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 years**

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.)

<table>
<thead>
<tr>
<th>Radiologic Procedure</th>
<th>Rating</th>
<th>Comments</th>
<th>RRL*</th>
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</thead>
<tbody>
<tr>
<td>US breast</td>
<td>9</td>
<td>See references [25-29,62].</td>
<td>O</td>
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<tr>
<td>Mammography diagnostic</td>
<td>3</td>
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<td>Digital breast tomosynthesis diagnostic</td>
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<td>MRI breast without and with IV contrast</td>
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<td>See references [4,49].</td>
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<td>MRI breast without IV contrast</td>
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<td>Image-guided core biopsy breast</td>
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<td>Varies</td>
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<tr>
<td>Image-guided fine-needle aspiration breast</td>
<td>1</td>
<td></td>
<td>Varies</td>
</tr>
</tbody>
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*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)

Patient supine

Patient supine

Patient L side down decubitus
Breast ultrasound (labeled)

- Fat-fluid level shifting with patient positioning
- No blood flow on Doppler
- Complicated cystic mass, max 16mm
- Pleura
- Pectoralis
- Duct
- Posterior enhancement

Patient supine

Patient supine

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

Needle

Cystic mass

Resolution of mass as fluid is aspirated

~1cc milky aspirate
Sonographic appearance of complicated cysts

- Causes of internal echoes and fluid levels in complicated cysts:
  - Cellular debris
  - Protein
  - Cholesterol/fat
  - Blood
  - WBCs

- 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\textsuperscript{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\textsuperscript{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:


