71-year-old male with 1-month history of painless palpable retroareolar breast mass

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Patient Presentation

• HPI: 71-year-old male presents with 1-month history of new painless palpable retroareolar right breast mass.

• Medical history: colorectal cancer s/p resection and chemoradiation (2007), hypertension and bilateral sciatica

• Family history: non-contributory

• Medications: gabapentin, ibuprofen

• Physical exam: ~1cm, non-tender, round, firm retroareolar mass of the right breast
What Imaging Should We Order?
ACR Appropriateness Criteria for palpable breast mass in male 25 years of age or older

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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<tbody>
<tr>
<td>Mammography diagnostic</td>
<td>Usually Appropriate</td>
<td>🌟🌟</td>
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<tr>
<td>Digital breast tomosynthesis diagnostic</td>
<td>Usually Appropriate</td>
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<td>US breast</td>
<td>May Be Appropriate</td>
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<tr>
<td>MRI breast without and with IV contrast</td>
<td>Usually Not Appropriate</td>
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Mammography diagnostic and digital breast tomosynthesis were ordered to evaluate palpable right breast mass.
Findings (unlabeled)
Digital breast tomosynthesis:

Left: Increased retroareolar density, consistent with gynecomastia.

Right: Increased retroareolar density, asymmetrically dense compared to left. Oval mass in retroareolar region in the anterior depth, corresponding to patient’s palpable abnormality.
Findings: (labeled)

Ultrasound:

25 mm x 17 mm x 13 mm, oval, hypoechoic mass with circumscribed margins seen in the retroareolar region of the right breast at 7 o’clock.

Associated features include internal vascularity (Doppler not shown).

Overall BI-RADS category: 4 – highly suspicious, biopsy recommended
Final Dx:
Infiltrating moderately differentiated duct carcinoma with mucinous and micropapillary features.

Estrogen Receptor (ER) positive, Progesterone Receptor (PR) positive, HER2/neu oncogene expression negative

Histology: (A) Low power H&E demonstrating invasive and intraductal carcinoma; (B) High power H&E demonstrating mucinous features and cribriform architecture.
Male Breast Cancer Presentation and DDX

- Epidemiology
  - <0.5% of all annual breast cancer diagnoses in the US
  - Men are usually 5-10 years older than women at time of diagnosis

- Presentation
  - Painless firm mass, usually subareolar
  - Nipple involvement in 40-50% of cases

- Differential diagnosis
  - Lipoma - ovoid breast masses comprised of fat, most common benign soft-tissue neoplasm
  - Gynecomastia - bilateral symmetric breast enlargement with poorly defined borders
    - No skin changes or lymphadenopathy
  - Pseudogynecomastia - increase in breast fat rather than glandular tissue
  - Infection - localized and painful inflammation with systemic symptoms (fever and malaise)
  - Fibromatosis - local tumors with no known potential for metastasis or differentiation
  - Granular cell tumor - benign tumors from Schwann cells, most common in oropharynx or breasts
Risk Factors

- Genetic
  - Family history in 15-20% of patients
  - BRCA1/BRCA2 mutation
    - Higher risk with BRCA2: 6% lifetime risk of breast cancer with germline mutation
  - Klinefelter syndrome
    - High ratio of estrogen to testosterone
    - Gynecomastia
    - 19 and 58-fold increase in incidence of and mortality from breast cancer
  - Cowden syndrome (PTEN mutation)
  - Li-Fraumeni syndrome (p53 mutation)
  - Lynch syndrome (mismatch repair gene mutation)

- Acquired
  - Excess estrogen stimulation, hepatic dysfunction, obesity, marijuana use
Management and Prognosis

Management of male breast cancer is similar to female breast cancer with a few exceptions:

- Early-stage cancer proceed with simple mastectomy rather than breast-conserving therapy
- Hormone receptor-positive disease receive adjuvant tamoxifen rather than aromatase inhibitor (AI)
  - Insufficient evidence to support AI monotherapy in men
  - Fewer side effects compared with AI
- 2018 SEER database analysis (289,673 breast cancer cases, 2054 men) - worse prognosis compared to women
  - Risk of death is 41% higher
  - 5 and 10 year survival rate: 85 and 73% (compared to 90 and 85% in females)


