



AMSER Case of the Month

March 2023

HPI: 39-year-old female with a palpable left breast lump

Mark Eskander, OMS IV – Lake Erie College of Osteopathic Medicine

Peter Lore, DO - Penn State Health Milton S. Hershey Medical Center

Angela Choe, MD - Penn State Health Milton S. Hershey Medical Center

Patient Presentation

- HPI: 39-year-old female presents with palpable lump in the lower outer left breast that she first noticed 13 months ago
- PMH: No significant history
- PSH: No significant history
- FH: No significant history
- OB/GYN HX: 3 caesarian deliveries
- PE: Nontender, irregular mass in the lower outer quadrant of the left breast. There is no lymphadenopathy, nipple distortion, or skin changes
- Pertinent labs: None

What Imaging Should We Order?

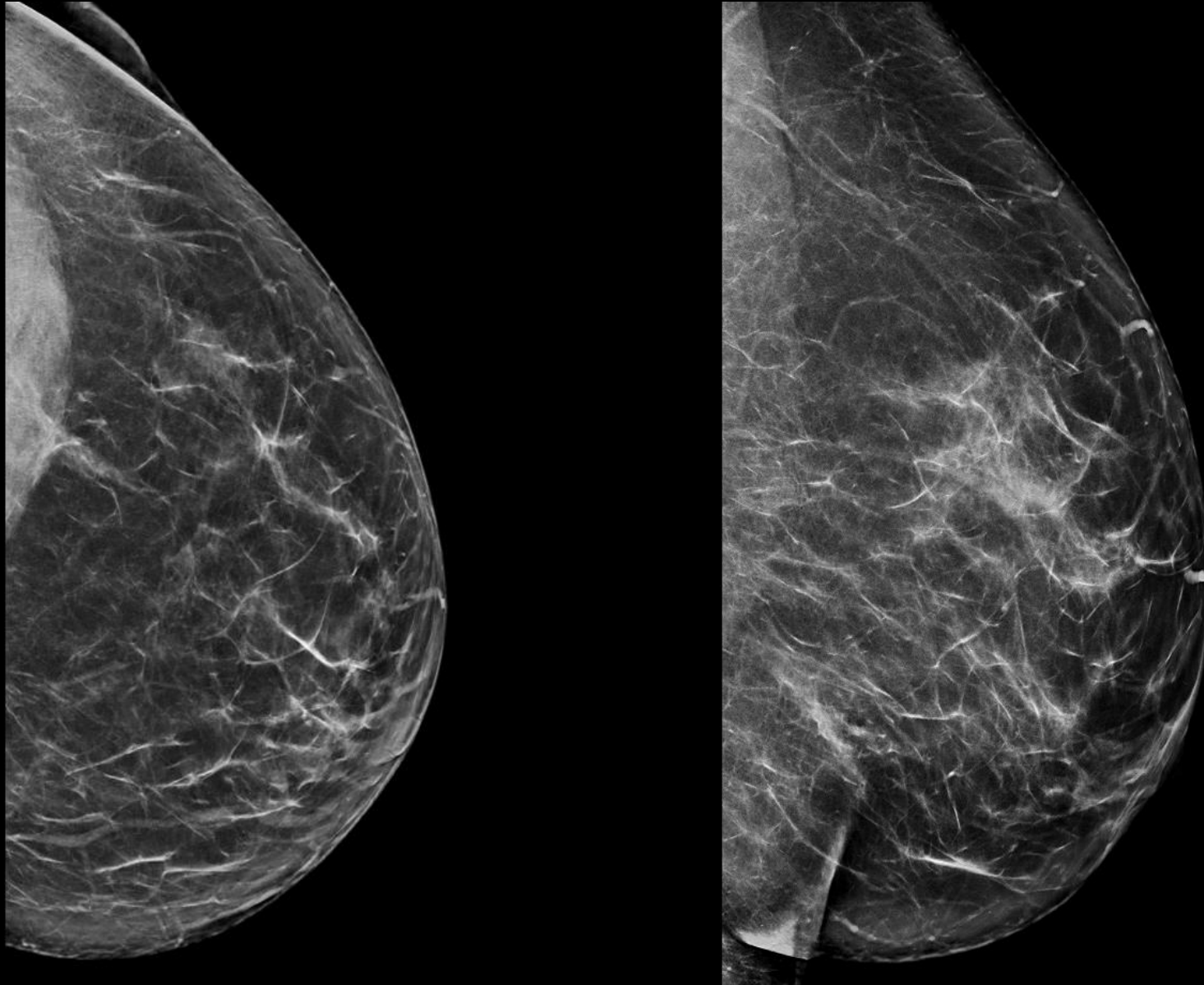
ACR Appropriateness Criteria for palpable breast masses in female 30 to 39 years of age

Variant 11: Adult female, 30 to 39 years of age. Palpable breast mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US breast	Usually Appropriate	○
Digital breast tomosynthesis diagnostic	Usually Appropriate	☢☢
Mammography diagnostic	Usually Appropriate	☢☢
Digital breast tomosynthesis screening	Usually Not Appropriate	☢☢
Mammography screening	Usually Not Appropriate	☢☢
Image-guided core biopsy breast	Usually Not Appropriate	Varies
Image-guided fine needle aspiration breast	Usually Not Appropriate	Varies
MRI breast without and with IV contrast	Usually Not Appropriate	○
MRI breast without IV contrast	Usually Not Appropriate	○
Sestamibi MBI	Usually Not Appropriate	☢☢☢
FDG-PET breast dedicated	Usually Not Appropriate	☢☢☢☢

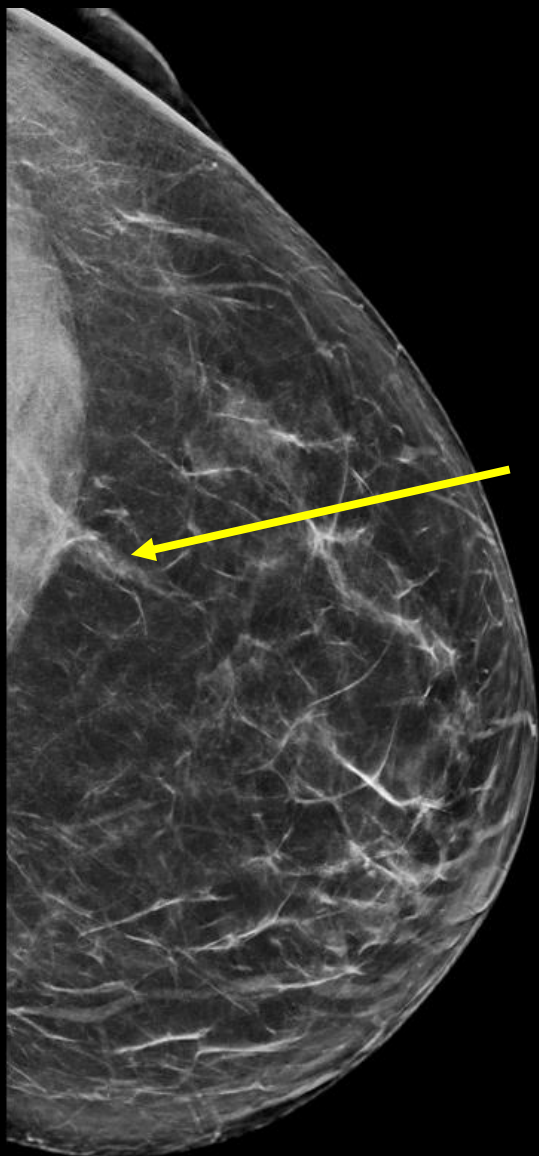
These imaging modalities were ordered by the physician

Diagnostic Mammogram (unlabeled)

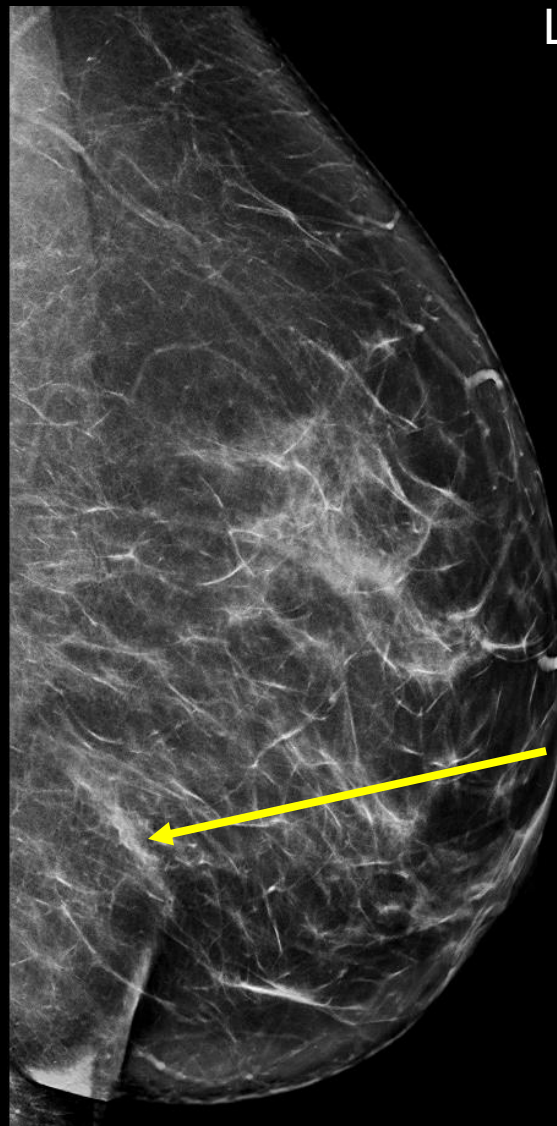


Diagnostic Mammogram (labeled)

L CC

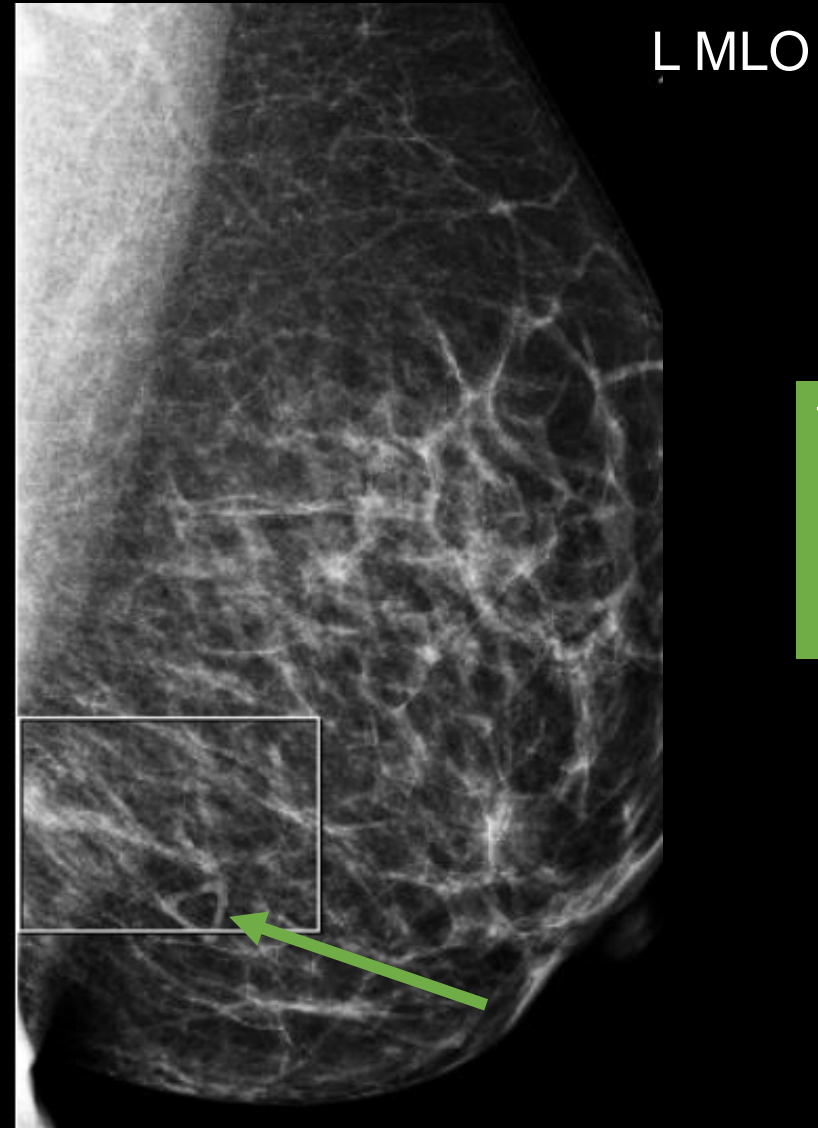
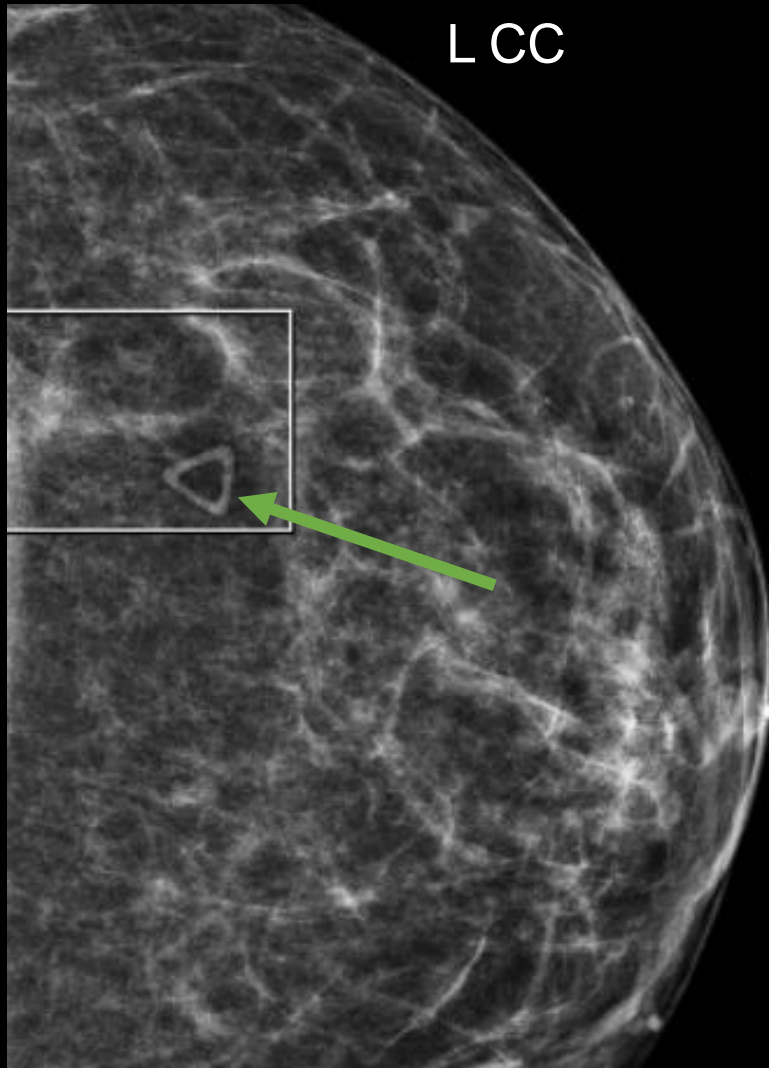


L MLO



Focal asymmetry at posterior depth corresponding to area of palpable lump

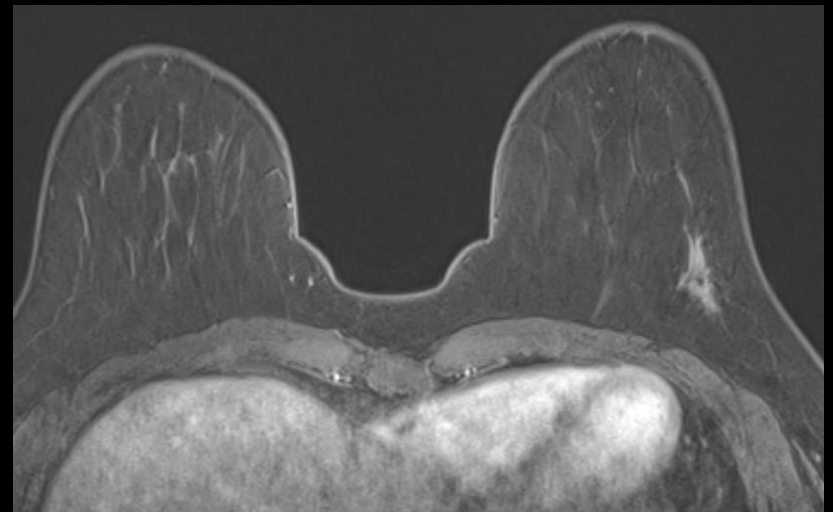
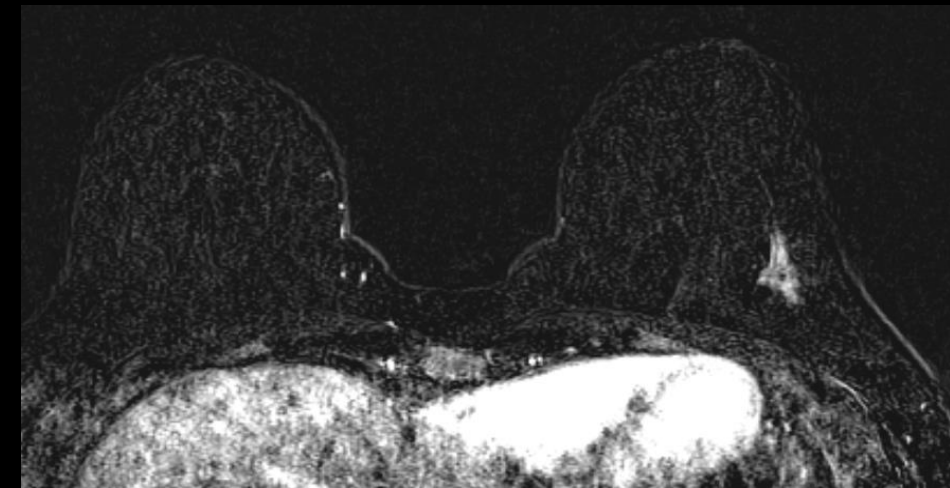
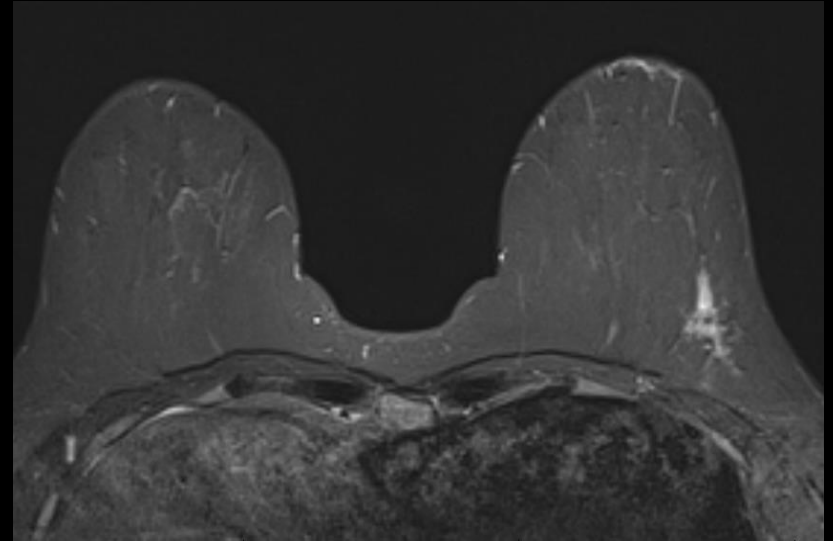
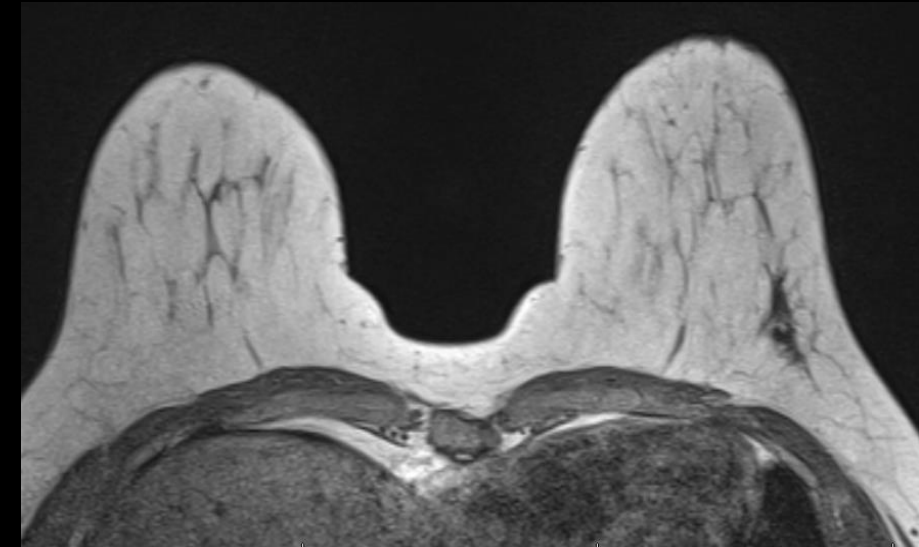
Repeat diagnostic mammogram following triangular marker placement



Triangular marker placed at area of palpable lump on physical exam

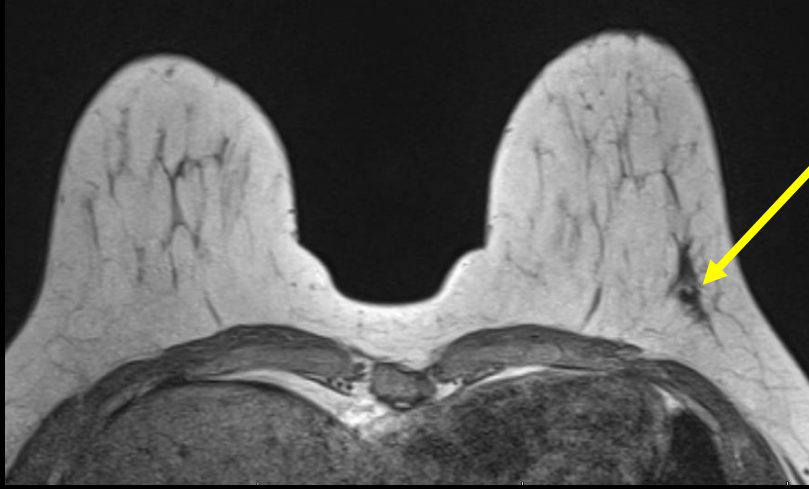
Breast MRI (unlabeled)

(performed 4 months later due to persisting palpable mass with indeterminate mammographic findings)

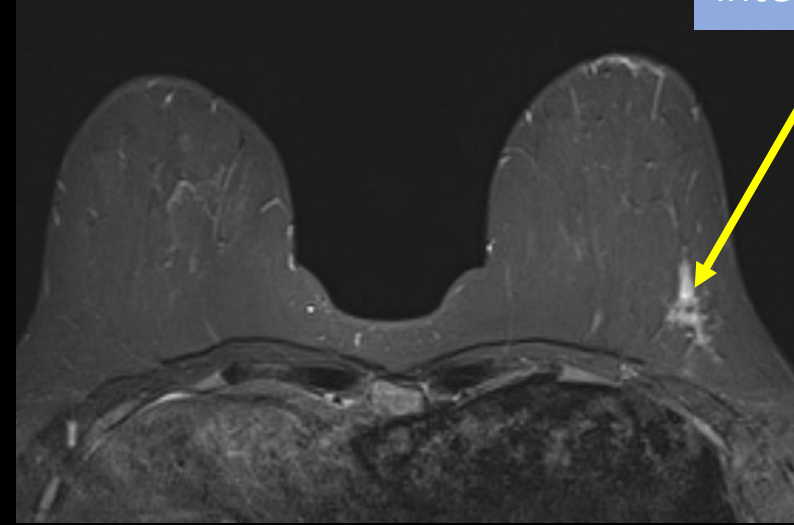


Breast MRI (labeled)

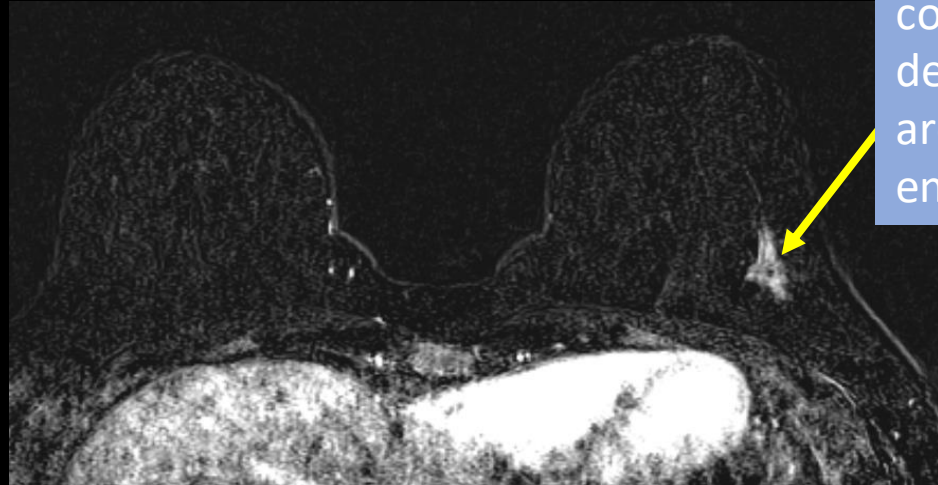
T1 non-fat saturated pre-contrast image through both breasts demonstrates non-mass lesion with low signal intensity



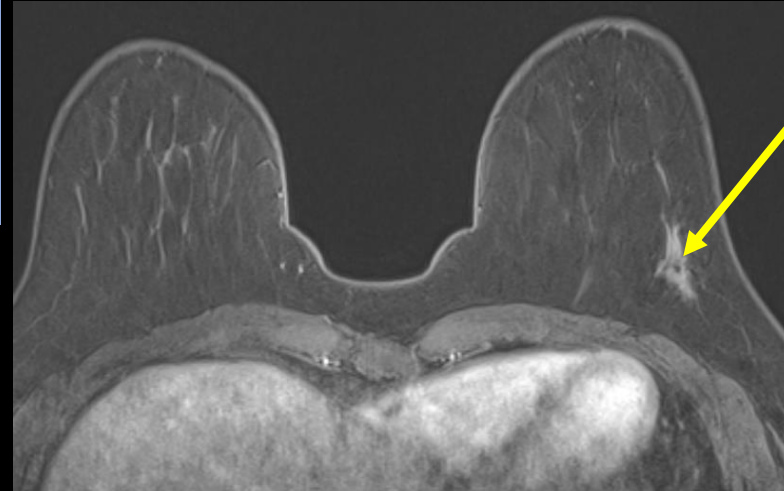
T2 fat saturated image demonstrating inherent high signal intensity



Subtraction post-contrast image demonstrating an area of non-mass enhancement



Dynamic post-T1 fat saturated image demonstrating an area of non-mass enhancement



Differential Diagnosis for Focal Asymmetry on Mammography and NME on MRI

- ddx for focal asymmetry on mammography
 - Simple cyst, fat necrosis, ectopic breast tissue, focal fibroglandular tissue (stimulated by hormone replacement or oral contraceptives), invasive ductal carcinoma, invasive lobular carcinoma, tubular carcinoma, primary lymphoma of the breast
- ddx for NME on MRI
 - pseudoangiomatous stromal hyperplasia, atypical ductal hyperplasia, flat epithelial atypia, apocrine metaplasia, radial scar, intraductal papilloma, and complex sclerosing lesions

Final Dx:

Breast Fibromatosis

Breast Fibromatosis

- Breast fibromatosis, also known as desmoid tumor of the breast, is a rare breast tumor that occurs in women of reproductive age
- Accounts for only 0.2% of all breast tumors
- Benign and have no metastatic potential however can be locally invasive/infiltrative
- Presents as a painless breast mass that mammographically and radiologically mimics more concerning malignant entities
- Definitive diagnosis is made with surgical biopsy, which would show spindle cell proliferation that invades ducts, lobules, and muscle

Imaging Findings

- **Diagnostic Mammogram**

- Presents as a focal asymmetry, which is an asymmetric area of fibroglandular tissue that involves less than one quadrant of breast volume
- Irregular, hyperdense mass with spiculated margins that typically arises close to the pectoralis muscle
- Calcification is uncommon

- **Ultrasound**

- Hypoechoic, irregular, angular, or indistinctly marginated mass

- **MRI**

- T1WI: typically iso or hypointense to parenchyma
- STIR: variable signal intensity
 - Hypointense fibrous tissue
 - T2- Hyperintense myxoid tissue
- T1WI +C FS: irregular spiculated mass with variable enhancement

Treatment and Prognosis

- Standard treatment of care is wide local excision with adequate safety margins
- Reoccurrence following surgical removal occurs in about 18-29% of patients
- Reoccurrence most commonly happens within the first two years of surgical removal
- Fibromatosis has an excellent prognosis with a 100% survival rate, as it is not a cancer

References:

- 1- Winkler N, Peterson M, Factor R. Breast fibromatosis: Radiologic–Pathologic Correlation. *Journal of Breast Imaging*. 2021;3(5):597-602. doi:10.1093/jbi/wbab051
- 2 - Abdelwahab K, Hamdy O, Zaky M, et al. Breast fibromatosis, an unusual breast disease. *J Surg Case Rep*. 2017;2017(12):rjx248. Published 2017 Dec 21. doi:10.1093/jscr/rjx248
- 3 - Grimaldi MC, Trentin C, Lo Gullo R, Cassano E. Fibromatosis of the breast mimicking cancer: A case report. *Radiol Case Rep*. 2017;13(1):1-5. Published 2017 Nov 6. doi:10.1016/j.radcr.2017.09.011
- 4 - Samardar P, de Paredes ES, Grimes MM, Wilson JD. Focal asymmetric densities seen at mammography: US and pathologic correlation. *Radiographics*. 2002;22(1):19-33. doi:10.1148/radiographics.22.1.g02ja2219
- 5 - Liu G, Li Y, Chen SL, Chen Q. Non-mass enhancement breast lesions: MRI findings and associations with malignancy. *Ann Transl Med*. 2022;10(6):357. doi:10.21037/atm-22-503
- 6 - Chadashvili T, Ghosh E, Fein-Zachary V, et al. Nonmass enhancement on breast MRI: review of patterns with radiologic-pathologic correlation and discussion of management. *AJR Am J Roentgenol*. 2015;204(1):219-227. doi:10.2214/AJR.14.12656