Screening Mammography and Breast MRI in High-risk Lactating Patients

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Introduction

Pregnancy-Associated Breast Cancer (PABC), including Postpartum Breast Cancer (PPBC) (diagnosed within 2 years postpartum), is contributing to the rise in early-onset breast cancer. PPBC occurs in approximately 13.8–32.2 per 100,000 births[1], with higher rates in women >35 years and those with BRCA1/2 mutations or a family history of breast cancer. For women with a ≥20% lifetime risk, annual MRI with mammography is recommended, especially for BRCA carriers, and is associated with reduced mortality[3,4]. However, lactation-related changes (increased breast density and background parenchymal enhancement) lower imaging sensitivity and specificity[2]. The American College of Radiology (ACR) recommends continuing risk-tailored screening during lactation[3]. **Study Objective:** To address data gaps in high-risk, asymptomatic lactating women undergoing breast imaging by evaluating abnormal interpretation rates, recall rates, and diagnostic outcomes.

Methods

An IRB-approved, HIPAA-compliant retrospective chart review was conducted at a tertiary academic center from 2013 to 2024. Lactating patients were included if they were undergoing breast cancer screening due to a personal history of breast cancer, a strong family history, or a known hereditary cancer predisposition (e.g., BRCA1/2 pathogenic variants). Final outcomes were verified through histopathology or at least two years of imaging or clinical follow-up. Patients without histopathology or a minimum of two years of radiologic follow-up were excluded.

Results

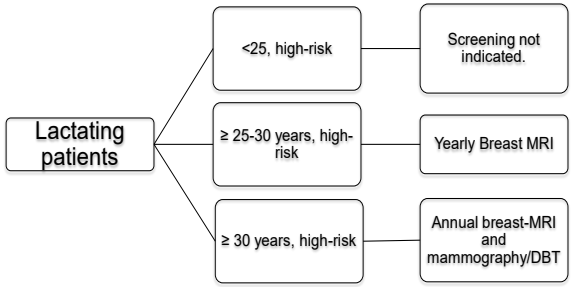


Figure 1: The American College of Radiology (ACR) Appropriateness Criteria® Breast Imaging of Pregnant and Lactating Women 2018 guidelines: Imaging Algorithm for Lactating Women[5]

Table 1: Key Results	Mammography (n=63)	Breast MRI (n=45)
Baseline Exam	30% (19)	40% (18)
Follow-up Exam	70% (44)	60% (27)
Extremity Dense Breast Tissue	54% (34)	67% (30)
Heterogeneously Dense Breast Tissue	46% (29)	29% (13)
Recall Rate	9% (6)	9% (4)
Key Findings Associated with Recall	Asymmetry (1), Mass (2), Calcifications (2), Distortion (1)	Axillary lymphadenopathy (2), focal non-mass enhancement (1), axillary mass (1)
Outcomes	4 benign/negative; 1 fibroadenoma, 1 stable BI-RADS 3; 0 malignancies	2 benign axillary LA; 1 benign dense fibrosis; 1 axillary mass; 0 malignancies

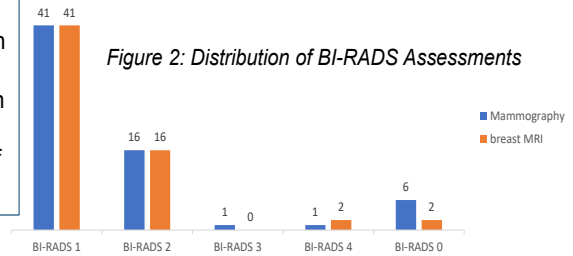


Figure 2: Distribution of BI-RADS Assessments

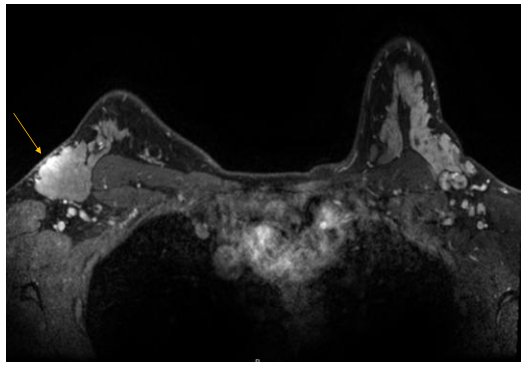


Figure 3: 36 yo lactating female with a family history of breast cancer. Early post-contrast axial T1-weighted fat suppressed breast MRI shows a 44 mm oval mass with irregular margins and heterogeneous enhancement in the right axillary tail (BI-RADS 4A). Diagnostic MG and US (not shown) confirmed finding. US-guided biopsy = benign lactational changes.

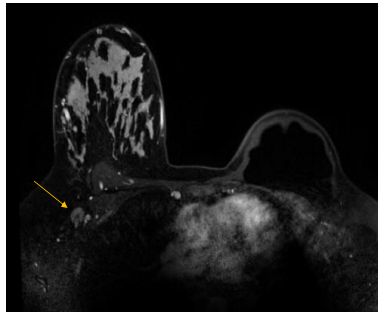


Figure 4: 33 yo lactating female with history of ER+/PR+ breast cancer status post left breast mastectomy with silicone implant. Early post-contrast axial T1-weighted fat-suppressed axial breast MRI shows a prominent right low level 1 axillary lymph node. Diagnostic US (not shown) showed increased cortical thickness (BI-RADS 4A). US-guided biopsy = benign lymph node. Follow-up MG and breast MRI x 6 years showed no evidence of malignancy.

Study Population

Total patients: 109 (9 excluded for insufficient follow-up)

- Mammography (MG): 63 patients (58 with tomosynthesis)
- MRI: 45 patients
  - Background parenchymal enhancement (BPE) was marked in 28/45 (62%), moderate in 7/45 (16%), and mild/minimal in 10/45 (22%).
- Both MG + MRI (same visit): 4 patients

Demographics: Patients undergoing MG had a mean age of 37 years (±4; range 27–47), while those in the MRI group had a mean age of 34 years (±3; range 26–43). Overall, 84% (92/109) had a first-degree family history of breast cancer. BRCA2 mutations were present in 13% (14/109), BRCA1 in 9% (10/109), and 8% (9/109) had a prior breast cancer diagnosis.
No cancers were detected in MG or MRI groups.

Conclusions

Breast cancer screening among high-risk lactating patients continues to be debated due to challenges attributed to physiologic changes in breast density and BPE that may contribute to both false-positive and false-negative imaging results. Screening recall and abnormal interpretation rates were low in both the screening mammography and breast MRI groups and within the acceptable range of screening mammography performance (5-12%). This study demonstrates that both screening mammography and breast MRI remain practical tools in the high-risk lactating population. Continued screening during lactation should be encouraged in high-risk patients to avoid delays in diagnosis and maintain continuity of care.

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