

# AMSER Case of the Month

## January 2025

27 y.o. female with left breast mass

Yvonne Su, MS4

Perelman School of Medicine at the University of Pennsylvania

Linda White Nunes, MD, MPH

Department of Radiology, Penn Medicine



Penn Medicine



# Patient Presentation

- HPI: 27 yo female patient presented to the ED with a LEFT breast lump for 8 months, accompanied by sharp, stabbing pain that comes and goes
  - No history of nipple discharge or skin change
  - **Jan 2024:** Initial presentation to clinician
    - Pt had stopped breastfeeding due to 1-month history of painful LEFT breast lump at **9 o'clock position** with swelling.
    - Working diagnosis - lactating adenoma
    - Recommendation - 3-month clinical follow-up
  - **April 2024:** Follow-up clinical presentation
    - Lesion had been followed for 3 months without improvement
    - Working Diagnosis – Indeterminate mass
    - Recommendation – Breast Imaging by Radiology

# Patient Presentation

- PMH/PSH:
  - 2020: excisional surgery in Guatemala for **Left** breast mass c/w atypical ductal hyperplasia (no prior imaging available)
  - 2022: new Right breast lump c/w simple cyst per US
  - **2023 (April)**: new **Left** breast mass (**9 o'clock position**), US performed (BIRADS 4) followed by diagnostic mammogram; US-guided biopsy 2 weeks later c/w **fibroadenoma**
- SH: noncontributory
- FH: breast cancer in maternal great-grandmother

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

**Variant 6:** Adult female, younger than 30 years of age. Palpable breast mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US breast	Usually Appropriate	0
Digital breast tomosynthesis diagnostic	Usually Not Appropriate	☢☢
Digital breast tomosynthesis screening	Usually Not Appropriate	☢☢
Mammography diagnostic	Usually Not Appropriate	☢☢
Mammography screening	Usually Not Appropriate	☢☢

This imaging modality was ordered by the ED physician

# Select the applicable ACR Appropriateness Criteria

**Variant 6:** Adult female, younger than 30 years of age. Palpable breast mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US breast	Usually Appropriate	○
Digital breast tomosynthesis diagnostic	Usually Not Appropriate	☢☢
<del>Digital breast tomosynthesis screening</del>	Usually Not Appropriate	☢☢
Mammography diagnostic	Usually Not Appropriate	☢☢
Mammography screening	Usually Not Appropriate	☢☢

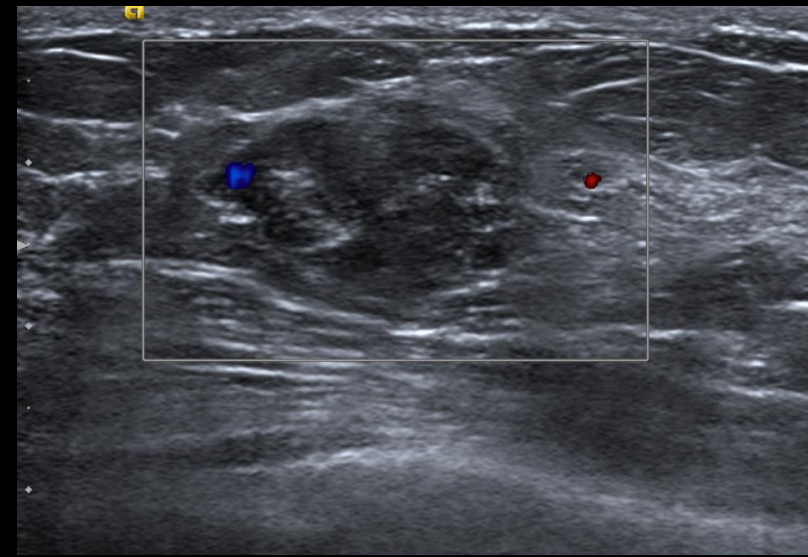
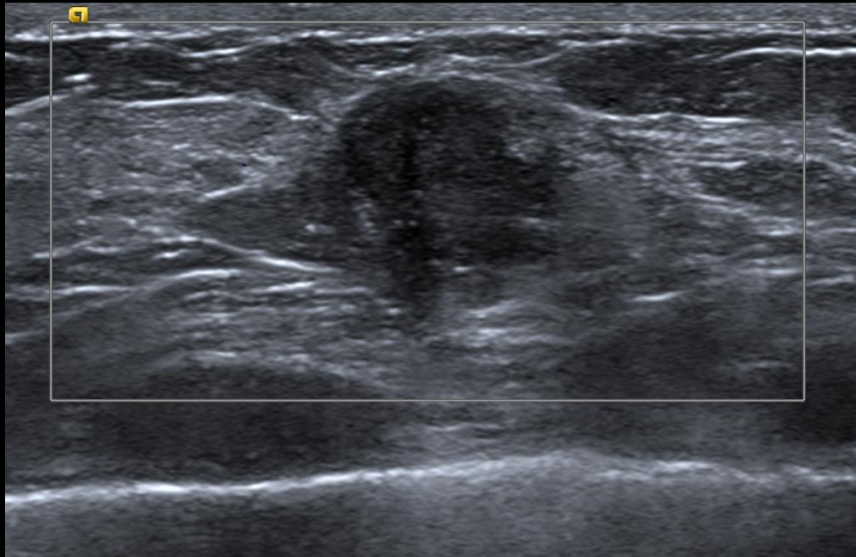
This imaging modality was ordered by the ED physician

This imaging modality was ordered for comparison with prior examination given patient history and presentation

Hey, there is a previous exam! 😊

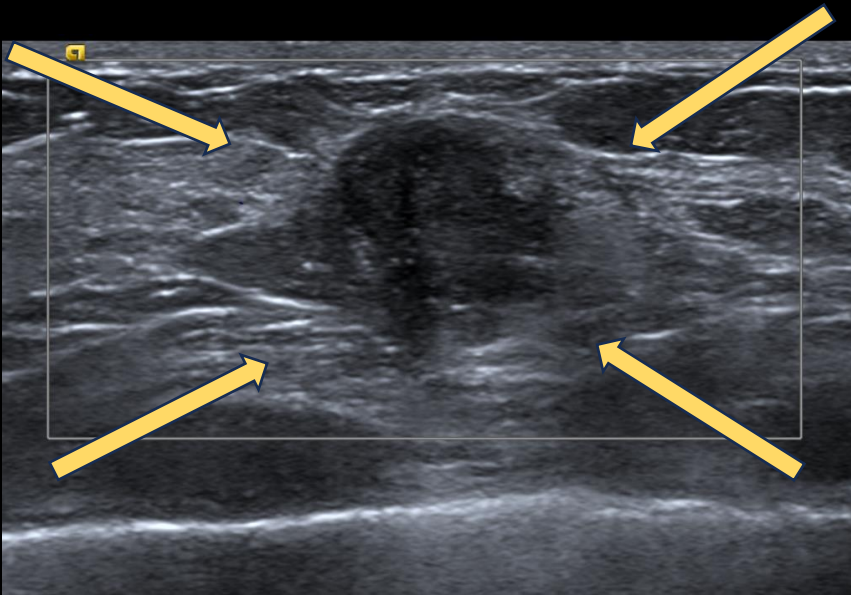
# Let's rewind (to 2023)...

April 2023 prior examination

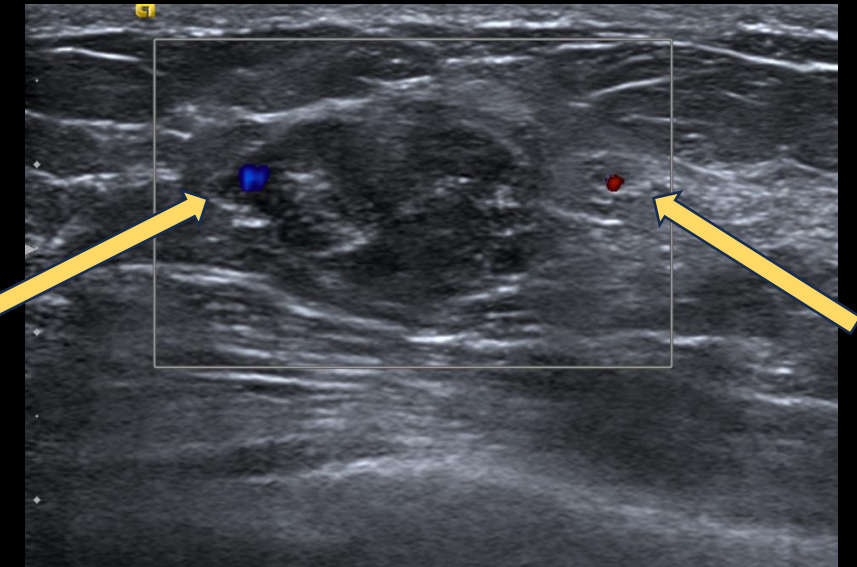


# Let's rewind...

**April 2023** prior examination



Heterogenous hypoechoic 2.0 x 1.3 x 1.5 cm mass with indistinct margins at 9 o'clock, 7 cm from the nipple

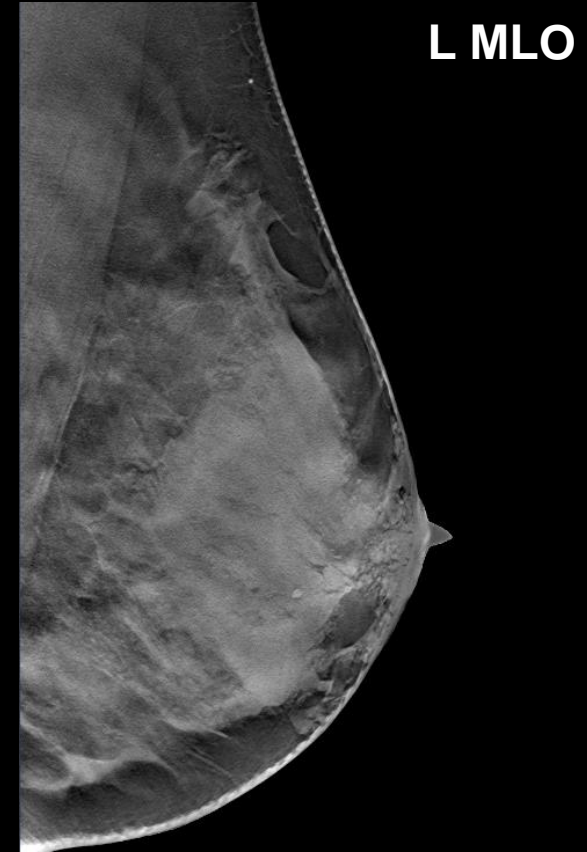
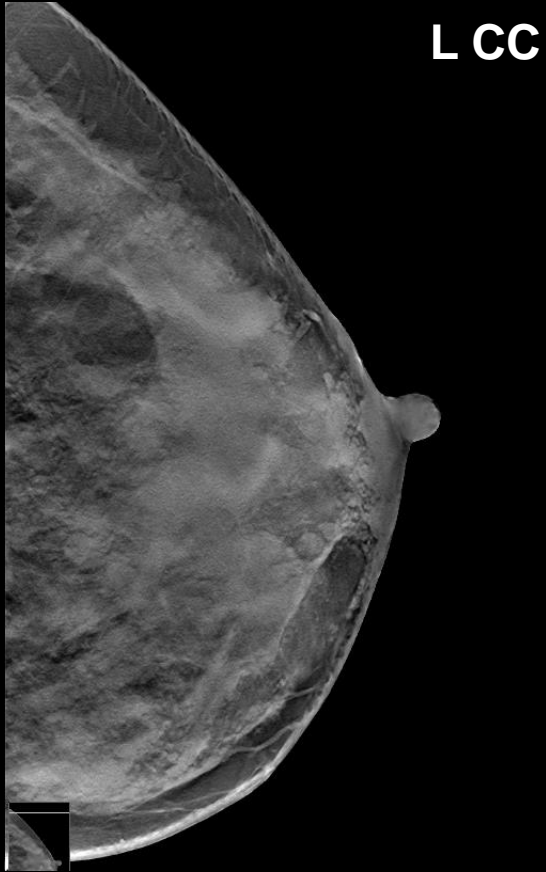


Color flow demonstrates minimal peripheral vascularity



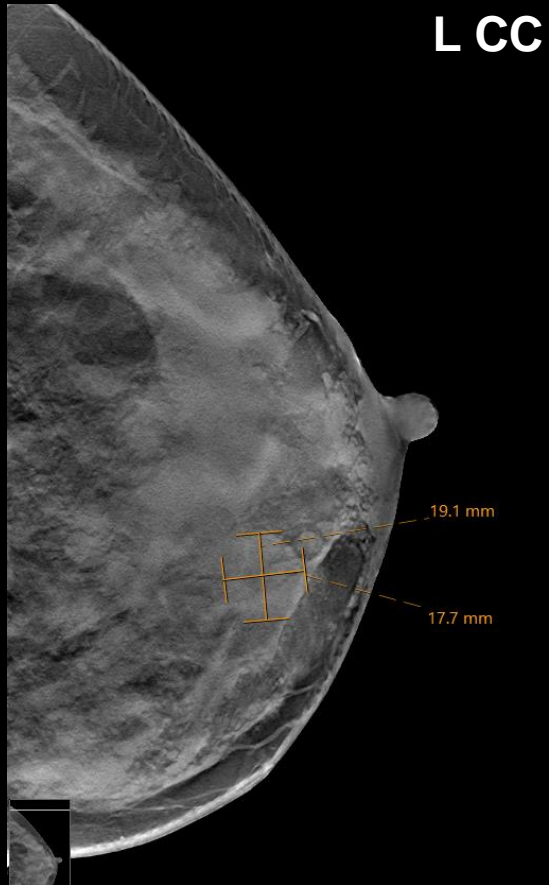
# Let's rewind...

April 2023 prior examination

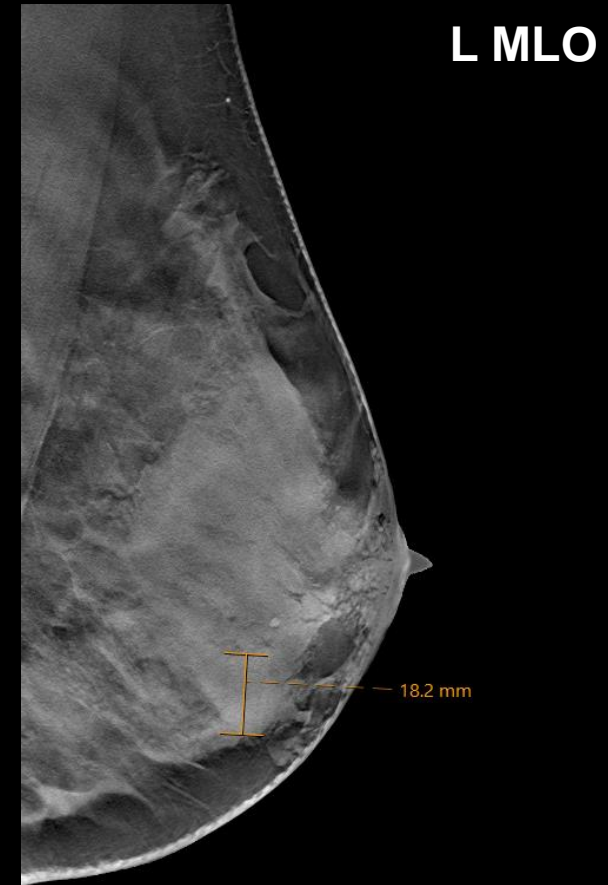


# Let's rewind...

**April 2023** : US-guided biopsy c/w fibroadenoma

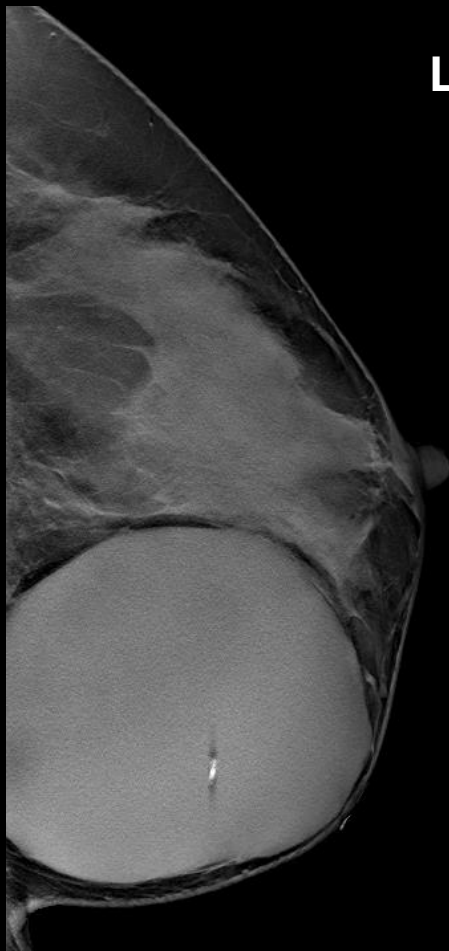


Focal asymmetry in the inner mid-left breast corresponding to the patient's area of palpable concern

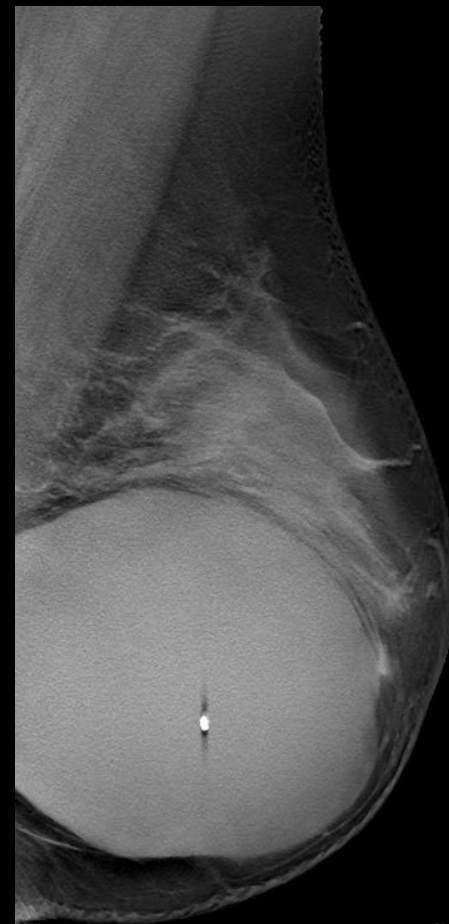


So what does it look like now (in 2024)?

# Findings (unlabeled)



L CC



L MLO

# Findings (labeled)



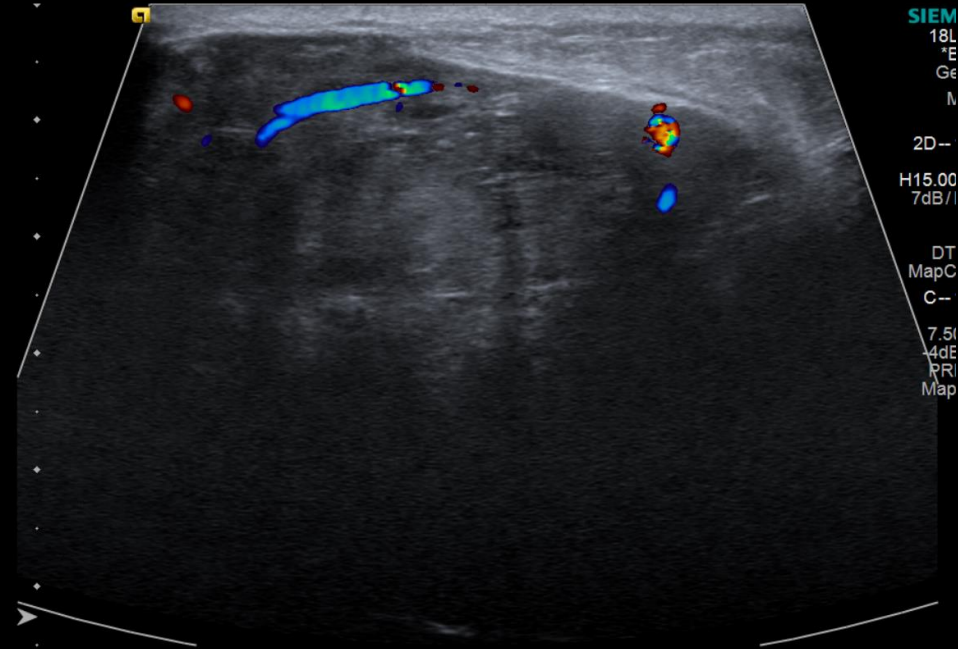
L CC

Round  
circumscribed mass,  
with increase in size.  
Rod-shaped clip  
internally  
corresponds to  
biopsy proven  
fibroadenoma.



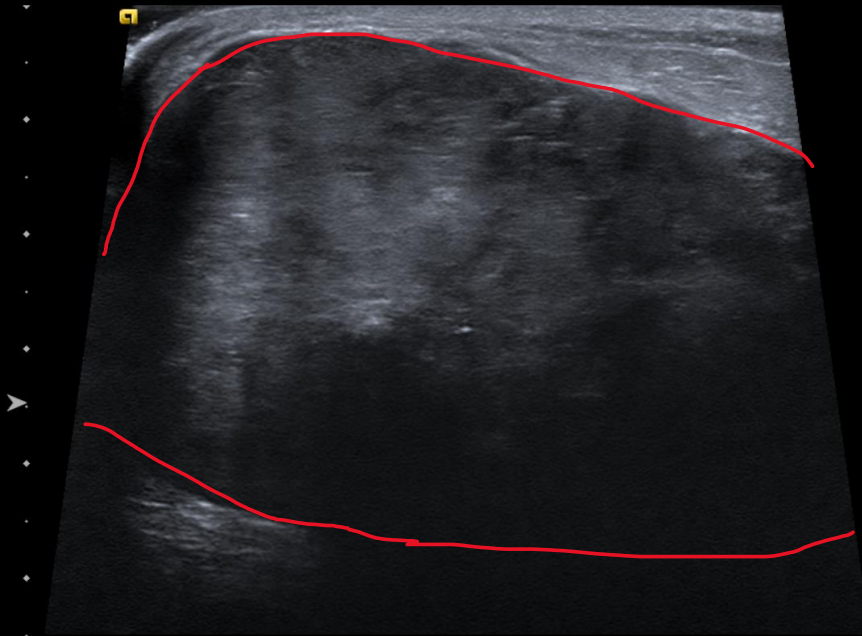
L MLO

# Findings (unlabeled)

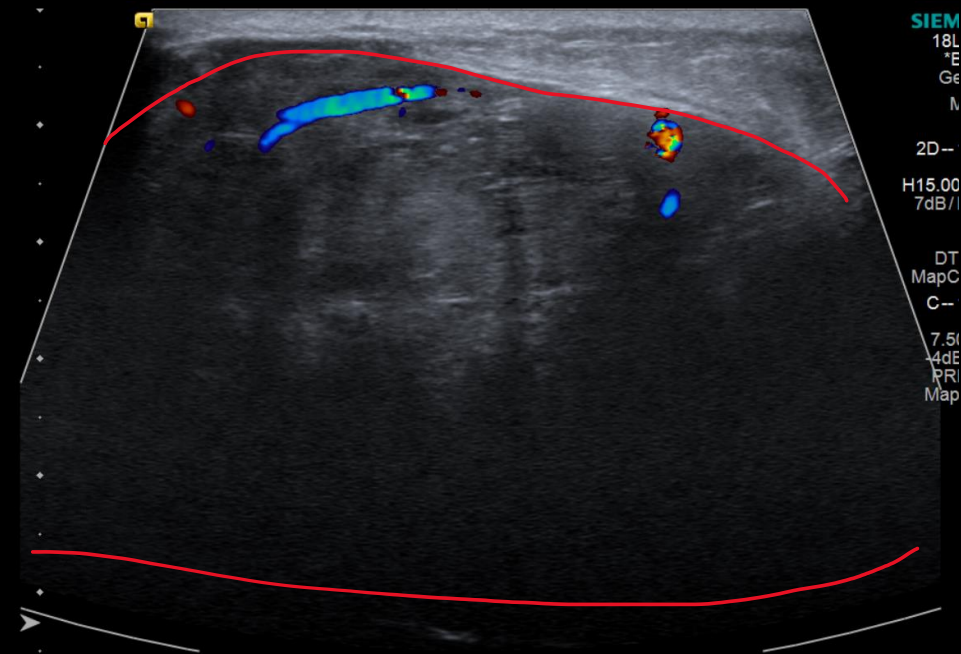


SIEM  
18L  
\*E  
Ge  
N  
2D--  
H15.00  
7dB/I  
DT  
MapC  
C--  
7.5I  
4dE  
PRI  
Map

# Findings (labeled)



11 x 8 x 9 cm circumscribed mass at 9 o'clock, 7 cm from the nipple, markedly increased in size from prior study.



Color flow demonstrates minimal internal vascularity

# Other Findings

- Patient underwent an excisional biopsy:
  - **Pathology:** Focally hypercellular stroma and benign epithelium in a pattern typical of **Phyllodes tumor**, though there are areas histologically indistinguishable from fibroadenoma.
  - The tumor was present at the superior, inferior, medial, and posterior margins, and less than 1 mm from the anterior and lateral margins.
  - Given the close margins and high rate of recurrence, breast surgery recommended proceeding with margin re-excision.



Final Dx:

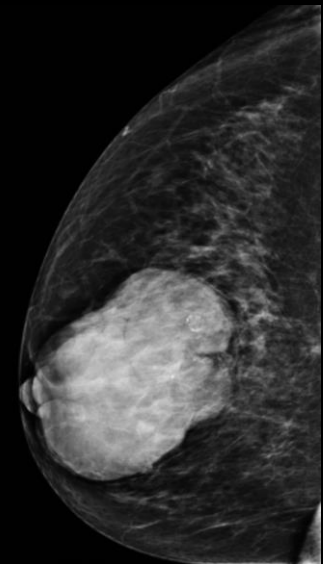
**Phyllodes tumor**

(Diagnosis changed from Fibroadenoma)

# Case Discussion

- The large size and the rapid increase in size appropriately raised suspicion for other diagnoses from fibroadenoma [1]
- **Phyllodes tumor**
  - Rapidly enlarging breast mass (usually painless)
  - Imaging findings similar to fibroadenoma
  - Differentiation by pathology is necessary [2]
    - histology is key
    - based on interpretation of stromal cellularity and degree of atypia

RCC



[3] Stavride et al., 2018

# Imaging Findings

Mammo

US

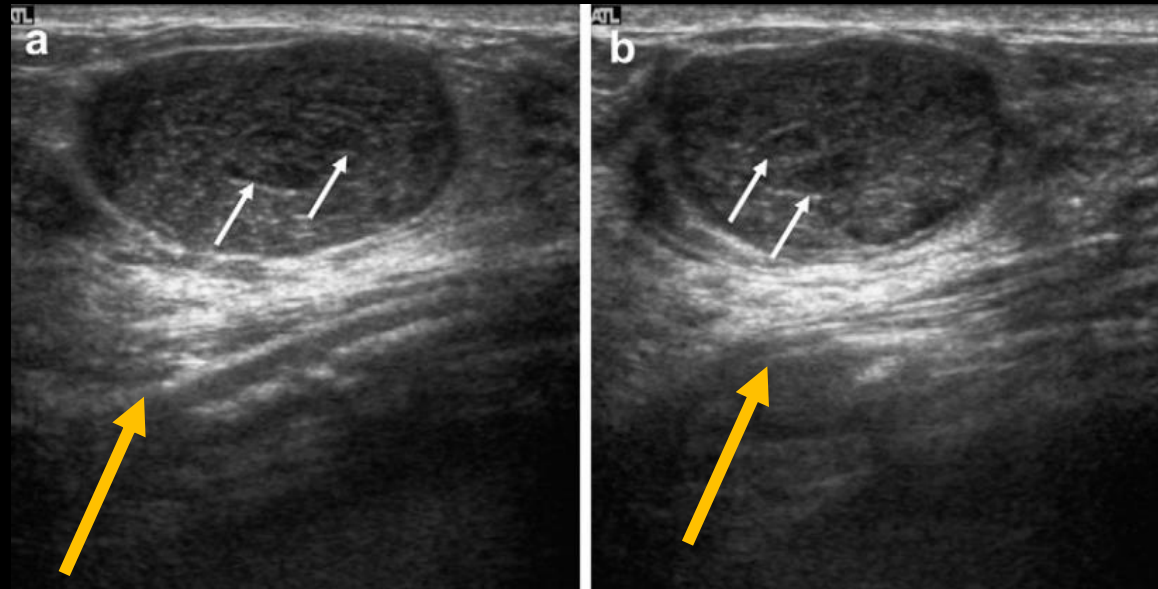
MRI

Fibroadenoma	Phyllodes Tumor
<ul style="list-style-type: none"> <li>• Circumscribed oval mass hypo- or isodense to the breast glandular tissue</li> <li>• Mass with macrolobulation</li> <li>• Popcorn calcification [1,2]</li> </ul>	<ul style="list-style-type: none"> <li>• Same as fibroadenoma</li> <li>• Rarely see calcifications (coarse or plaque like) [1,2]</li> </ul>
<ul style="list-style-type: none"> <li>• Circumscribed, round to ovoid, or macrolobulated mass with uniform hypoechogenicity</li> <li>• Calcification and echogenic rim [4]</li> </ul>	<ul style="list-style-type: none"> <li>• Solid mass containing single or multiple, round or cleft-like cystic spaces + posterior acoustic enhancement [4]</li> </ul>
<ul style="list-style-type: none"> <li>• T1: typically hypointense or isointense to adjacent breast tissue</li> <li>• T2: can be hypo- or hyperintense</li> <li>• Type 1 enhancement curve (persistent enhancement) [5]</li> </ul>	<ul style="list-style-type: none"> <li>• T1: usually hypointense</li> <li>• T2: can be hypo- or hyperintense</li> <li>• Type 1 or 3 enhancement curve (persistent enhancement or rapid washout) [5]</li> </ul>

# Hallmark US Findings: Phyllodes Tumor

## Phyllodes Tumor

- White arrows: Solid mass containing single or multiple, round or cleft-like cystic spaces [4]
- Yellow arrows: posterior acoustic enhancement [4]



[4] Youn et al., 2013

# Case Discussion

- Core biopsy has a 25-30% false negative rate to distinguish phyllodes tumor vs fibroadenoma [6]
- Excisional biopsy indicated if a diagnosed fibroadenoma starts to rapidly enlarge and becomes symptomatic (**our patient**) [1]
- Excisional biopsy also indicated if a fibroadenoma is just simply too large – termed “giant fibroadenoma,” > 10 cm [1]
- **Case Resolution:** Patient scheduled for re-excision due to positive margins

# References:

1. Plaza M, Swintelski C, Yaziji H, Torres-Salichs M, Esserman L. Phyllodes Tumor: Review of Key Imaging Characteristics. *Breast Dis.* 2015;35(2):79-86. doi:10.3233/BD-150399
2. Yan Z, Gudi M, Lim SH. A large benign phyllodes tumour of the breast: A case report and literature review. *Int J Surg Case Rep.* 2017;39:192-195. doi:10.1016/j.ijscr.2017.08.039
3. Stavride E, Mavridou C, Manavi K, Kosmidou M, & Malkotsi T. A large benign phyllodes tumour in a 56-year-old woman: a case report. *European Society of Radiology.* 2018. doi:10.1594/EURORAD/CASE.15270
4. Youn I, Choi SH, Moon HJ, Kim MJ, Kim EK. Phyllodes tumors of the breast: ultrasonographic findings and diagnostic performance of ultrasound-guided core needle biopsy. *Ultrasound Med Biol.* 2013;39(6):987-992. doi:10.1016/j.ultrasmedbio.2013.01.004
5. Wurdinger S, Herzog A, Fischer D et al. Differentiation of Phyllodes Breast Tumors from Fibroadenomas on MRI. *AJR Am J Roentgenol.* 2005;185(5):1317-21. doi:10.2214/AJR.04.1620
6. Lee AH, Hodi Z, Ellis IO, Elston CW. Histological features useful in the distinction of phyllodes tumour and fibroadenoma on needle core biopsy of the breast. *Histopathology.* 2007;51(3):336-344. doi:10.1111/j.1365-2559.2007.02786.x