

AMSER Case of the Month February 2020

41 Year Old Female with Bilateral Palpable Breast Masses



Elizabeth Sever, OMS-III
Lake Erie College of Osteopathic Medicine

Dr. Betty Shindel, MD
Allegheny Health Network

Patient Presentation

- HPI: Patient presents with one week history of palpable, tender, right sided breast mass
- OB/GYN Hx:
 - G2P2002
 - FDLNMP 2 weeks prior to presentation
- Past Medical Hx: None
- Past Surgical Hx: None
- Medications: None
- Physical Examination: Bilateral palpable breast masses

- No pertinent labs

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

American College of Radiology ACR Appropriateness Criteria® Palpable Breast Masses

Variant 1:

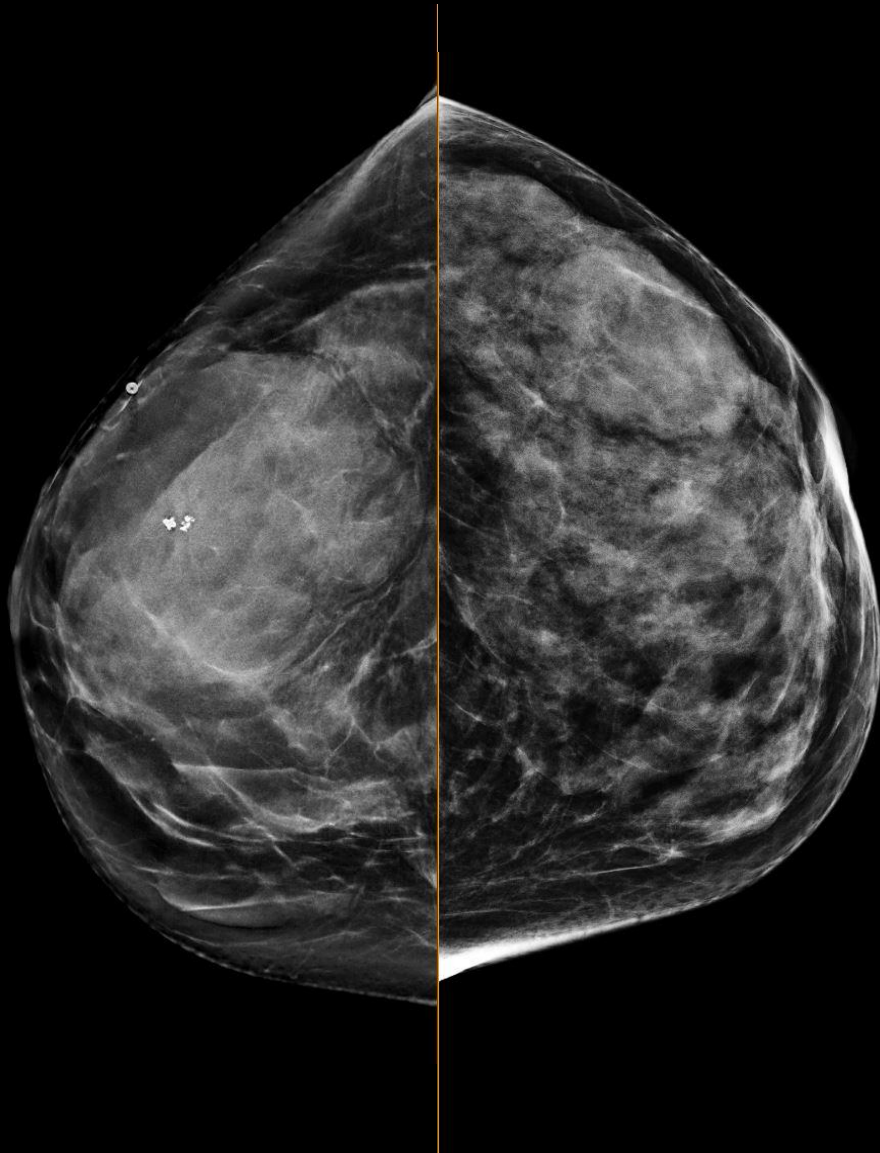
Palpable breast mass. Female, 40 years of age or older, initial evaluation. (See [Appendices 1A-1B](#) for additional steps in the workup of these patients.)

Radiologic Procedure	Rating	Comments	RRL*
Mammography diagnostic	9	See references [13-15].	☼☼
Digital breast tomosynthesis diagnostic	9	See references [16-18,20,85].	☼☼
US breast	4	If she had recent mammogram (ie, past 6 months), US may be appropriate.	○
MRI breast without and with IV contrast	2	See references [4,49].	○
MRI breast without IV contrast	1		○
FDG-PEM	1		☼☼☼☼
Tc-99m sestamibi MBI	1		☼☼☼
Image-guided core biopsy breast	1		Varies
Image-guided fine-needle aspiration breast	1		Varies
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level



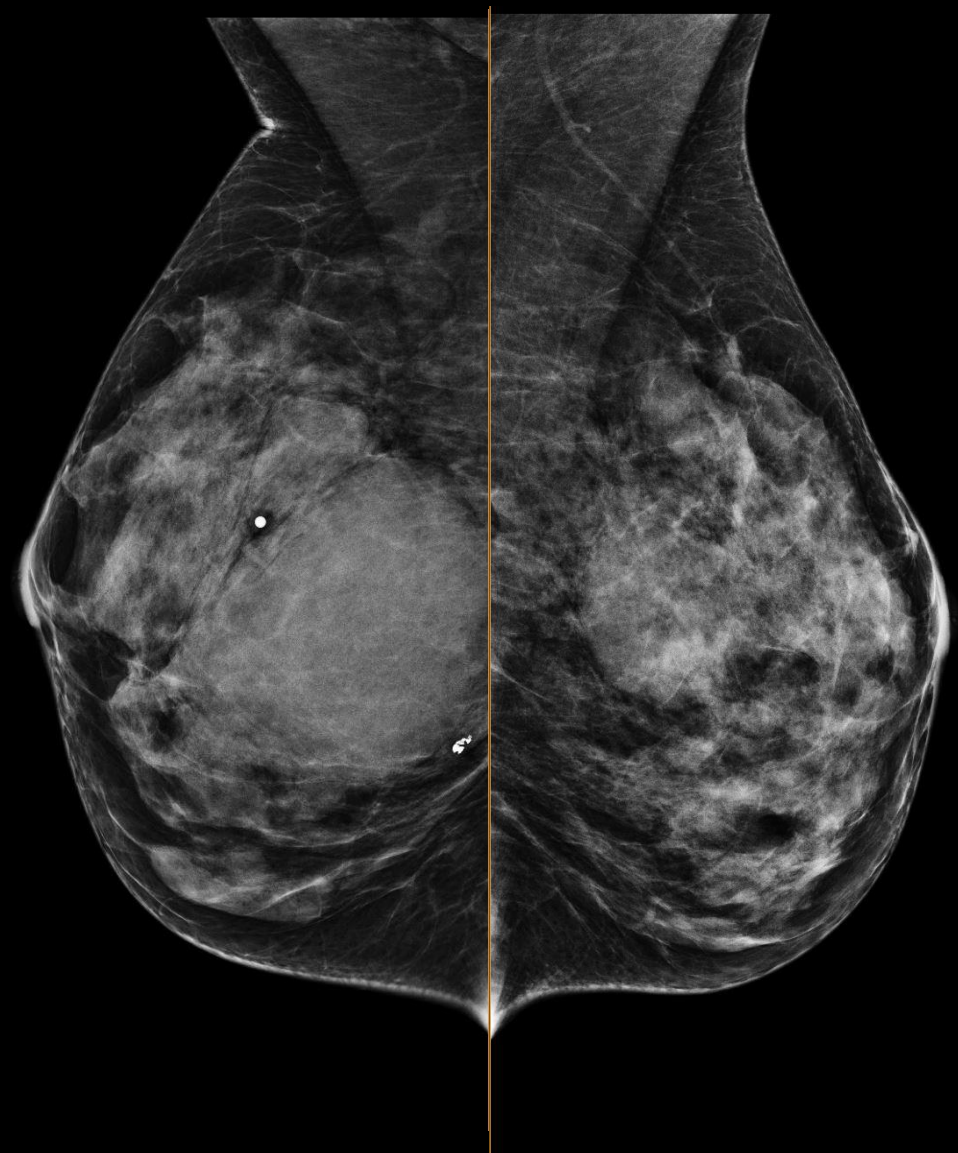
This imaging modality was ordered by the ordering physician

Baseline Diagnostic Mammogram



Right CC

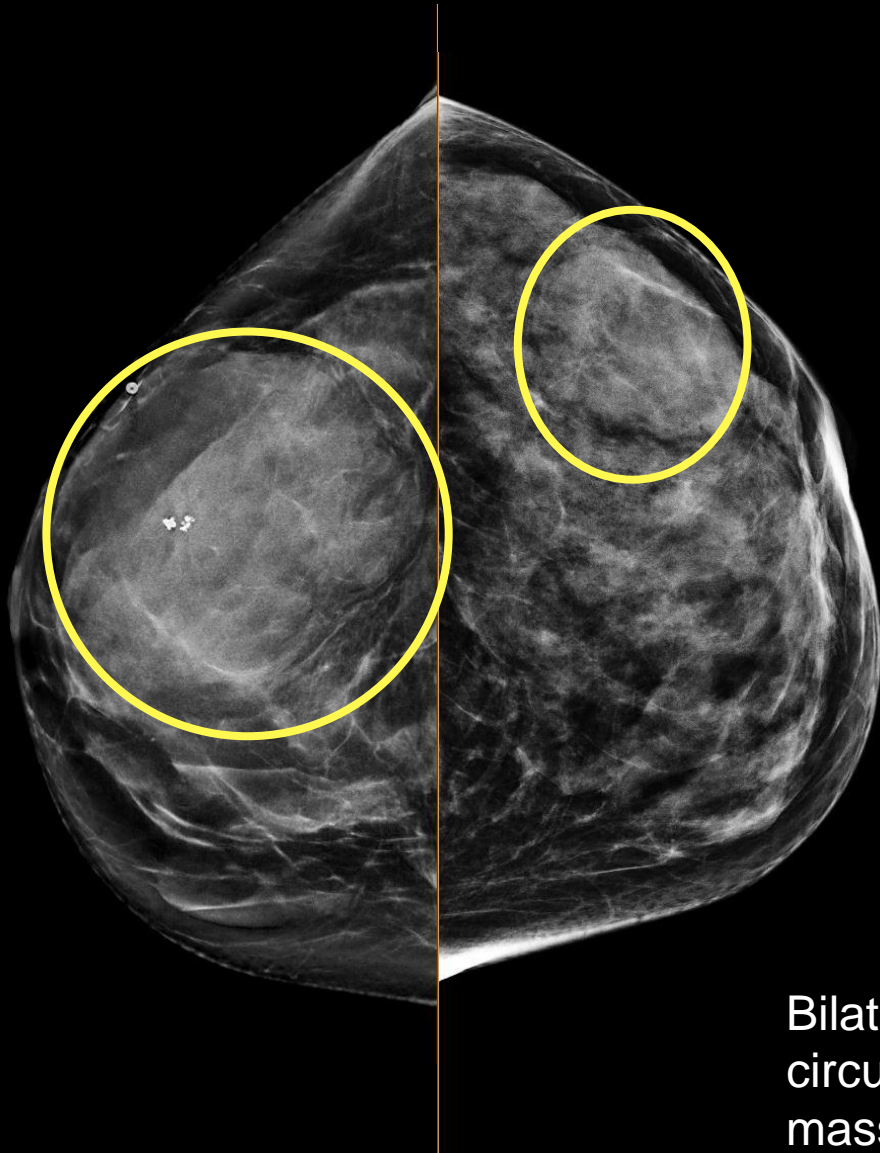
Left CC



Right MLO

Left MLO

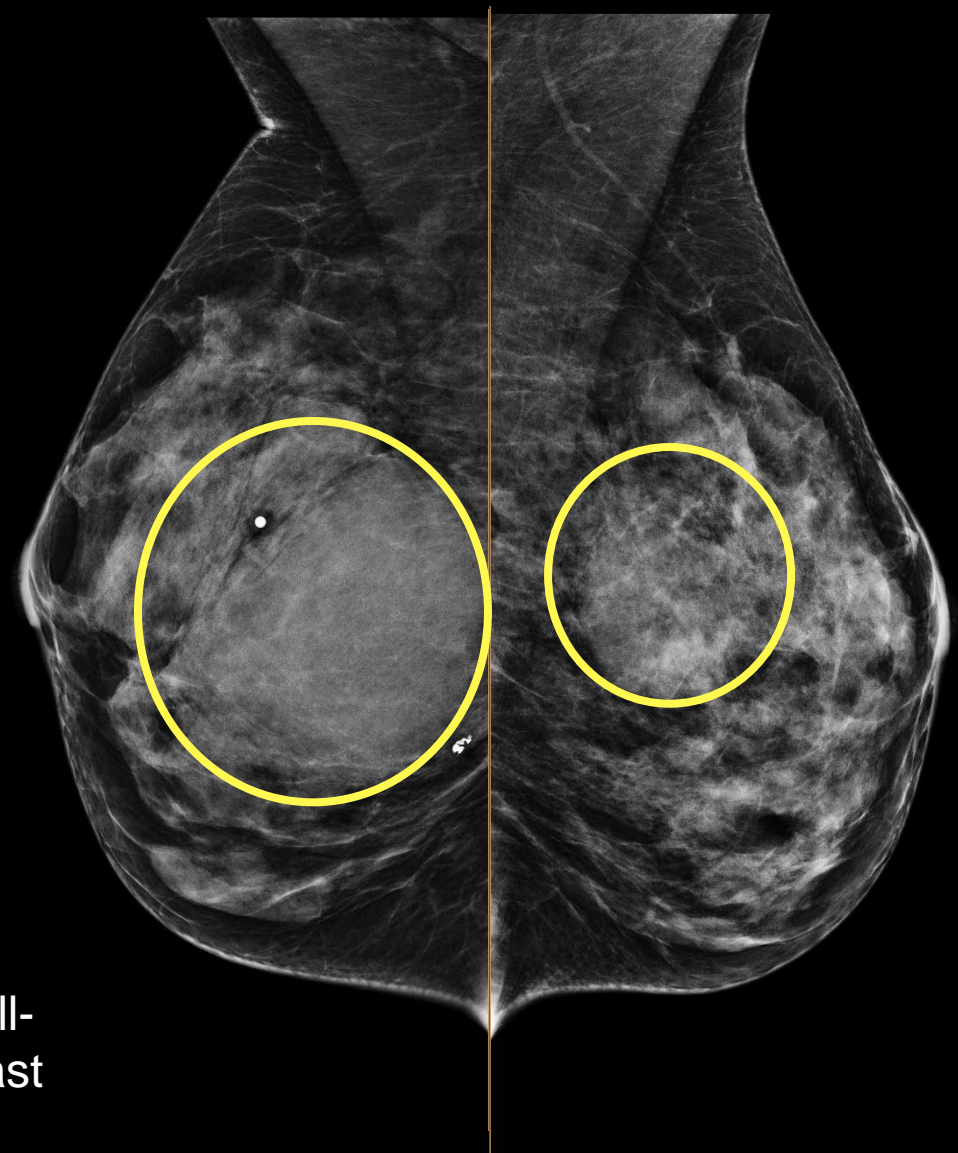
Findings



Right CC

Left CC

Bilateral round, well-circumscribed breast masses



Right MLO

Left MLO

Next Step

Variant 3:

Palpable breast mass. Female, 40 years of age or older, mammography findings probably benign. Next examination to perform. (See [Appendix 1A](#) for additional steps in the workup of these patients.)

Radiologic Procedure	Rating	Comments	RRL*
US breast	8	US is frequently performed to confirm correlation of imaging and clinical findings, as well as lesion characterization. See reference [62].	○
Mammography short-interval follow-up	8	See references [40,43,45].	⊕⊕
Digital breast tomosynthesis short-interval follow-up	8	See references [74,75].	⊕⊕
MRI breast without and with IV contrast	2	See references [4,49].	○
Image-guided core biopsy breast	2		Varies
MRI breast without IV contrast	1		○
FDG-PEM	1		⊕⊕⊕⊕
Tc-99m sestamibi MBI	1		⊕⊕⊕
Image-guided fine-needle aspiration breast	1		Varies
Rating Scale; 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Ultrasound

FR 36Hz
RS

2D
64%
C 58
P Med
Res
TAC1

AGC M3



✦ Dist 1.59 cm

Right Breast 10:00 4cmfn

5.0-

FR 49Hz
RS

2D
57%
C 58
P Med
Res
TAC1

AGC M3



✦ Dist 4.04 cm

Left Breast 3:00 4cmfn

✦ Dist 1.26 cm

3.0-

FR 36Hz
RS

2D
64%
C 58
P Med
Res
TAC1

AGC M3



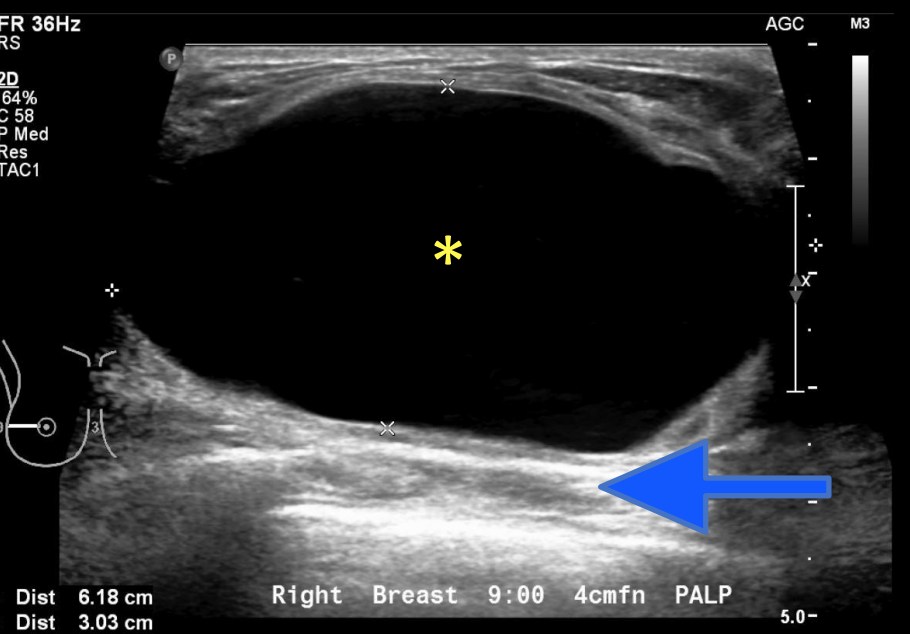
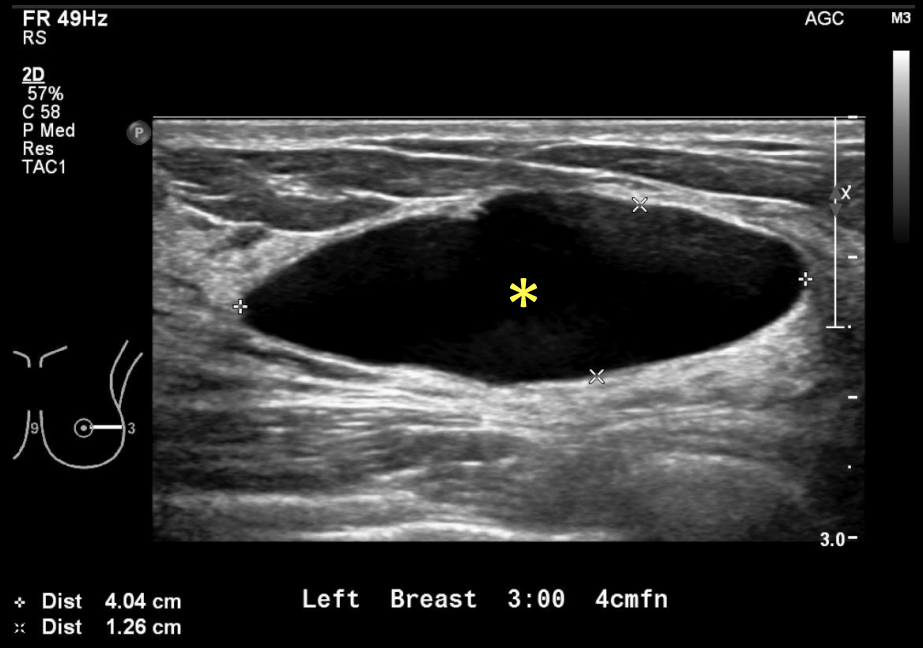
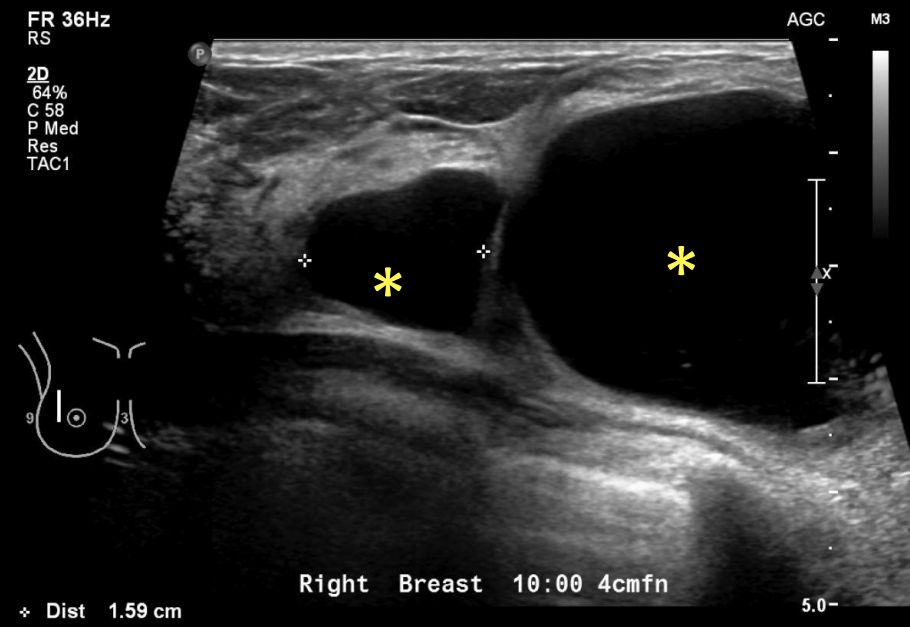
✦ Dist 6.18 cm

Right Breast 9:00 4cmfn PALP

✦ Dist 3.03 cm

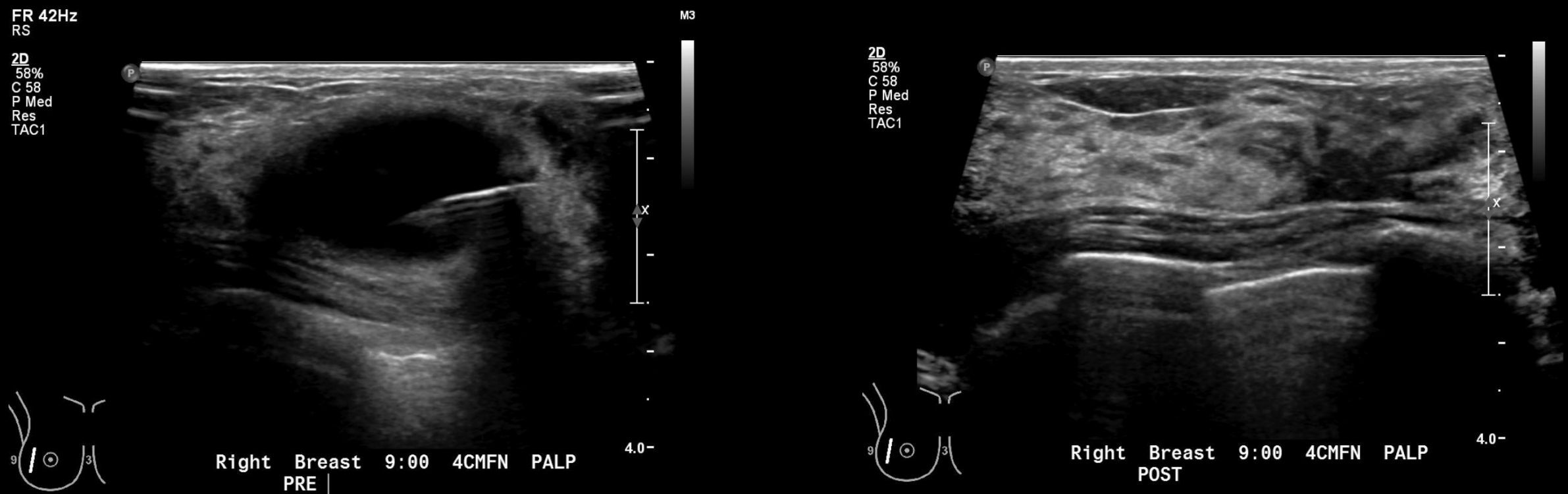
5.0-

Ultrasound (Findings)



*round, anechoic, well-circumscribed lesions with posterior enhancement (arrow) = simple breast cysts^[1,2]

Ultrasound-Guided Aspiration of a Simple Cyst for Symptomatic Relief^[2] (Right Breast)



Complete aspiration of the cyst yielded 32 ccs of cloudy yellow fluid

Final Dx:

Bilateral simple breast cysts
BI-RADS 2-Benign

Breast Cysts^[1,2]

- **Simple**: anechoic, well circumscribed, posterior acoustic enhancement
 - Not associated with increased risk of breast cancer detection
 - BIRADS 2
- **Complicated**: low level echoes, homogenous with possible thin septa. No solid components, thick walls, septa, or vascularity
 - BIRADS 2 or 3
- **Complex masses**: contain both solid (echogenic) and cystic components
 - BIRADS 4 or 5

Features of Benign vs. Malignant Breast Masses on Ultrasound^[2,3,4]

Benign

- Smooth, well-circumscribed
- Hyperechoic/isoechoic
 - Some can be mildly hypoechoic
- Thin capsule
- Ellipse shape
 - Shorter than wide
- Smooth large lobulations

Malignant

- Spiculation
- Hypoechoic
- Taller than wide
- Angular margins
- Microlobulations
- Shadowing
- Branching pattern
- Calcifications
- Duct extension

Features of Breast Cysts on Mammography^[2]

- Circumscribed or partially obscured mass
- Oval or Round
- Low density or equal density to breast parenchyma
- Can be multiple
 - When there are at least 3 (with at least 1 in each breast), each circumscribed or at worst partially obscured can be dismissed as benign findings
- Can be unilateral or bilateral

BiRADS Categories^[4,5]

Table. Breast Imaging Reporting and Data System Categories

<i>Category</i>	<i>Description</i>	<i>Likelihood of malignancy</i>	<i>Examples</i>	<i>Next step in evaluation</i>
0	Incomplete; need additional imaging evaluation, or comparison with previous examinations	Unknown	Asymmetry, mass, calcifications on screening mammography	Special mammographic views, ultrasonography, magnetic resonance imaging; obtain previous examinations
1	Negative	No mammographic evidence of malignancy	Normal mammography	Routine screening
2	Benign finding	No mammographic evidence of malignancy	Intramammary lymph node, oil cyst, vascular calcifications, calcifying fibroadenoma	Routine screening
3	Probably benign finding	Less than 2 percent ¹	Benign-appearing solid mass or clustered calcifications	Follow-up imaging (mammography or ultrasonography) at six and 12 months
4	Suspicious abnormality	12 to 25 percent ²	Complex or solid mass, indeterminate clustered calcifications	Fine-needle aspiration, percutaneous or surgical biopsy
5	Highly suggestive of malignancy	Greater than 95 percent ¹	Spiculated mass	Percutaneous or surgical biopsy
6	Known malignancy	100 percent ¹	Biopsy-proven	Definitive surgery, chemotherapy, radiation therapy

References:

1. Laronga C, Tollin S, and Mooney B. Breast Cysts: clinical manifestations, diagnosis, and management. Post TW, ed. UpToDate. Waltham, MA: UpToDate Inc. https://www.uptodate.com/contents/breast-cysts-clinical-manifestations-diagnosis-and-management?sectionName=Complex&search=bilateral%20breast%20mass&topicRef=804&anchor=H202992314&source=see_link#H202992314 (Accessed on November 15, 2019.)
2. Berg W., and. Leung, J (2019). Diagnostic imaging breast. Third edition. Philadelphia, PA:Elsevier. (409).
3. Gokhale S. (2009). Ultrasound characterization of breast masses. *The Indian journal of radiology & imaging*, 19(3), 242–247. doi:10.4103/0971-3026.54878
4. D’Orsi, C. (2013). Breast imaging Atlas. Fifth edition. Reston, VA:ACR (16-17,59,171).
5. Bittner, R. B. (2010). Guide to mammography reports: BI-RADS terminology. *Am Fam Physician*, 82(2), 114-115.