

AMSER Case of the Month: October 2026

57 y.o. F with multiple breast cancer risk factors
presents for supplemental breast cancer screening

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Patient Presentation

Clinical history:

- 57-year-old woman presents to OB/GYN clinic for annual visit c/o menopausal symptoms of hot flashes and night sweats, interested in HRT. She feels otherwise well.

PMHx:

- R breast benign intraductal papilloma, fibrocystic change with florid adenosis in 2015
- L breast cyst aspiration, negative cytology

Family Hx:

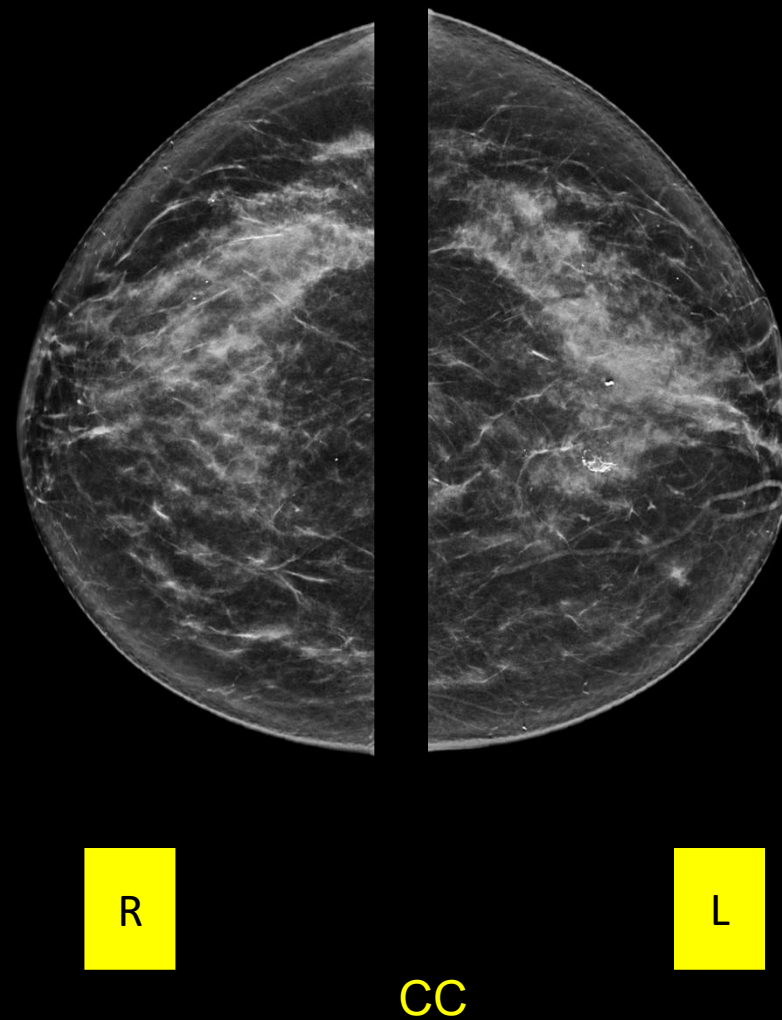
- Breast Cancer (Mother (80s, negative for BRCA), Maternal Aunt (70s), Maternal Grandmother (50s))
- Ovarian Cancer (Paternal Grandmother)
- Colon Cancer (Father)

Physical Exam: Unremarkable

Pertinent Imaging:

- Recent Mammo (1/23/2026): BIRADS 2 (waxing and waning cysts), heterogeneously dense

Screening Mammogram (1/2026)



BI-RADS C:
Heterogeneously
Dense

What Imaging Should We Order?

2023 ACR Recommendations for Supplemental Breast Cancer Screening

2023 ACR Recommendations for Higher-Than-Average Risk Populations ¹	
Population at Risk	Current ACR Recommendation (2023) (Starting age)
Genetic mutation carriers/untested 1 st degree relatives	- Annual DM $\pm$ DBT (age 40 if annual MRI; age 30 if not) - Annual MRI (25-30 y)
Calculated lifetime risk of $\geq 20\%$	- Annual DM $\pm$ DBT - Annual MRI (age 30)
History of chest/abdominal radiation at a young age	- Annual DM $\pm$ DBT - Annual MRI - Consider abdominal RT that over-laps breast in risk (age 25 or 8 y after treatment)
Personal history of breast cancer before age 40	- Annual DM $\pm$ DBT - Annual MRI if dense breasts or if diagnosed before age 50; others with PH consider MRI (from age at diagnosis)
History of atypia/LCIS diagnosed before age 40	- Annual DM $\pm$ DBT - Annual MRI if other risk factors
Dense breast tissue	- Annual DM $\pm$ DBT - Annual MRI - Consider CEM or US as alternative to MRI (age 40 or earlier if other risk factors)
All women, especially Black, minority, and those of Ashkenazi Jewish descent	Risk assessment by age 25

Our Patient

- GAIL Risk Assessment (does not include breast density)
 - 1.83% risk in next 5 years
 - 11.72% lifetime risk
- No formal Tyrer-Cuzick lifetime risk assessment performed
 - Strong Family History of breast and ovarian cancers
 - Heterogeneously dense breasts
- Patient at a higher-than-average lifetime risk (at least intermediate)

Select the applicable ACR Appropriateness Criteria²

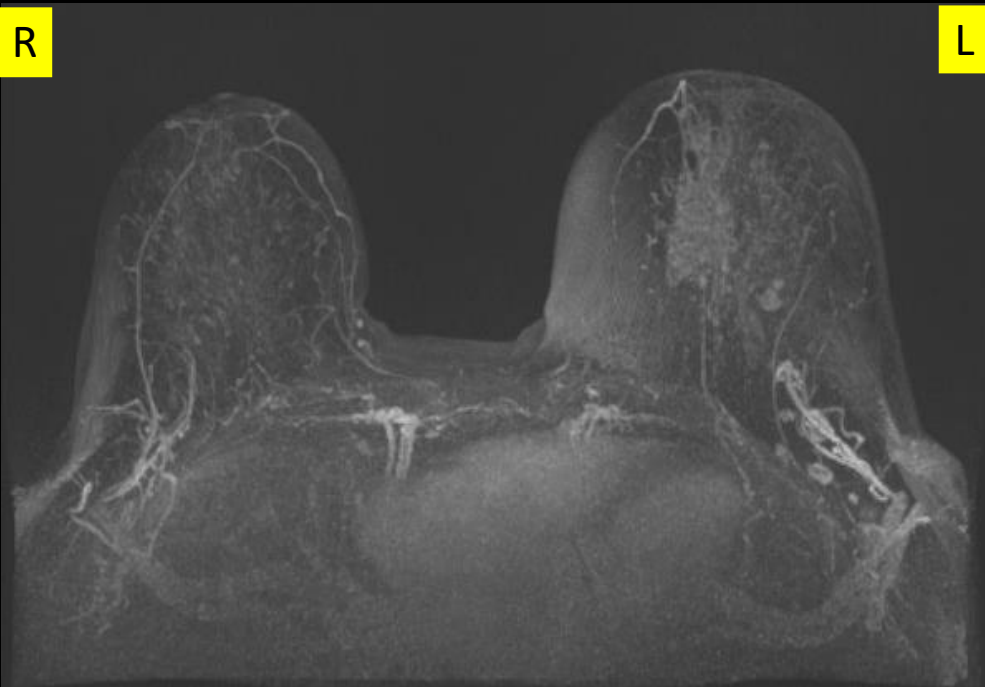
Supplemental Breast Cancer Screening Based on Breast Density

Variant: 5 Adult female. Supplemental breast cancer screening. Intermediate risk. Heterogeneously dense breasts.

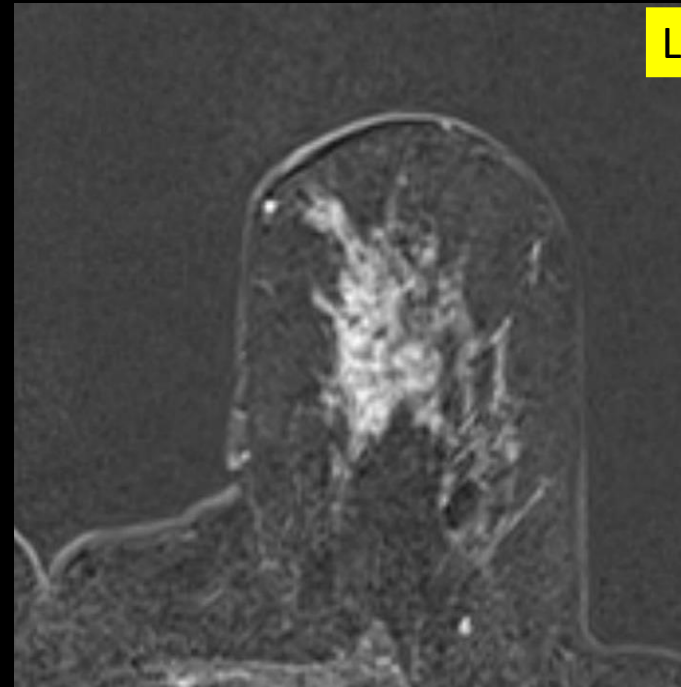
Procedure	Appropriateness Category	Relative Radiation Level
Digital breast tomosynthesis screening	Usually Appropriate	☼☼
MRI breast without and with IV contrast	Usually Appropriate	○
MRI breast without and with IV contrast abbreviated	Usually Appropriate	○
US breast	May Be Appropriate	○
Mammography with IV contrast	May Be Appropriate	☼☼
MRI breast without IV contrast	Usually Not Appropriate	○
MRI breast without IV contrast abbreviated	Usually Not Appropriate	○
FDG-PET breast dedicated	Usually Not Appropriate	☼☼☼
Sestamibi MBI	Usually Not Appropriate	☼☼☼

This imaging modality was ordered by the OB/GYN

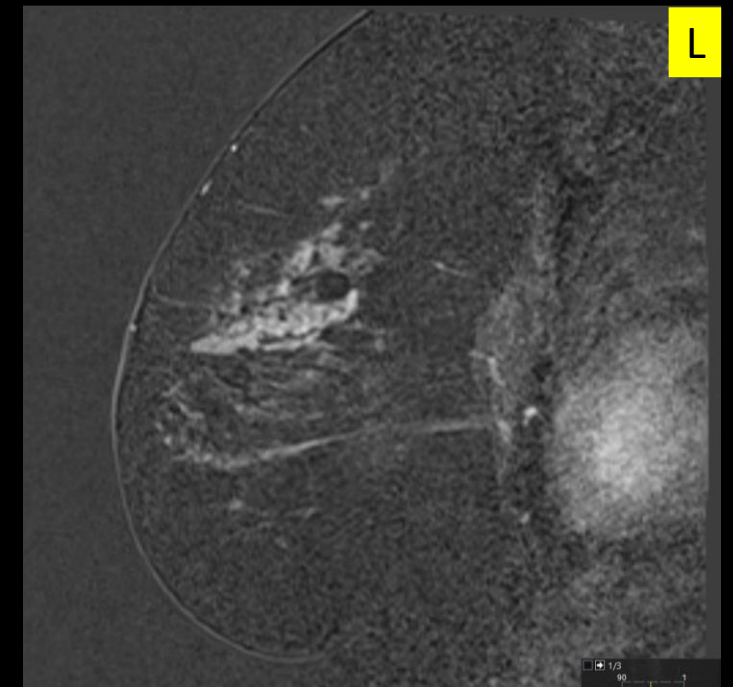
MRI of the Breasts with and without contrast (unlabeled)



T1-weighted fat sat mid phase post-contrast subtraction axial (maximum intensity projection image)



T1-weighted fat-sat initial phase post-contrast subtraction axial images



T1-weighted fat-sat initial phase post-contrast subtraction sagittal reconstruction images

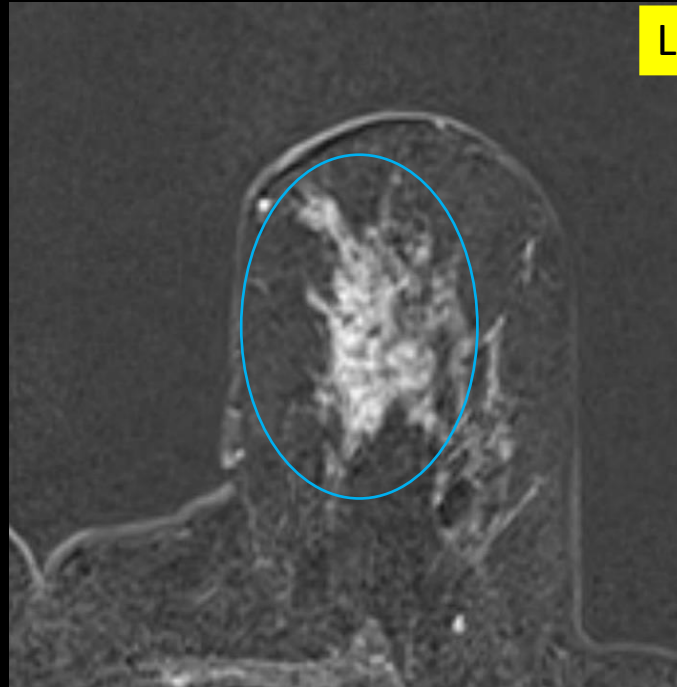
MRI of the Breasts with and without contrast (labeled)

Asymmetric non-mass enhancement (NME)



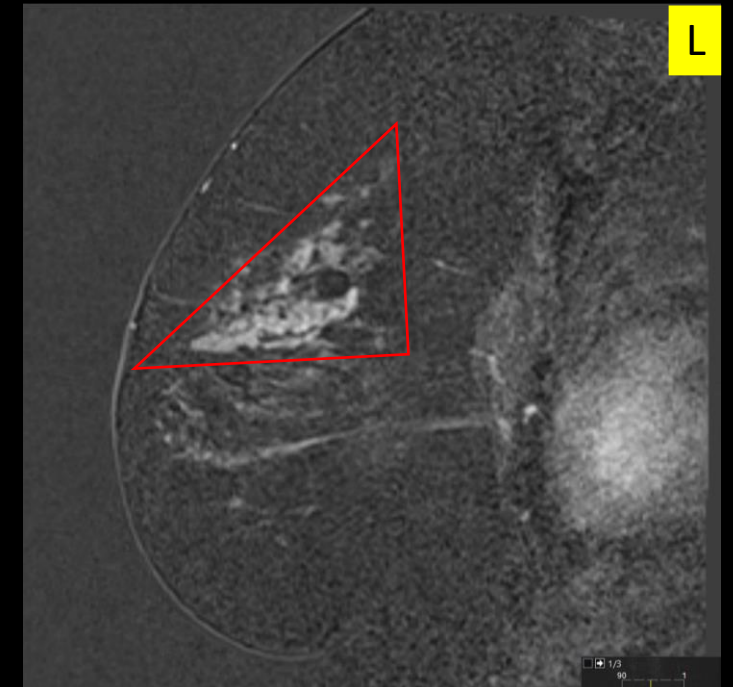
T1-weighted fat sat mid phase post-contrast subtraction axial maximum intensity projection (MIP) image

NME with clumped and clustered-ring internal enhancement pattern



T1-weighted fat-sat initial phase post-contrast subtraction axial images

Segmental distribution of NME
(4.9 cm AP x 2.5 cm TV x 2.8 cm SI)



T1-weighted fat-sat Initial phase post-contrast subtraction sagittal reconstruction images

BI-RADS 4: Suspicious

Differential Diagnosis

Most likely:

- Ductal carcinoma in situ (*most likely*)
- Invasive ductal carcinoma with extensive intraductal component

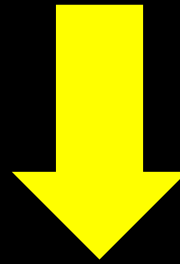
Less likely:

- Papillomatosis
- Atypical ductal hyperplasia
- Lobular neoplasia

Unlikely:

- Background parenchymal enhancement
- Fibrocystic change

Next Step?



MRI Guided Core Biopsy

Final Pathology Dx:

DCIS (solid type with necrosis, high nuclear grade) with multiple foci of microinvasive carcinoma and associated dense chronic inflammation

Hormone receptor status:

ER negative

PR negative

HER2/neu Positive (Score 3+)

Case Discussion- NME on Breast MRI

Definition

- Represents enhancement of breast parenchyma without space-occupying effect

BI-RADS Lexicon(2025)

Patient's Lesion

- Segmental
- Clumped
- Clustered Ring

Category	BI-RADS Descriptor ³	Relative Suspicion ⁴
Distribution		
	Diffuse	Low
	Regional	Intermediate
	Focal	Low
	Linear	Intermediate-High
	Segmental	High
Internal Enhancement Pattern		
	Homogeneous	Low
	Heterogeneous	Intermediate
	Clumped	High
	Clustered Ring	Very High

Case Discussion- MRI Correlation to DCIS

- DCIS is the most common malignant cause of NME (48-69% of malignant NMEs)

Imaging Features Associated with DCIS ⁵	
MRI Finding	Pathologic Correlate
Non-mass enhancement	Tumor confined to ducts
Segmental distribution	Involvement of a ductal tree
Clumped enhancement	Irregular filling of abnormal ducts
Clustered-ring enhancement	Periductal neovascularity and aggressive disease
Nipple enhancement	Possible extension along ductal system

- Segmental distribution suggests spread along a ductal system
- High-grade DCIS frequently demonstrates clumped (most common) or clustered-ring enhancement (most specific)

Case Discussion- DCIS Importance

DCIS: 15-20% of all breast cancer diagnoses⁶

- Increased risk of breast cancer mortality compared to general population⁷

Non-obligate precursor to invasive breast cancer⁸

- Untreated high-grade DCIS has 10 yr risk of invasive cancer of 18% (vs 12% for low-grade)⁹

Case Discussion- DCIS Importance

Risk of understating invasive cancer on core biopsy

- High-grade DCIS: 32% upgraded; Non-high-grade: 21% upgraded¹⁰
- 18.2% of patients meeting strict low-risk active surveillance trial criteria upgraded¹¹

The question of overtreatment remains (especially for low-risk DCIS)

- COMET trial (2025)¹²: 2-year invasive rates for active surveillance vs guideline-concordant care
 - Hormone receptor-positive grade 1 & 2 DCIS
 - Non-inferior rates (4.2% AS vs 5.9% Tx)

Case Discussion- DCIS NCCN Management Guidelines¹³

Primary Surgical Treatment

- Breast-conserving surgery (BCS) w/o LN surgery (with ≥ 2 mm negative margins)
 - Radiation therapy reduces recurrence by 50-70% for all DCIS
 - Can omit RTx if **RTOG 9804 criteria** are met
 - screen-detected, grade 1–2, size ≤ 2.5 cm, margins ≥ 3 mm
- Total mastectomy with SLNB $\pm$ reconstruction

Case Discussion- DCIS NCCN Management Guidelines¹³

Systemic Treatment by Hormone Receptor Status (ER testing; PR testing optional)

- ER-Positive DCIS: endocrine therapy for 5 years for risk reduction
 - Pre-menopausal: Tamoxifen; Post-menopausal: Tamoxifen or aromatase inhibitor
- ER-Negative DCIS: NO endocrine therapy is recommended

Surveillance (All DCIS):

- Hx and PE q 6-12m for 5 years, then annually
- Mammogram 6-12 months after completion of RT or BCS, then annually
 - Supplemental screening guidelines for higher-than-average risk patients (MRI)

Case Discussion: Take-Away

In appropriately selected patients with elevated breast cancer risk, supplemental MRI screening can detect clinically occult high-grade DCIS presenting solely as a suspicious NME, despite benign screening mammography

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