

# AMSER Case of the Month

## February 2021

38 year-old female with unilateral,  
palpable breast mass

Janice Hejirika, MS4

Cooper Medical School of Rowan University

Pauline Germaine, DO

Cooper University Healthcare



# Patient Presentation

- HPI: Patient presents with a 2-year history of a waxing and waning, tender, warm, LEFT breast mass which recently worsened. She is experiencing thick, white, blood-tinged drainage after the mass “popped.”
- OB/GYN Hx:
  - G2P2002
  - LMP: 8 weeks prior to initial presentation
- Past Medical Hx:
  - Prior episodes of infection in LEFT breast, treated with antibiotics
- Medications: None
- No pertinent labs
- Past Surgical Hx:
  - RIGHT breast sebaceous cyst excision (1998)
  - Classic C-section x2 (2012, 2016)
- Physical exam:
  - LEFT breast: Mass noted when supine in lower outer breast, in sitting position in upper central breast. ~ 5 cm, mobile, no nipple changes or nipple discharge, + axillary adenopathy

What imaging should be ordered?

# Select the applicable ACR Appropriateness Criteria

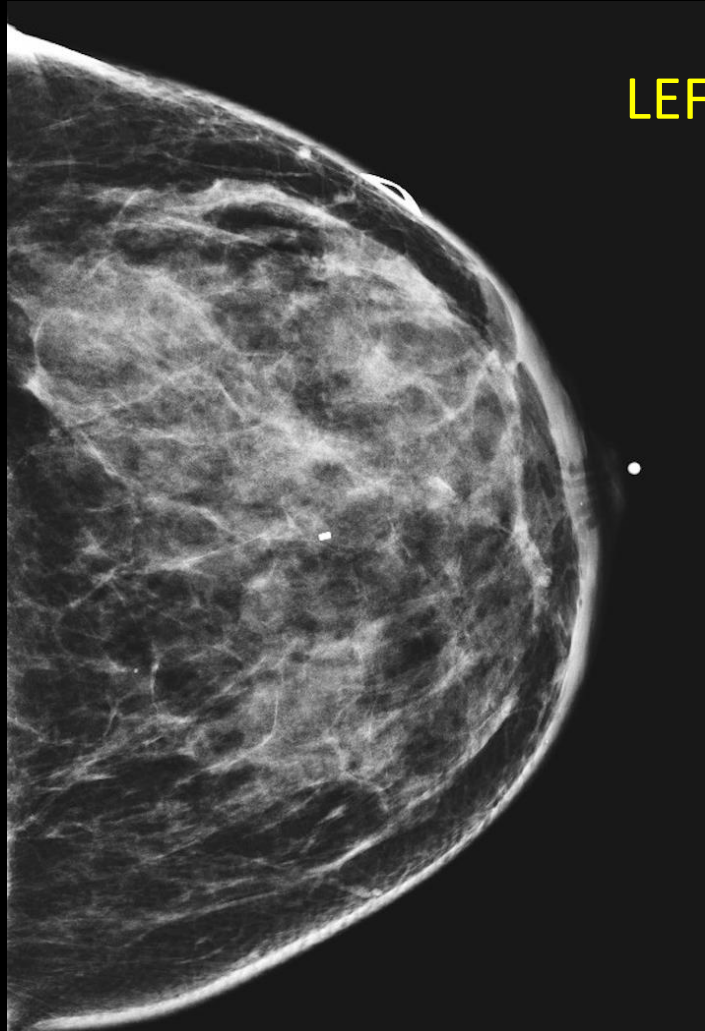
**Variant 11:**

**Palpable breast mass. Female, 30 to 39 years of age, initial evaluation. (See [Appendix 3](#) for additional steps in the workup of these patients.)**

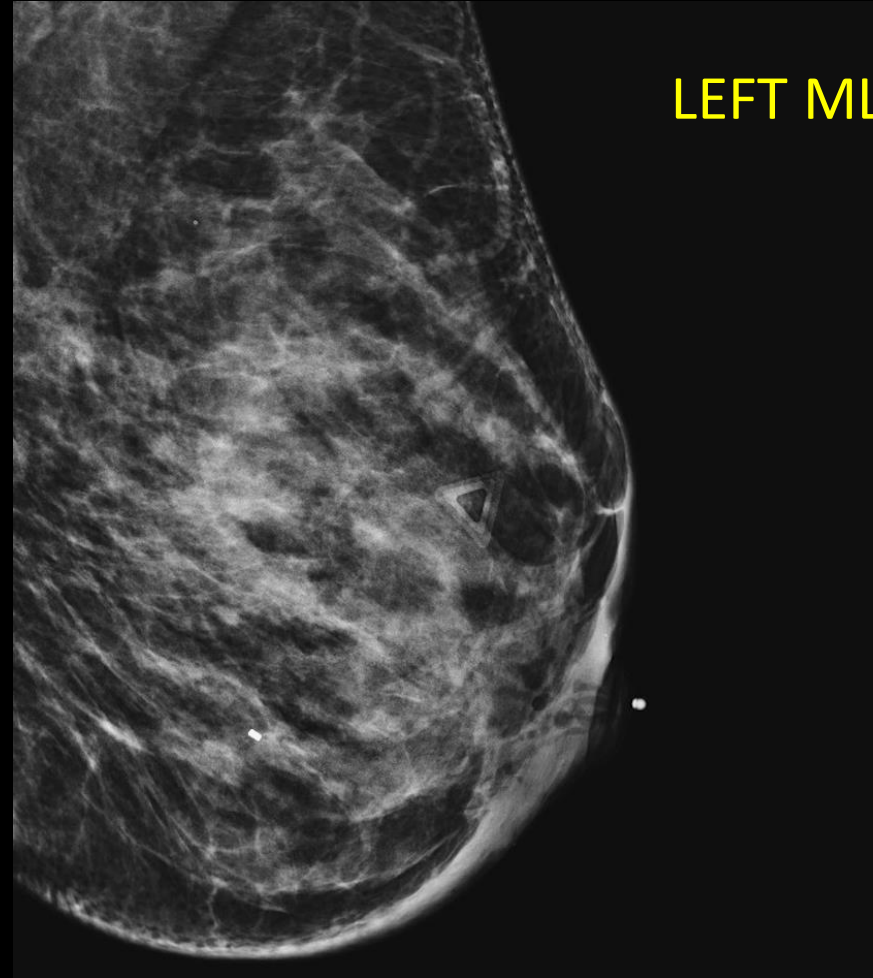
Radiologic Procedure	Rating	Comments	RRL*
US breast	8	If imaged initially with US, see Variants 7-10 for additional imaging.	○
Mammography diagnostic	8	If imaged initially with mammography, see Variants 2-5. See references [14,15].	⊗⊗
Digital breast tomosynthesis diagnostic	8	See references [16-20].	⊗⊗
MRI breast without and with IV contrast	2	See references [4,49].	○
MRI breast without IV contrast	1		○
FDG-PEM	1		⊗⊗⊗⊗
Sestamibi MBI	1		⊗⊗⊗
Image-guided core biopsy breast	1		Varies
Image-guided fine-needle aspiration breast	1		Varies
<b>Rating Scale:</b> 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			<b>*Relative Radiation Level</b>

These imaging modalities were ordered by the ordering physician

# Mammogram

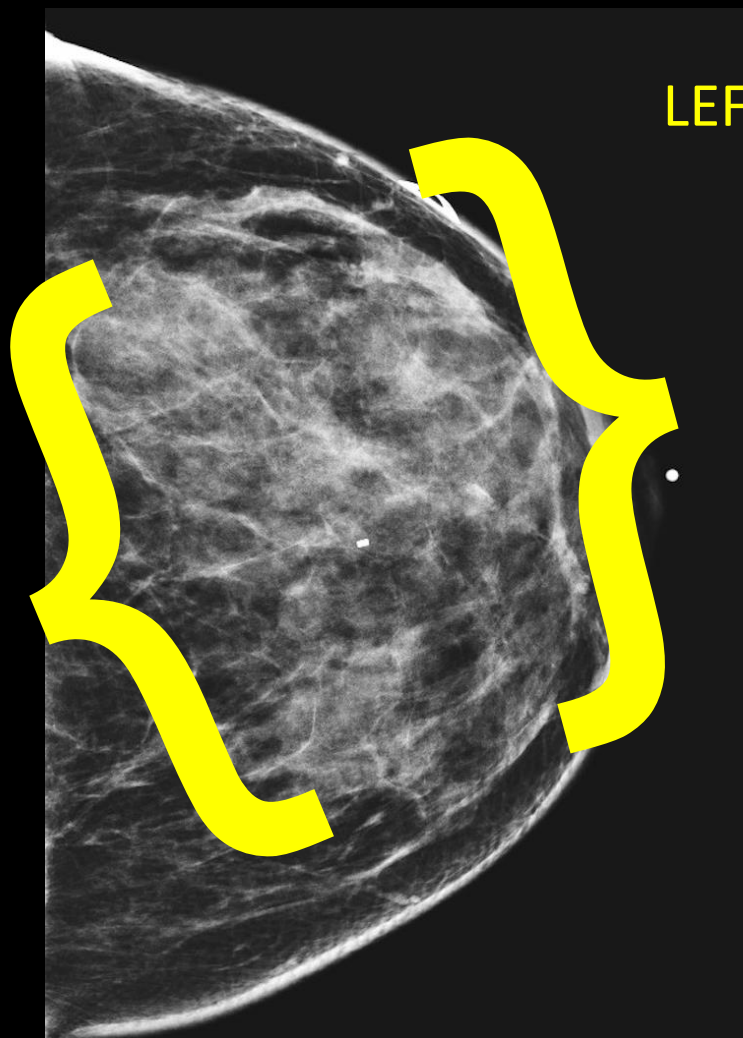


LEFT CC

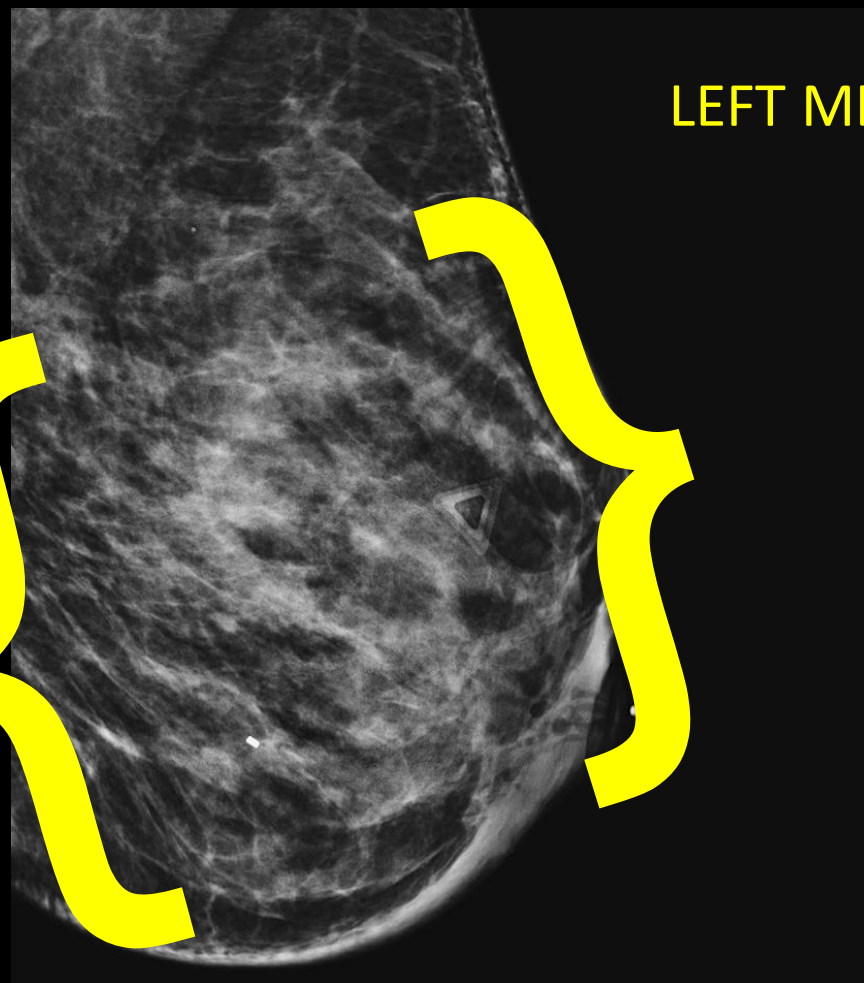


LEFT MLO

# Mammogram



LEFT CC

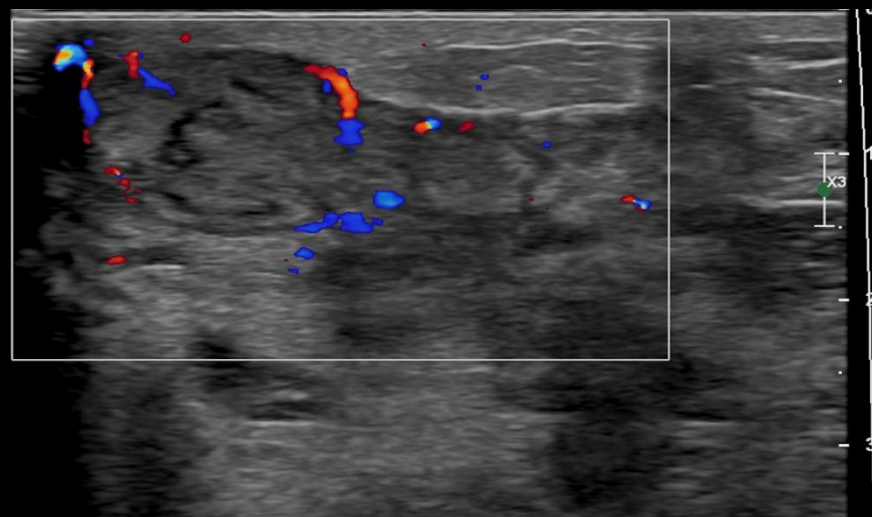


LEFT MLO

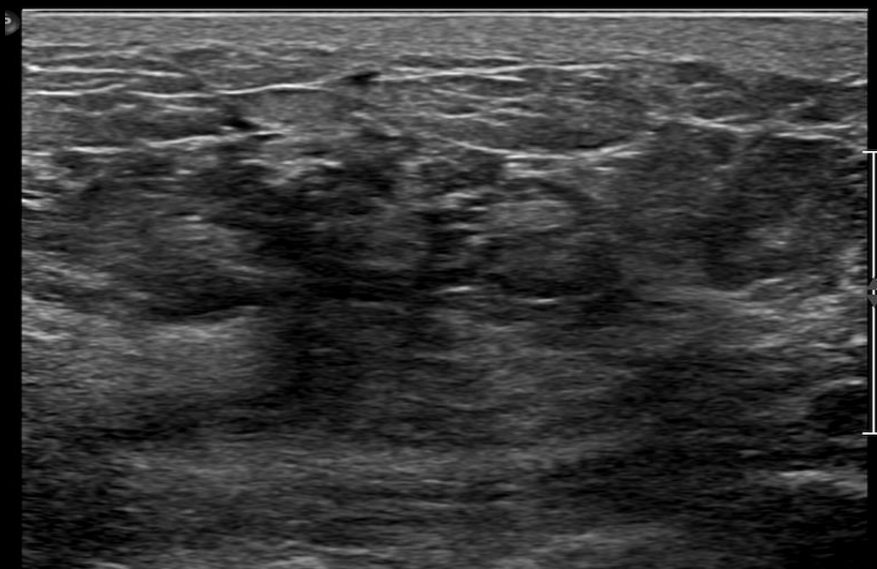
# Ultrasound



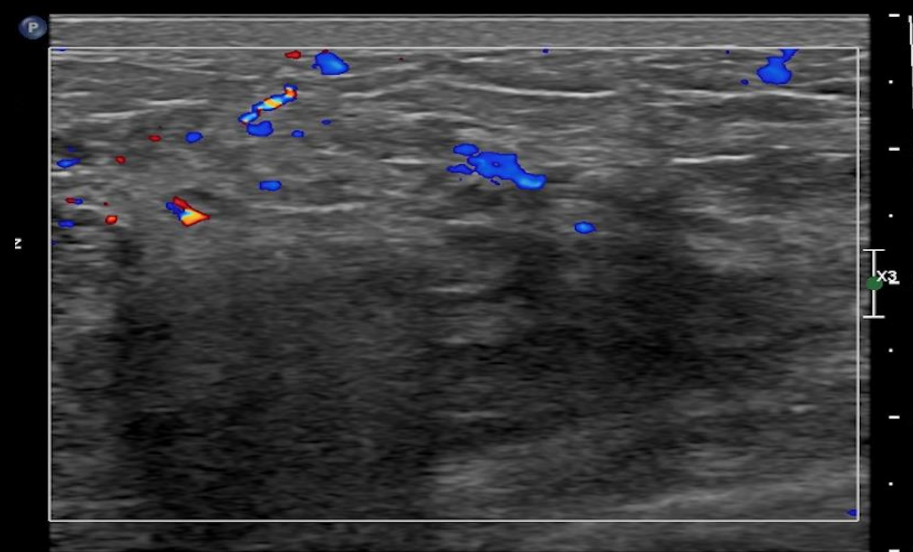
Left Breast 3:00 Subareolar Rad



Left Breast 3:00 SUBAREOLAR A Rad |

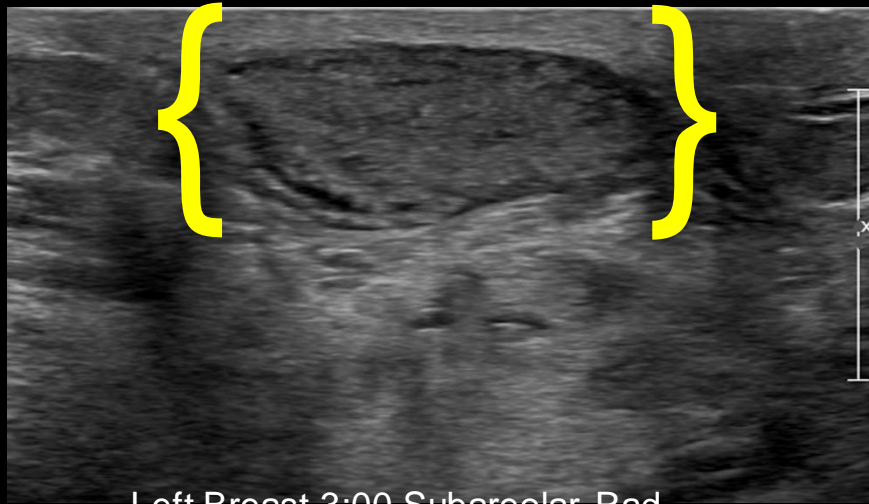


Left Breast AOC 3-5:00 7 CMFN Rad |

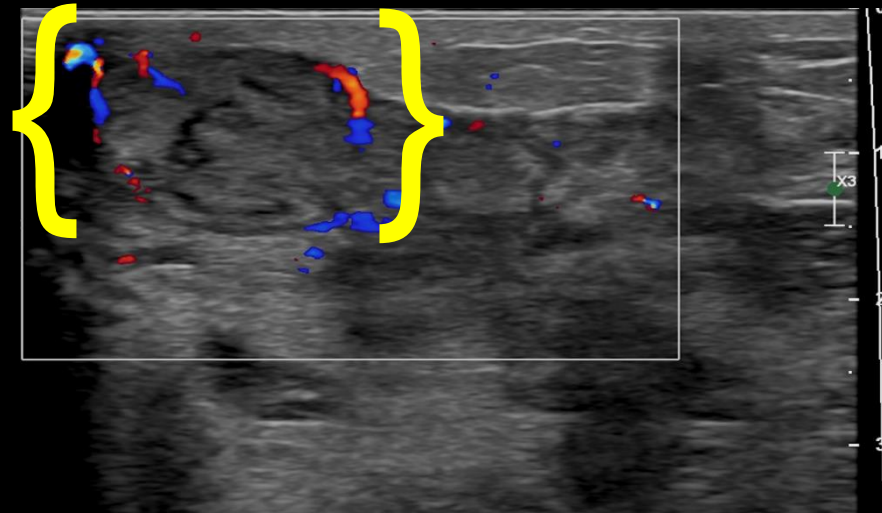


Left Breast AOC 3-5:00 7 CMFN A Rad |

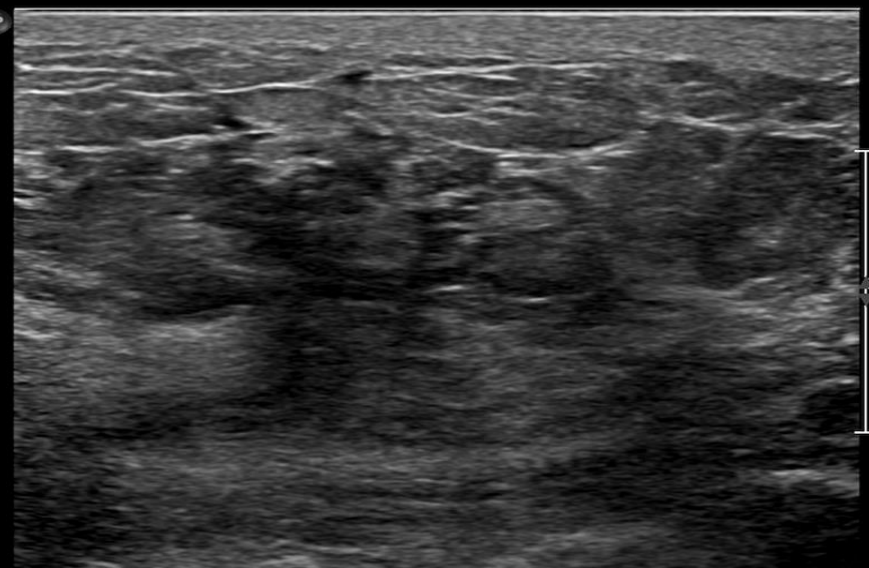
# Ultrasound



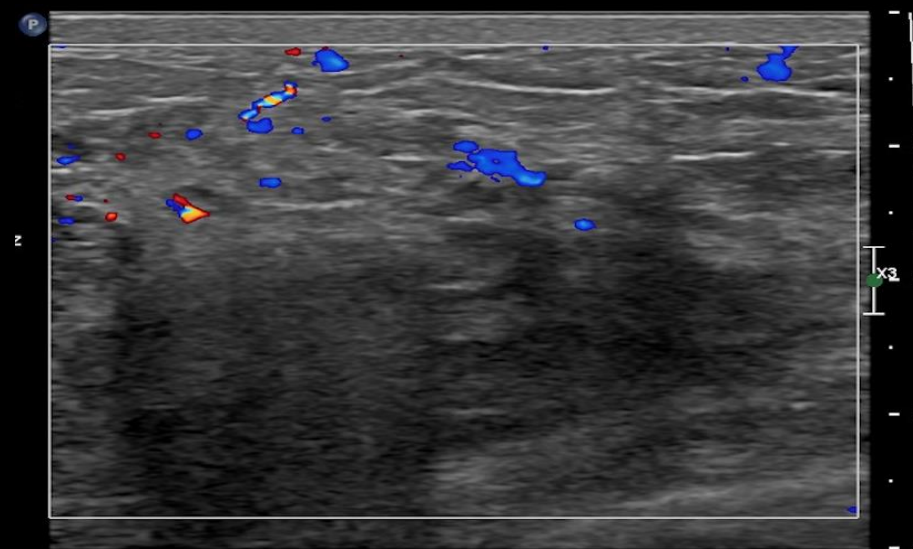
Left Breast 3:00 Subareolar Rad



Left Breast 3:00 SUBAREOLAR A Rad |



Left Breast AOC 3-5:00 7 CMFN Rad |



Left Breast AOC 3-5:00 7 CMFN A Rad |



# Radiographic Findings

## LEFT CC and MLO:

- Diffusely increased density throughout the left breast with associated skin thickening.

## LEFT Ultrasound:

- Hypoechoic 3:00 subareolar 4.4cm mass extends to the skin surface and demonstrates peripheral vascularity on Color Doppler examination.
- Skin thickening and subcutaneous edema are noted.

Next steps?

# Select the applicable ACR Appropriateness Criteria

**Variant 11:** Palpable breast mass. Female, 30 to 39 years of age, initial evaluation. (See [Appendix 3](#) for additional steps in the workup of these patients.)

Radiologic Procedure	Rating	Comments	RRL*
US breast	8	If imaged initially with US, see Variants 7-10 for additional imaging.	○
Mammography diagnostic	8	If imaged initially with mammography, see Variants 2-5. See references [14,15].	⊕⊕
Digital breast tomosynthesis diagnostic	8	See references [16-20].	⊕⊕
MRI breast without and with IV contrast	2	See references [4,49].	○
MRI breast without IV contrast	1		○
FDG-PEM	1		⊕⊕⊕⊕
Sestamibi MBI	1		⊕⊕⊕
Image-guided core biopsy breast	1		Varies
Image-guided fine-needle aspiration breast	1		Varies
<b>Rating Scale:</b> 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			<b>*Relative Radiation Level</b>

This imaging modality was ordered by her primary care nurse practitioner

# Ultrasound-guided core biopsy results

Breast, left @ 3:00, core biopsy:

- Consistent with cystic neutrophilic granulomatous mastitis.
- Cystic neutrophilic granulomatous mastitis is a subtype of granulomatous mastitis with distinct histological pattern often associated with *Corynebacterium* species.
- No evidence of malignancy in this material.

Final Dx:

Granulomatous Mastitis

# What is Granulomatous Mastitis?

- Benign, inflammatory breast disease that affects mostly women of childbearing age with hx of breastfeeding
- Rare disease affecting 2.4 per 100,000 women and 0.37% in the US
- Symptoms include pain, erythema, swelling, hyperemia, areolar retraction, fistula, and ulceration
- Inflammation secondary to the following:
  - Trauma
  - Metabolic/hormonal processes
  - Autoimmunity
  - Infection with *Corynebacterium kroppenstedtii*

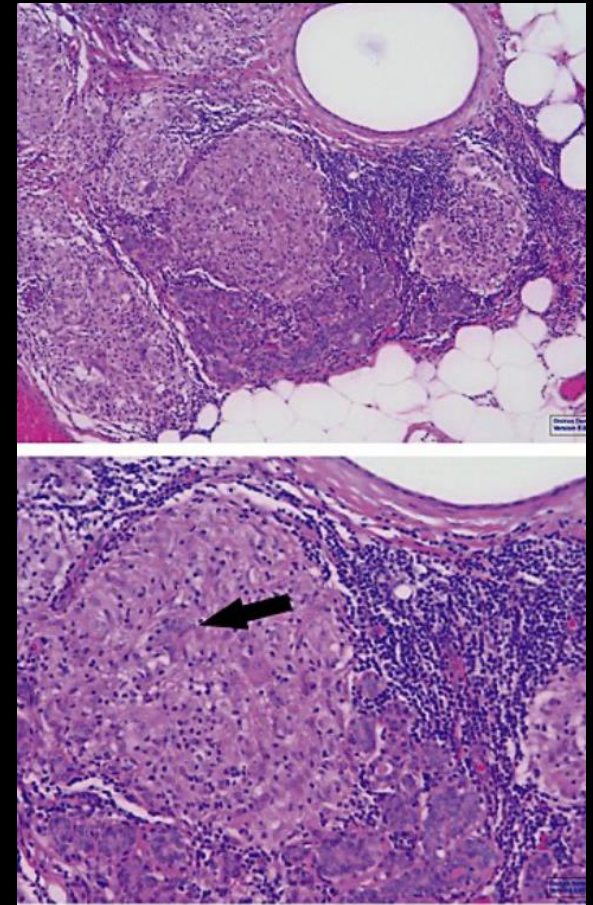
# How is it diagnosed and treated?

## DIAGNOSIS:

- Determined by **histopathology** after core needle biopsy of the lesion (96% sensitivity)
- Localized infiltration of multi-nucleated giant cells, epithelioid histiocytes, and plasma cells
- Ultrasound, mammography, and MRI are not specific

## TREATMENT:

- Controversial due to rarity of disease and limited data
- **Antibiotics** in the beginning of therapy and high-dose **prednisolone** therapy



# References:

1. Wolfrum, A., Kümmel, S., Theuerkauf, I., Pelz, E., & Reinisch, M. (2018). Granulomatous Mastitis: A Therapeutic and Diagnostic Challenge. *Breast Care*, 13(6), 413-418. doi:10.1159/000495146
2. Centers for Disease Control and Prevention: Idiopathic granulomatous mastitis in Hispanic women - Indiana, 2006-2008. *MMWR Morb Mortal Wkly Rep* 2009;58:1317-1321.
3. Lei X, Chen K, Zhu L, et al: Treatments for idiopathic granulomatous mastitis: systematic review and meta-analysis. *Breastfeed Med* 2017;12:415-421.
4. Johnstone KJ, Robson J, Cherian SG, et al: Cystic neutrophilic granulomatous mastitis associated with *Corynebacterium* including *Corynebacterium kroppenstedtii*. *Pathology* 2017;49:405-412