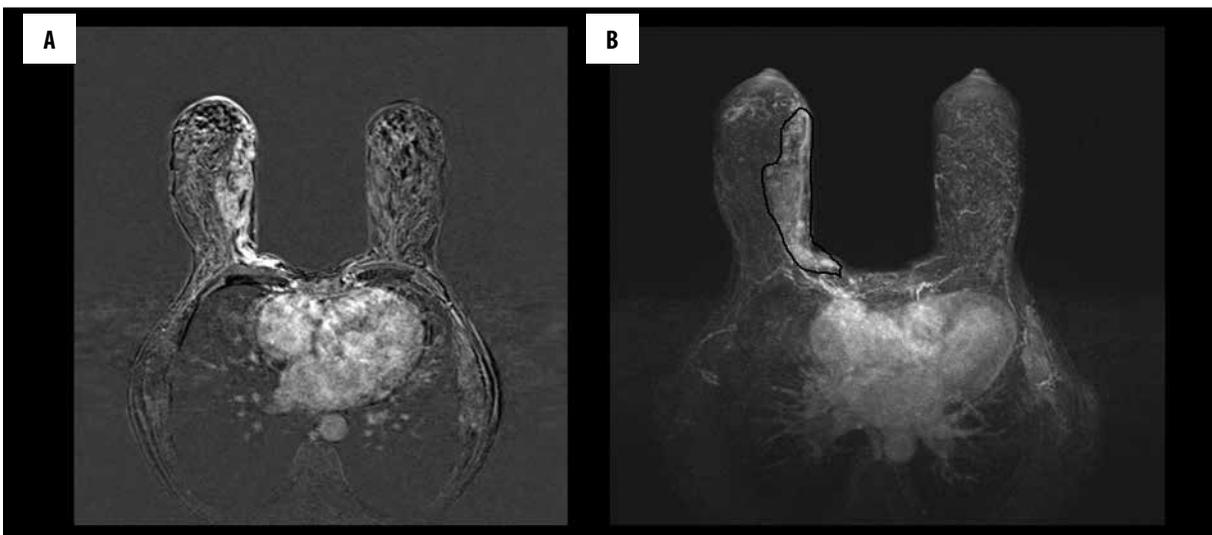
**Figure 1.** Sonographic image of the 2 hypochoic lobulated masses.

masses in the right breast at 3 o'clock position with the sizes of 8×7 mm and 6×5 mm (Figure 2A, 2B). Those were confirmed as palpable masses. Sonography could not identify the large asymmetrical area which was seen on mammograms. The patient was later referred for an MRI for lesion characterisation.

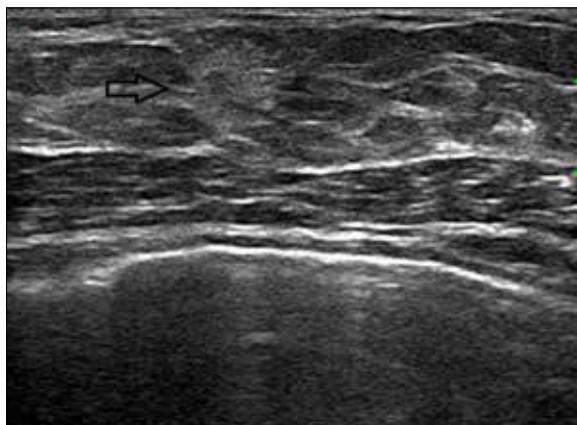
Contrast-enhanced MRI revealed a nipple-oriented, contrast-enhancing area, 110×30 mm in size, compatible with a widespread intraductal component in the right inner quadrant. (Figure 3A, 3B). This was matching with the area seen on mammograms. A 15×5-mm ductal contrast-enhancing area was also seen in the right breast at 7 o'clock position compatible with multicentricity. This area was reaching towards midline. No pectoral muscle invasion was seen.



**Figure 2.** (A, B) CC mammograms. A symmetrical breast density in the right inner lower quadrant is seen (black arrows). Also a popcorn calcification of a fibroadenoma is seen in the right outer quadrant.



**Figure 3.** (A, B) Contrast-enhanced dynamic T1-weighted MR subtraction images. Contrast-enhancing area is seen in the right inner breast (drawn line). It extended to the pectoralis muscle and chest wall.



**Figure 4.** Sonographic image of the palpable hyperechoic breast mass.

The lesions were biopsied under the guidance of sonography. The histopathological result showed invasive ductal carcinoma with a nuclear grade of 3.

## Case 2

### *Is hyperechogenicity a reliable finding of benignity?*

A 35-year-old woman was referred for breast imaging due to a palpable mass in her breast, which she noticed recently. Her physical examination was unremarkable except for the palpable mass in the right breast. On the sonographic examination which was performed with Esaote MyLab70x vision, 7.5 MHz linear probe, there was a hyperechoic mass with slightly irregular contours. The hyperechogenicity of the mass narrowed the differential diagnosis to lipoma or fat necrosis (Figure 4). The biopsy was done due to insistence of the patient. It was performed under ultrasonographic guidance with an 18-G automatic needle. The histopathological result was compatible with nuclear grade II invasive ductal carcinoma.

## Discussion

Long-term immunosuppressive therapy with multiple drugs is a risk for secondary cancers [1–3]. These patients should be imaged carefully. Once a tumoral lesion is detected, they should be treated with a multidisciplinary approach. Breast cancer may be overlooked if the breast tissue is very dense on mammograms. Even experienced radiologists can miss them. Radiologists should examine every quadrant carefully and compare it with the opposite breast. Sonography sometimes may not reveal the lesion if the lesion is widespread in a non-mass-like fashion. Contrast-enhanced MRI is helpful for depiction of skin, muscle involvement and intraductal spread of the lesion. The tumoral lesions of our first case could have been missed with sonography alone because the lesions were well contoured. They are in Breast imaging-reporting and data system (BI-RADS) as category 3 which means a follow-up of 6 months would have been recommended. But

the lesions on sonography were just the tip of the iceberg. Mammography and MRI revealed the real extent of the disease.

On sonography, malignant breast tumours are generally hypoechogenic with posterior shadowing, whereas benign breast tumours are generally hyperechogenic. Most common hyperechogenic benign masses are lipoma, fibroadenolipoma, fat necrosis, haematoma, haemangioma. Malignant lesions are only 0.4% hyperechogenic [4–6]. Rarely, malignant tumours such as invasive ductal carcinoma, invasive lobular carcinoma and metastasis can be hyperechogenic. As concerns our second case, we first called the lesion BI-RADS 3 and decided to follow it up. Although we know “being palpable” is not a criterion included in BI-RADS, we decided for a biopsy only because the patient was very worrisome as the lesion was *de novo* and palpable. But when we looked back we saw the slightly irregular contours of the lesion on sonography and this could have alerted us for malignancy.

## Conclusions

Breast sonography is the first imaging modality for women younger than 40 years. It is a widely available and easily accessible imaging method. However, it is user-dependent and the extent of the disease might be underestimated with sonography, like the tip of the iceberg. Moreover, in some rare instances, malignant tumours might have benign features (well-visible contours, hyperechogenicity, oval shape) on sonography. For women older than 40 years, breast tissue becomes less dense and this allows better detection on mammography. So we first perform mammography for women over 40 years. Combination of sonography and mammography increases lesion detection rates [7]. If there are any suspicious lesions in just one of the imaging modalities, if the lesion grows in an unexpected rate, if the patient has a risk for malignancy, we perform biopsy. Other than the second basic imaging modality, we may also use breast MRI for better identification of the extent of the disease [8]. On MRI, we can see the intraductal extent, skin and muscle invasion better. These findings on MRI change the stage of the disease, prognosis and the treatment algorithm completely. In our clinic, we refer every newly diagnosed breast cancer patient for an MRI for accurate staging of the disease. Overall, breast imaging is not limited to only one single method. Combination of different methods and also with patient’s history and clinical status is critical for an accurate diagnosis.

## Conflict of interest

There are no financial or other relations that could lead to a conflict of interest.

## Ethical statement

Ethically approved by the local committee

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