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Case Report

A case of bilateral male breast cancer- What does it teach us? ☆,☆☆

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ABSTRACT

Male breast cancer is rare, with a lifetime risk of 1 in 833 males, with bilateral male breast cancer being extremely uncommon. This report describes a rare case of bilateral breast cancer in a 74-year-old male who presented with a breast lump and incidental calcifications in the contralateral breast. This case highlights the similarities, as well as differences, in presentation and imaging features of breast cancer in males and females. It also demonstrates how Magnetic Resonance Imaging can be a useful tool for pre-treatment planning of certain male breast cancers, especially to evaluate disease extent and to identify contralateral tumor.

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Introduction

Breast cancer in males is rare, accounting for about 1% of breast cancers overall [1]. Bilateral synchronous breast cancer presentation is extremely rare, with an incidence of 1.5%–2% of all male breast cancers [2,3]. Comparisons can be drawn between breast cancer presentation and imaging features in females and males, which can be thereby beneficial in future diagnostic and treatment decisions. Magnetic resonance imaging (MRI) is an established imaging modality not only for screening of breast cancers in high risk females, but also in certain cases, for diagnostic and problem solving purposes. However, due to rarity of disease and literature on it, there is no defined role of MRI in male breast cancer. Our case high-

lights that since ductal carcinoma in situ (DCIS) in males and females have similar imaging features, MRI can also be used in males with biopsy proven DCIS to evaluate for disease extent and to detect occult disease in the contralateral breast [4].

Case description

A 74-year-old morbidly obese male, presented with 2 months onset of left breast lump. He had a bilateral diagnostic mammogram and a targeted left breast ultrasound. The mammogram demonstrated bilateral gynecomastia, and an irregular spiculated mass with suspicious calcifications in the upper outer left breast, with associated overlying skin thickening

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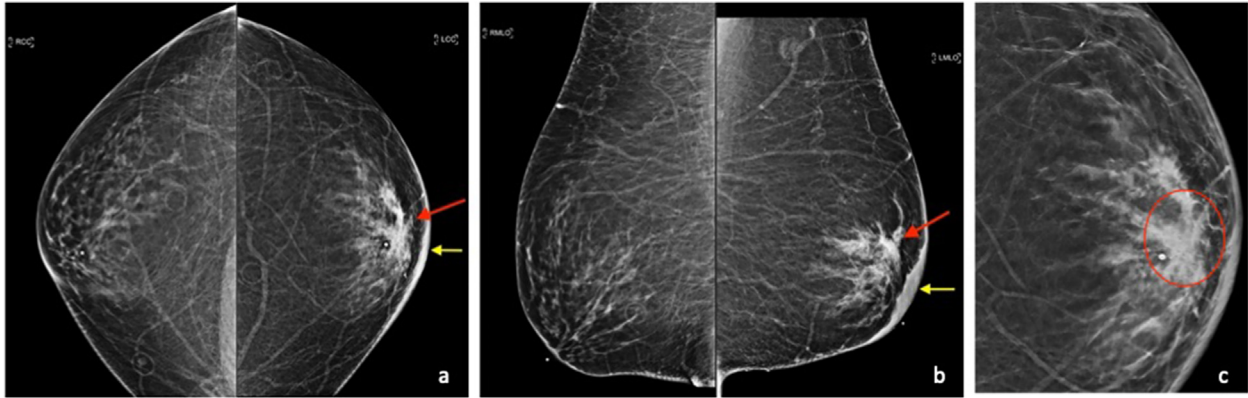


Fig. 1 – Diagnostic mammogram ([A] bilateral craniocaudal views, [B] bilateral mediolateral oblique views, [C] left breast magnified view) demonstrated an irregular spiculated left breast mass (red arrow) with suspicious calcifications (red circle), in the upper outer retroareolar left breast, approximately 4.5 cm from the nipple, with associated overlying skin thickening (yellow arrow).

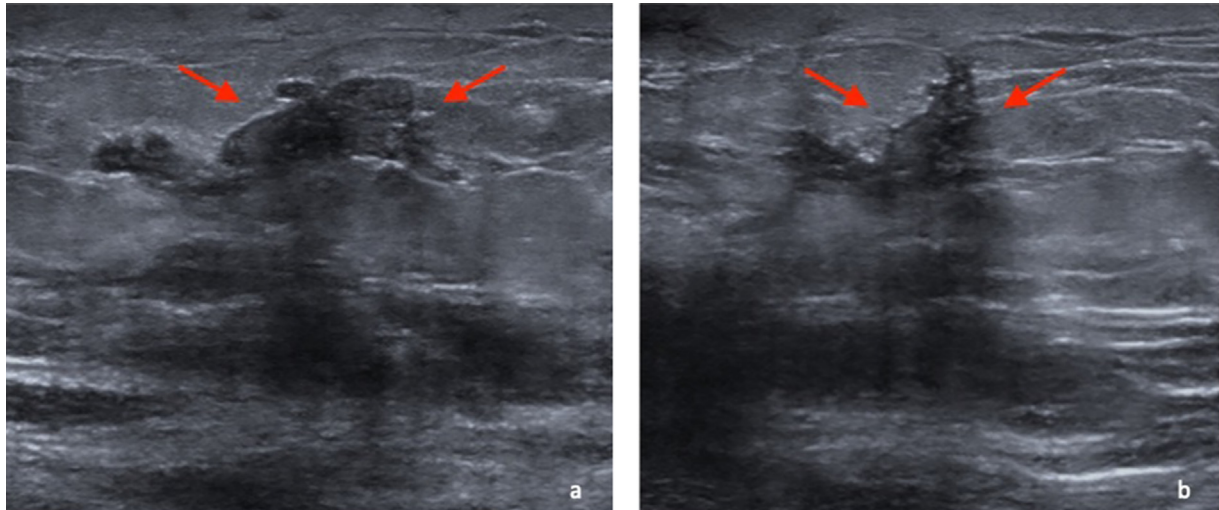


Fig. 2 – Targeted ultrasound of the left breast ([A] transverse, [B] longitudinal) demonstrated an irregular spiculated hypoechoic mass (red arrow) at 11’0 clock, 3 cm from the nipple, corresponding to the area of mammographic concern.

(Figs. 1A-C). Targeted ultrasound demonstrated an irregular spiculated hypoechoic mass with suspicious calcifications corresponding to the area of mammographic concern (Figs. 2A and B). Findings were consistent with an overall breast imaging reporting and data system (BI-RADS) category 5: highly suggestive of malignancy. An ultrasound guided biopsy of the mass was recommended and subsequently performed. Biopsy showed invasive ductal carcinoma with DCIS.

As part of treatment planning, MRI of the breasts was performed to evaluate for disease extent and to decide if breast conservation surgery will be appropriate in his case. It showed bilateral gynecomastia and clumped non-mass enhancement with mixed kinetics in the left retroareolar breast, corresponding to the biopsy proven cancer. Associated finding of overlying skin thickening and edema was noted. Additionally, in the right retroareolar breast, there was non-mass enhancement with persistent kinetics, in a segmental distribution (Figs. 3A-D). Upon further review, subtle suspicious calcifica-

tions were identified within the right breast on the initial diagnostic mammogram in the retroareolar area (Fig. 4). MRI impression was, BIRADS 4: suspicious and a targeted right breast ultrasound was recommended.

Targeted ultrasound of the right retroareolar breast showed a solid mass at 11’0 clock, as well as several other very small masses adjacent to it (Figs. 5A and B). The study was given an impression of BIRADS 4: suspicious. Subsequent biopsy of the right retroareolar mass at 11’0 clock showed DCIS.

Discussion

Male breast cancer is a rare disease, accounting for about 1% of breast cancers overall [1], and with lifetime risk of getting breast cancer being 1 in 833 males [5]. A few known predisposing factors for male breast cancer are genetic mutations

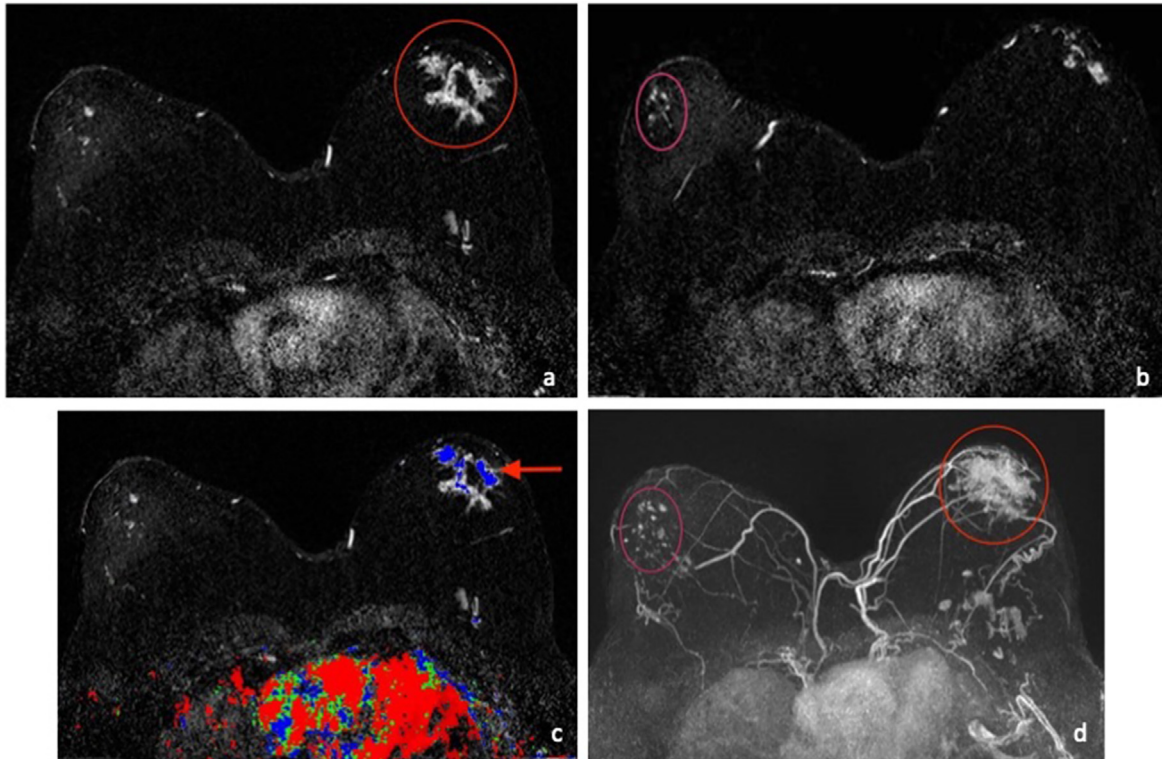


Fig. 3 – Magnetic resonance imaging of the breasts ([A and B] axial post contrast T1 subtraction images, [C] axial dynamic contrast enhanced T1 image with color, [D] axial post contrast maximum intensity projection image) demonstrated clumped non-mass enhancement (red circle), with plateau kinetics (red arrow), in the left retroareolar breast, measuring 7 × 7.1 × 6.2 cm. Additionally, in the right retroareolar breast, there was non-mass enhancement (pink circle) in a segmental distribution measuring 8.5 × 5.2 × 2.9 cm.



Figure 4 – Upon further review of the initial diagnostic mammogram, subtle suspicious calcifications (pink circle) were identified within the right breast in the retroareolar area.

such as BRCA1 or BRCA2, exposure to ionizing radiation, obesity, other hyperestrogenic states, hormonal imbalance, chromosomal abnormality (such as 47XXY), testicular disease (undescended testis, orchitis, orchiectomy). However, majority of the male breast cancers do not have identifiable risk factors, like in female breast cancers. The most common histologic type is invasive ductal carcinoma with or without DCIS, same as with female breast cancer. Males typically are diagnosed because they are already symptomatic, usually in the form of a palpable abnormality such as a mass, with pain and nipple discharge being other possible symptoms. Most male breast cancers are diagnosed between the ages of 60-70 years, with mean age of 67 years; slightly older than the mean age for female breast cancers. Male breast cancers show slightly larger estrogen and progesterone expression compared to those in women and are commonly diagnosed at a more advanced stage compared to female breast cancers [2,3].

Bilateral synchronous breast cancer presentation is extremely rare, with an incidence of 1.5%-2% of all male breast cancers [2,3]. Characteristically, male breast cancer on imaging can appear as an irregular subareolar mass with spiculated or indistinct margins, and it may be associated with gynecomastia [6]. Calcifications are not very common in male breast cancer. However, any calcifications besides the characteristic dermal or vascular calcifications, should be considered suspicious, irrespective of their morphology or distribution,

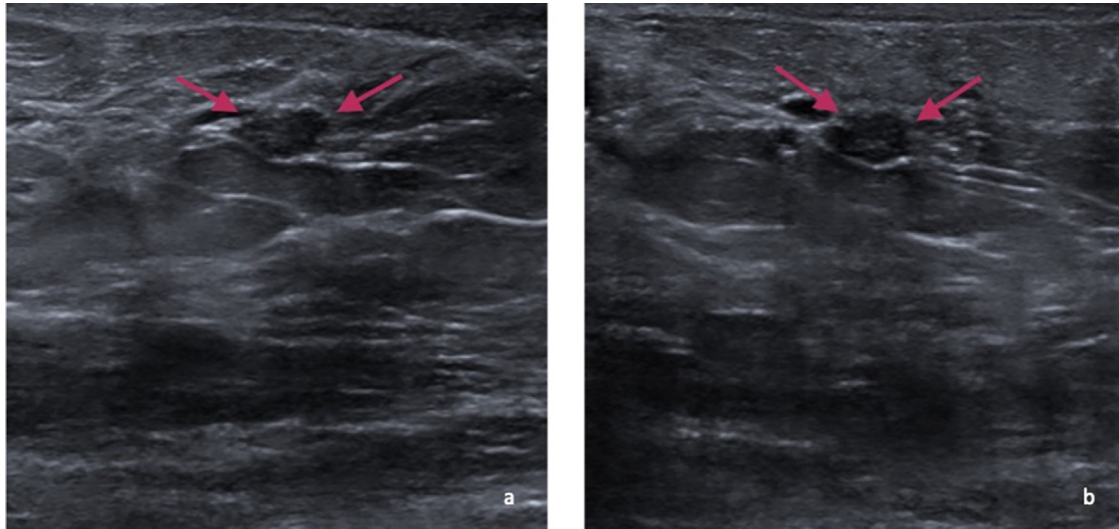


Figure 5 – Targeted ultrasound of the right retroareolar breast ([A] transverse, [B] longitudinal) showed a 6 mm x 3 mm x 6 mm solid mass (pink arrow) at 11’0 clock, 1 cm from the nipple.

on mammogram of male breasts [7]. This contrasts with female breasts, where there are numerous typically benign etiologies for calcifications. Our patient had bilateral DCIS, additionally with invasive ductal carcinoma on 1 side. The patient presented with left breast lump, where he had DCIS with invasive ductal carcinoma. Breast MRI was performed in this male patient for further evaluation of DCIS and overall disease extent. Non-mass enhancement was seen in the retroareolar area of the contralateral right breast. Following this, a retrospective review of the initial diagnostic mammogram showed suspicious calcifications in the area corresponding to the MRI abnormality, which were subsequently biopsied and proven to be due to DCIS.

Our case demonstrates many similarities between the imaging features and work-up of breast cancer in males and females. Initially, when breast cancer is diagnosed in 1 breast in a male patient, a diligent evaluation of the contralateral breast should be performed for evaluation of any abnormal findings as there may be bilateral cancer, just like in a female patient. Furthermore, it can be helpful to use MRI for evaluation of extent of disease in DCIS in males, an approach that has been used in females. The characteristic MRI finding of non-mass enhancement associated with DCIS can be seen in both males and females. An additional teaching point from our case is that any calcifications in a male patient, besides typical dermal or vascular calcifications, should be considered suspicious.

Conclusion

Male breast cancer, though rare, is an important, yet inadequately researched area of breast imaging. It is important for radiologists to be familiar with the risk factors, presentation, and imaging features of male breast cancer and how it compares to breast cancer in females. Breast MRI is being used in females for breast cancer staging and treatment planning.

Similarly, MRI can be used in males in certain cases of breast cancers, to evaluate for disease extent and for detection of contralateral cancers.

Patient consent

The written informed consent for publication of this case report has been obtained from the patient. We are retaining the agreement document with us for our own record.

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