AMSER Case of the Month: December 2019

Breast Mass in Male Patient

Jeremy Todd, MS4
Eastern Virginia Medical School

Rebecca Sivarajah, MD
Penn State College of Medicine
Patient Presentation

● 58 year old male with known metastatic small cell lung cancer presents with new pain, swelling, and a palpable finding in the right nipple region.

● He has been on chemotherapy for metastatic disease including cisplatin, etoposide, carboplatin, and nivolumab.

● Other current medications include: ondansetron, lorazepam, omeprazole, dronabinol, and a multivitamin.

● No other significant PMH.
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

Variant 3:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammography diagnostic</td>
<td>Usually Appropriate</td>
<td>🌟🌟</td>
</tr>
<tr>
<td>Digital breast tomosynthesis diagnostic</td>
<td>Usually Appropriate</td>
<td>🌟🌟</td>
</tr>
<tr>
<td>US breast</td>
<td>May Be Appropriate</td>
<td>O</td>
</tr>
<tr>
<td>MRI breast without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>O</td>
</tr>
<tr>
<td>MRI breast without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>O</td>
</tr>
</tbody>
</table>

A diagnostic digital breast tomosynthesis was ordered to evaluate this patient’s palpable finding in the right breast.
Findings (unlabeled)
Findings: (labeled)

- 58 year-old male with bilateral gynecomastia.

- (a) MLO and (b) CC digital mammogram images demonstrate flame-shaped tissue in the retroareolar locations bilaterally. These findings are consistent with benign gynecomastia (blue open circles).

- Two intramammary lymph nodes are noted in the upper outer quadrant of the right breast (yellow open arrows).
An IV contrast enhanced axial CT image through the level of the mid-chest was performed 1 week prior for this patient for restaging of known metastatic lung cancer. Incidentally demonstrated right-sided (A) flame-shaped retroareolar tissue consistent with gynecomastia (yellow circle). Incidental scarring noted in the left upper lobe (pink arrow).

Targeted grey scale ultrasound image of the retroareolar location of the right breast in an 18 year-old male demonstrates the typical appearance of gynecomastia (B) on ultrasound with tapering hypoechoic tissue behind the nipple.
Final Dx:

Bilateral Gynecomastia
Gynecomastia Differential Dx

- Gynecomastia is defined as a benign proliferation of breast tissue in men

- Differential diagnosis for male breast disease
  - Gynecomastia
    - ductal hyperplasia and stromal proliferation
  - Pseudogynecomastia
    - retroareolar fat
  - Breast Cancer
    - circumscribed or irregular mass often eccentric to the nipple
  - Lipoma
    - circumscribed, fatty mass; typically isoechoic or hyperechoic on ultrasound
  - Angiolipoma
    - circumscribed mass, mixed echotexture
Example of a 66 year-old male with right sided invasive ductal breast carcinoma presenting as a palpable mass.

Right CC (a) and MLO (b) images demonstrate an dense irregular mass with spiculated borders in the retroareolar location of the right breast with associated nipple retraction.

Targeted grayscale ultrasound image (c) of the right breast in the location of the mammographic mass in the retroareolar location demonstrates a solid, hypoechoic mass with irregular borders and associated posterior acoustic shadowing.
Gynecomastia Etiologies

- Caused by an imbalance between estrogen action relative to androgen action in the breast tissue
- Relative increase in estrogen action in the male breast leads to ductal hyperplasia and stromal proliferation
- Gynecomastia has many known causes demonstrated in Figure 1
- This patient’s gynecomastia was likely multifactorial, possibly caused in part by chemotherapy agents and dronabinol (a synthetic marijuana)
Summary

● Gynecomastia is a benign proliferation of breast tissue in men

● Our patient presented with pain, swelling, and an ill-defined retroareolar mass in the right breast which warranted diagnostic imaging

● Physical exam is often sufficient to diagnose gynecomastia, however, when an indeterminate palpable mass is found, diagnostic imaging is appropriate. For men under 25, ultrasound is first-line; for men 25 or older diagnostic mammography is first-line.

● Using the ACR appropriateness criteria to guide decision making, our patient underwent bilateral diagnostic tomosynthesis mammogram for evaluation of the mass

● Tomosynthesis mammogram demonstrated flame-shaped tissue bilaterally in the retroareolar region consistent with a diagnosis of bilateral gynecomastia

● Gynecomastia can be seen on other imaging studies, such as CT, MRI, and ultrasound
References:


