

AMSER Case of the Month: August 2020

25-year-old female with palpable, non-tender breast lump

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Patient Presentation

- **HPI:** 25yo F presents to OB with a 1-week history of palpable, non-tender left breast mass in the setting of discontinuing breast feeding 2 weeks ago
- **OB/GYN History:** G1P1, 7 weeks postpartum
- **Medical history:** Preeclampsia with severe features
- **Family history:** Breast cancer in mother and maternal aunt
- **Medications:** Progesterone-only contraceptive
- **Physical Exam:** ~1 cm non-tender, round, firm, mobile mass at the upper outer quadrant of left breast

What Imaging Should We Order?

ACR Appropriateness Criteria for Palpable breast mass in female younger than 30 years¹

Variant 6: Palpable breast mass. Female, younger than 30 years of age, initial evaluation. (See [Appendices 2A-2B](#) for additional steps in the workup of these patients.)

Radiologic Procedure	Rating	Comments	RRL*
US breast	9	See references [25-29,62].	0
Mammography diagnostic	3		☹☹
Digital breast tomosynthesis diagnostic	3		☹☹
MRI breast without and with IV contrast	1	See references [4,49].	0
MRI breast without IV contrast	1		0
FDG-PEM	1		☹☹☹☹
Sestamibi MBI	1		☹☹☹
Image-guided core biopsy breast	1		Varies
Image-guided fine-needle aspiration breast	1		Varies

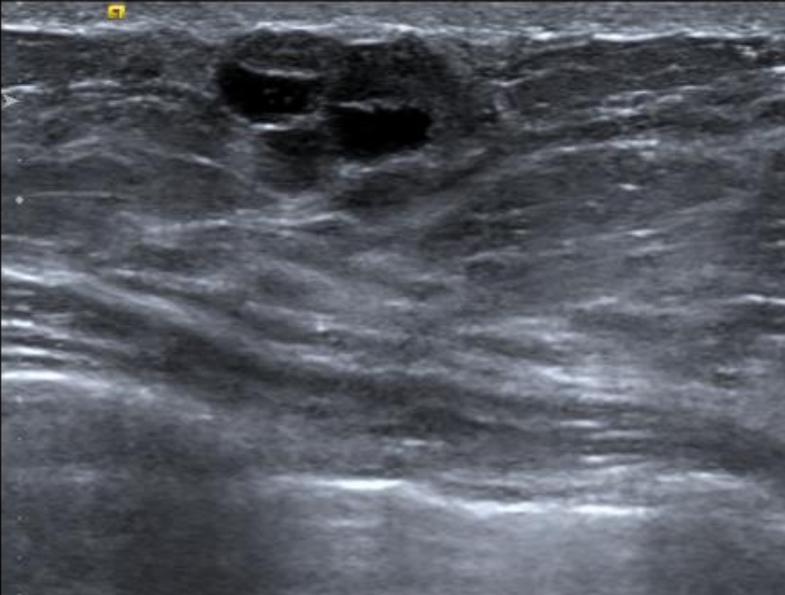
This imaging modality was ordered by OB

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level



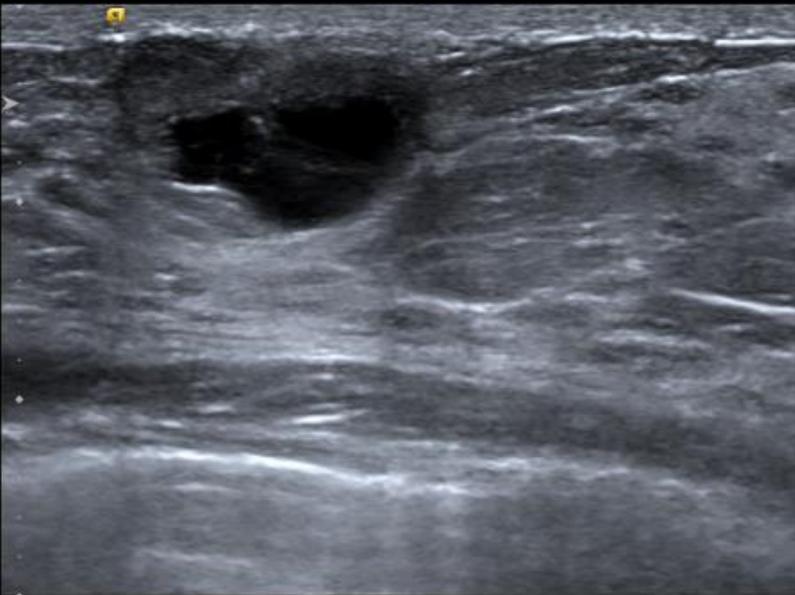
Breast ultrasound (unlabeled)



LT ANTI RADIAL 10:00 3 CMFN |

3cm

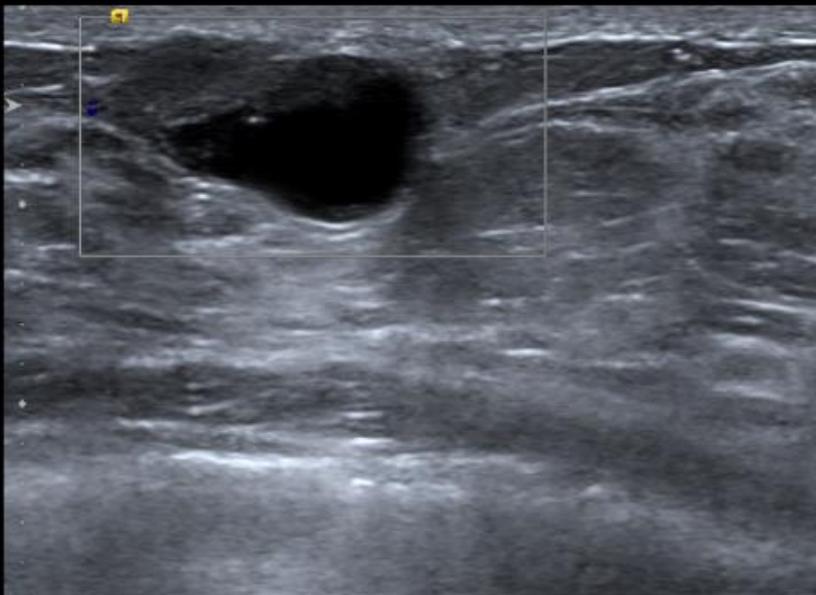
Patient supine



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3cm

Patient supine



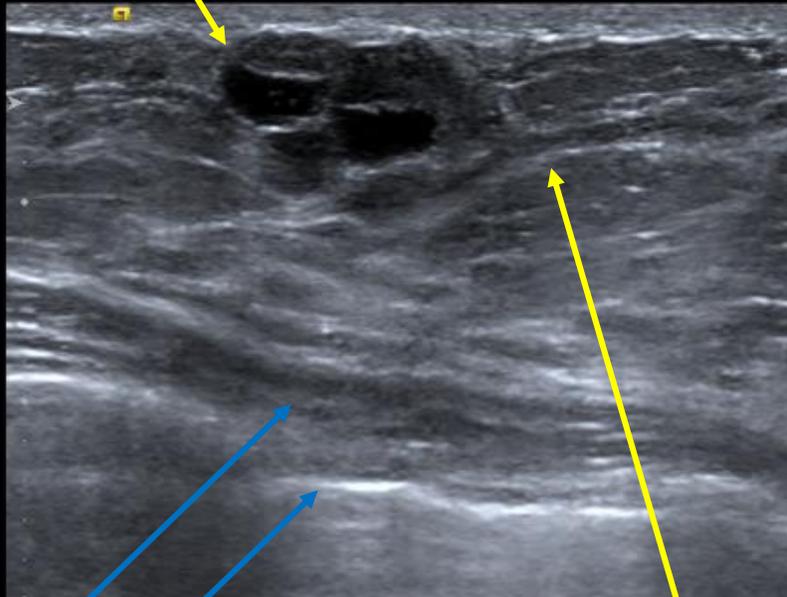
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3cm

Patient L side down decubitus

Breast ultrasound (labeled)

Complicated cystic mass, max 16mm



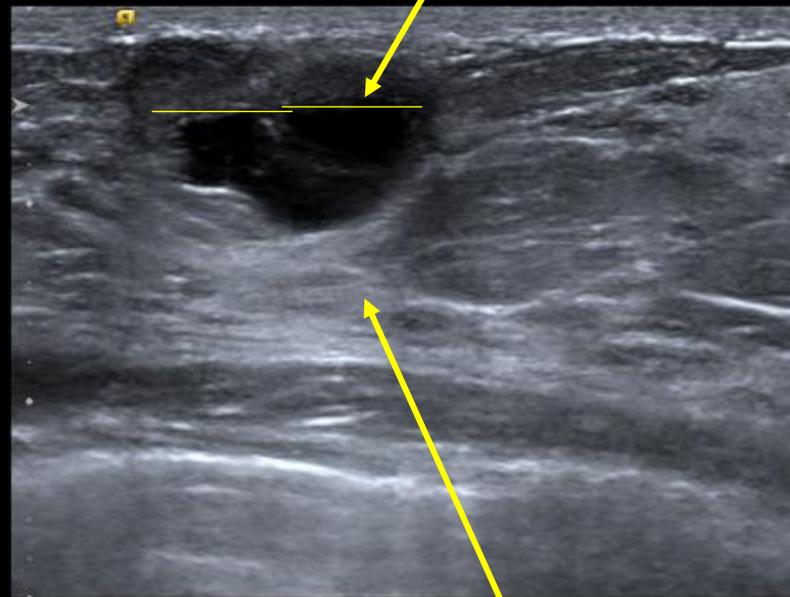
Pectoralis
Pleura

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Patient supine

Duct

Fat-fluid level shifting with patient positioning

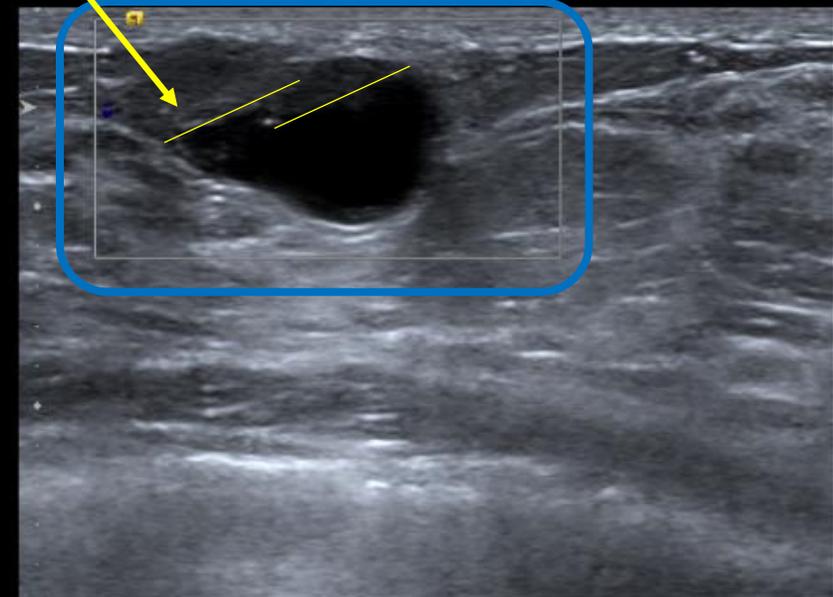


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Patient supine

Posterior enhancement

No blood flow on Doppler



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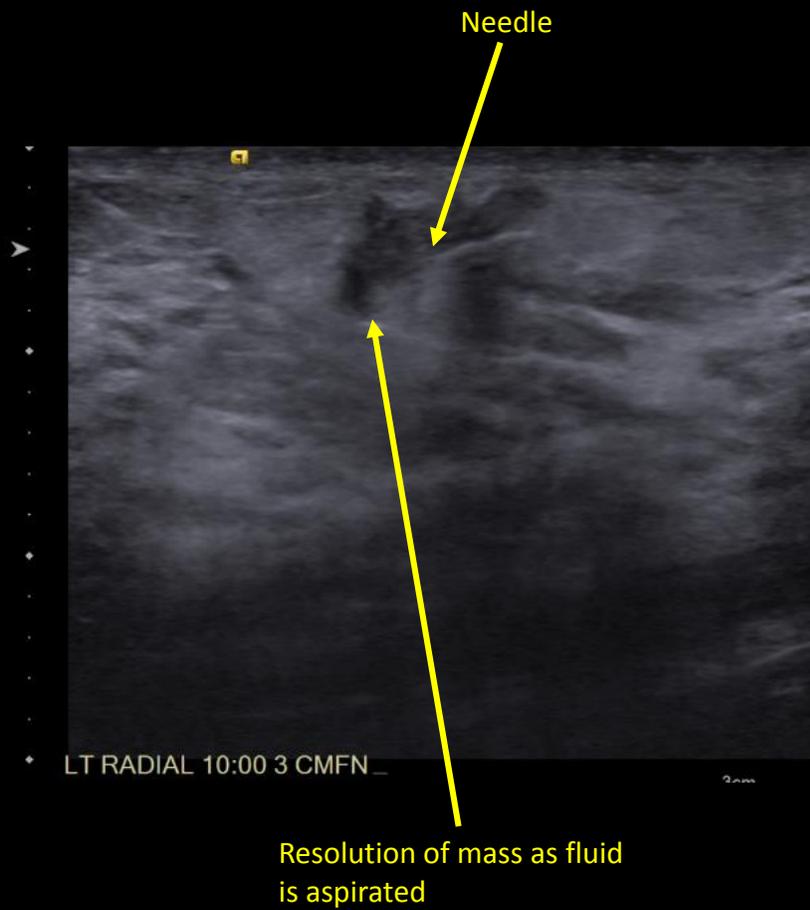
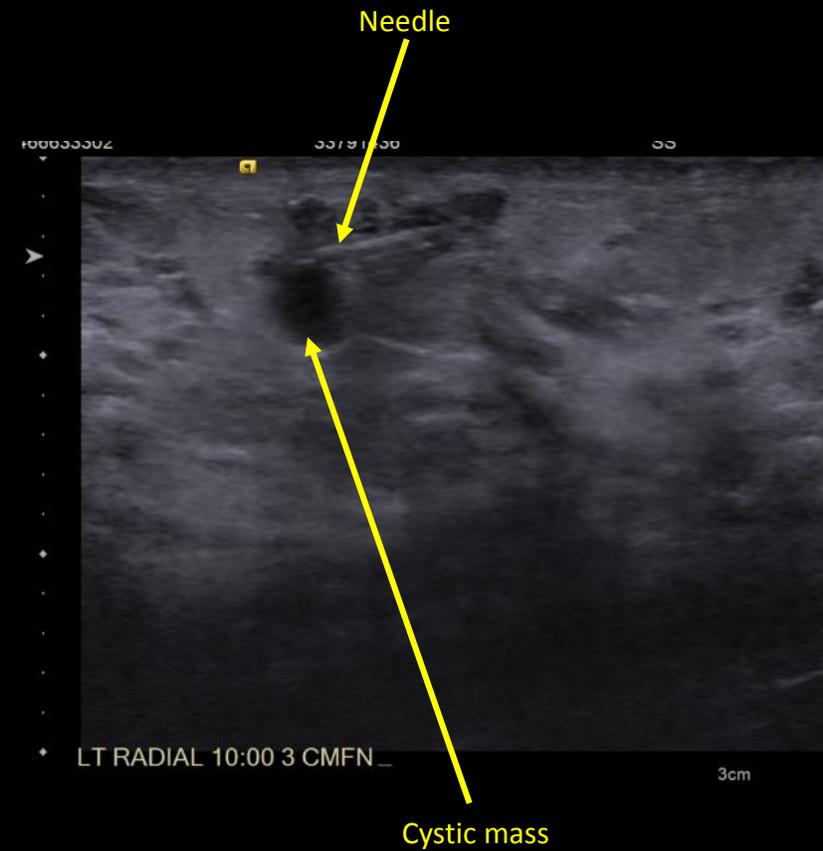
Patient L side down decubitus

Final Dx:

Galactocele

Comments: History of acute onset mass in the setting of recent cessation of breastfeeding combined with imaging findings of cystic mass with fat-fluid levels was characteristic of a **galactocele**. Aspiration was performed, yielding milky fluid with resolution of the mass following procedure, further supporting the diagnosis.

Findings from aspiration



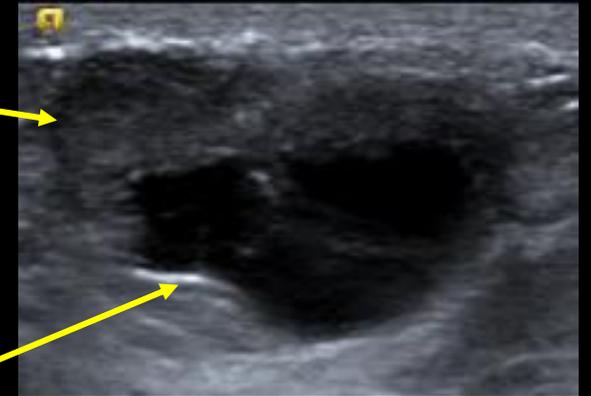
Sonographic appearance of complicated cysts²

- Causes of internal echoes and fluid levels in complicated cysts:

- Cellular debris
- Protein
- Cholesterol/fat
- Blood
- WBCs

Echogenic fatty fluid

Anechoic simple fluid component



- In galactoceles, milk fat is echogenic and less dense than water, creating a fluid level with echogenic fat above and anechoic water component below

- In blood-containing cysts, the fluid level created by settled proteins and cells creates an echogenic dependent component

Considerations for palpable breast mass in pregnant and postpartum women^{3,4,5,6}

- Differential diagnosis:
 - Galactocele, benign lactation-associated hyperplasia, mastitis, breast cancer, lactating adenoma, and fibroadenoma in order of decreasing frequency
- Galactoceles are the most common benign breast masses in lactating patients
 - Caused by obstructed milk ducts
 - Most common after cessation of breast feeding
- US is modality of choice for evaluating new breast mass in this population
- Breast malignancy in pregnant patients is detected at more advanced stages:
 - Increased tumor mitotic activity due to pregnancy hormones
 - Delayed workup of masses

Galactocele identification and treatment^{5,6}

- Appearance on US:
 - Cysts with fat-fluid levels created when fresh milk separates into fat- and water-soluble components
 - If the milk is old, a galactocele may mimic a solid mass in appearance
- Appearance on mammogram:
 - Variable depending on fat and water content
 - On upright mediolateral view, can sometimes appreciate fat-fluid level
 - Can also appear as pseudohamartoma as a mix of radiodense and radiolucent components
- Complications include chronic inflammation and infection
- Aspiration is therapeutic and diagnostic, yielding milky fluid and resolving the cysts

References:

1. Moy L et al. ACR Appropriateness Criteria® Palpable Breast Masses. Available at <https://acsearch.acr.org/docs/69495/Narrative/> American College of Radiology. (Accessed July 16, 2020)
2. Hines N, Slanetz PJ, and Eisenberg RL. Cystic masses of the breast. *Am J of Roentgenology*. 2010; 194: W122-W133. doi:10.2214/AJR.09.3688
3. Petrek JA. Breast cancer during pregnancy. *Cancer*. 1994;74(1 Suppl):518-27. doi: 10.1002/cncr.2820741341
4. Vashi R et al. Breast imaging of the pregnant and lactating patient: Imaging modalities and pregnancy-associated breast cancer. *Am J of Roentgenology*. 2013;200: 321-328.doi: 10.2214/AJR.12.9814
5. Sabate JM et al. Radiologic evaluation of breast disorders related to pregnancy and lactation. *Radiographics*. 2007;27 Suppl 1:S101-24. doi: 10.1148/rg.27si075505
6. Son EJ, Oh KK, and Kim EK. Pregnancy-associated breast disease: Radiologic features and diagnostic dilemmas. *Yonsei Med J*. 2006;47(1):34-42. doi: 10.3349/ymj.2006.47.1.34