AMSER Case of the Month September 2020

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?

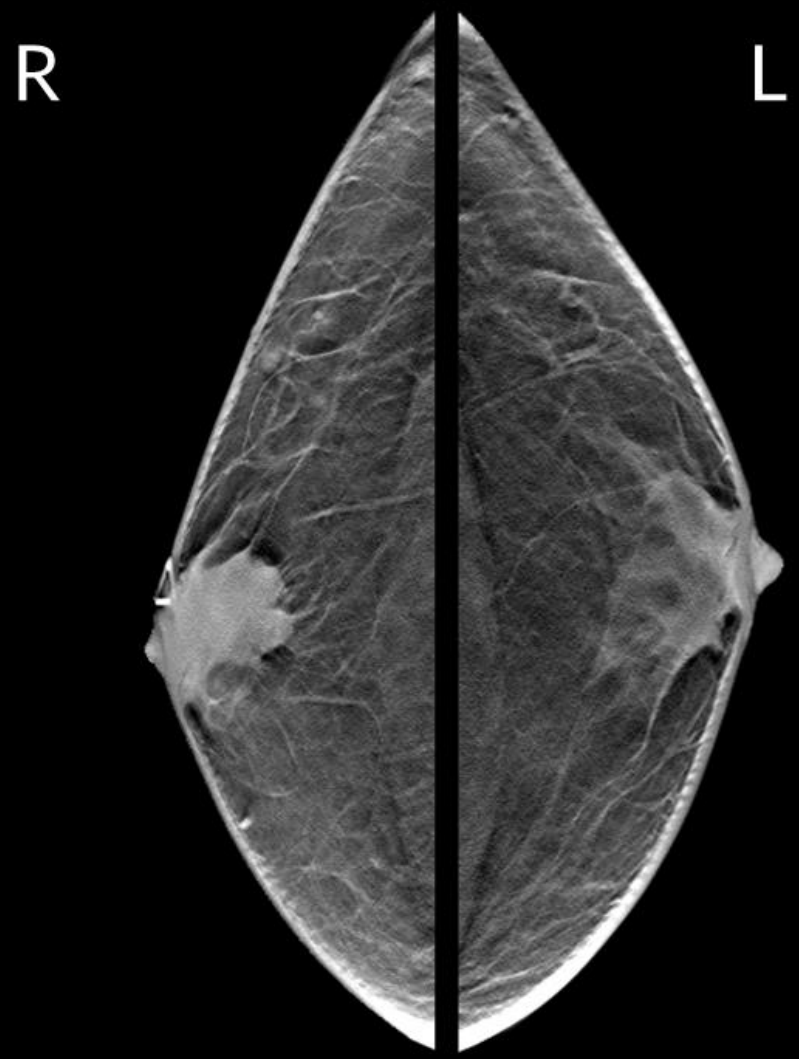
ACR Appropriateness Criteria for palpable breast mass in male 25 years of age or older

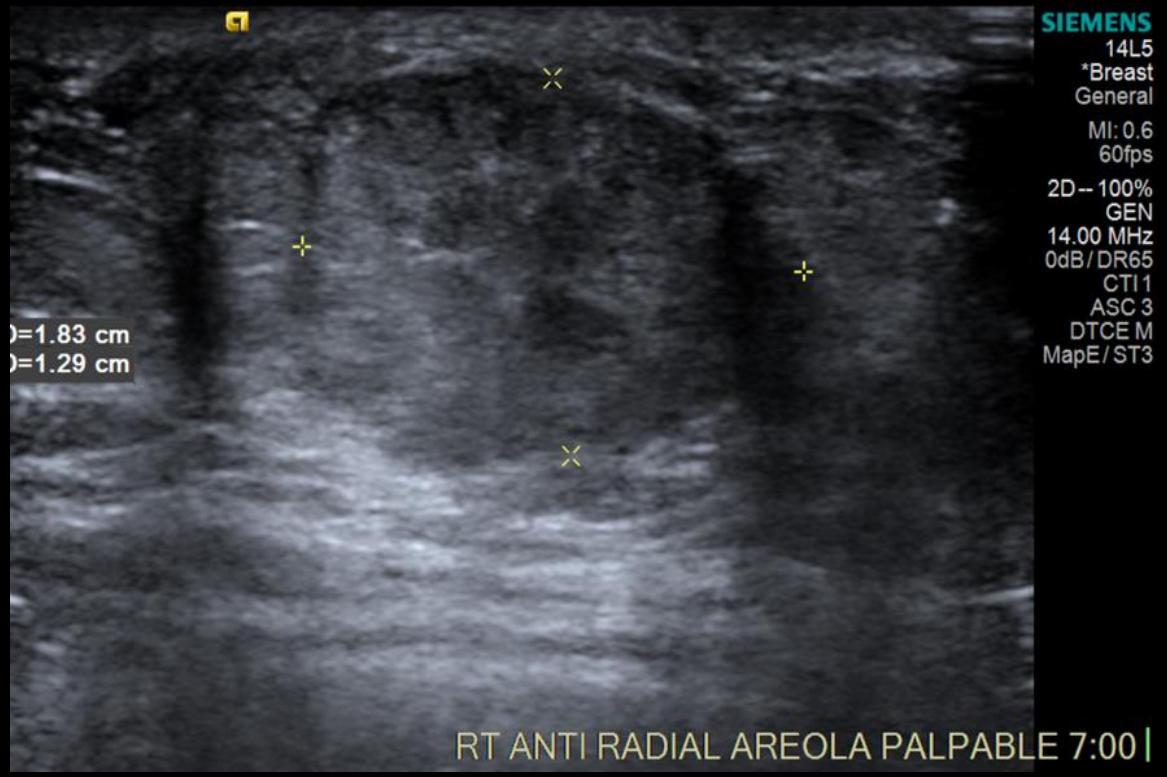
Variant 3: **Male 25 years of age or older with indeterminate palpable breast mass. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Mammography diagnostic	Usually Appropriate	☢☢
Digital breast tomosynthesis diagnostic	Usually Appropriate	☢☢
US breast	May Be Appropriate	O
MRI breast without and with IV contrast	Usually Not Appropriate	O
MRI breast without IV contrast	Usually Not Appropriate	O

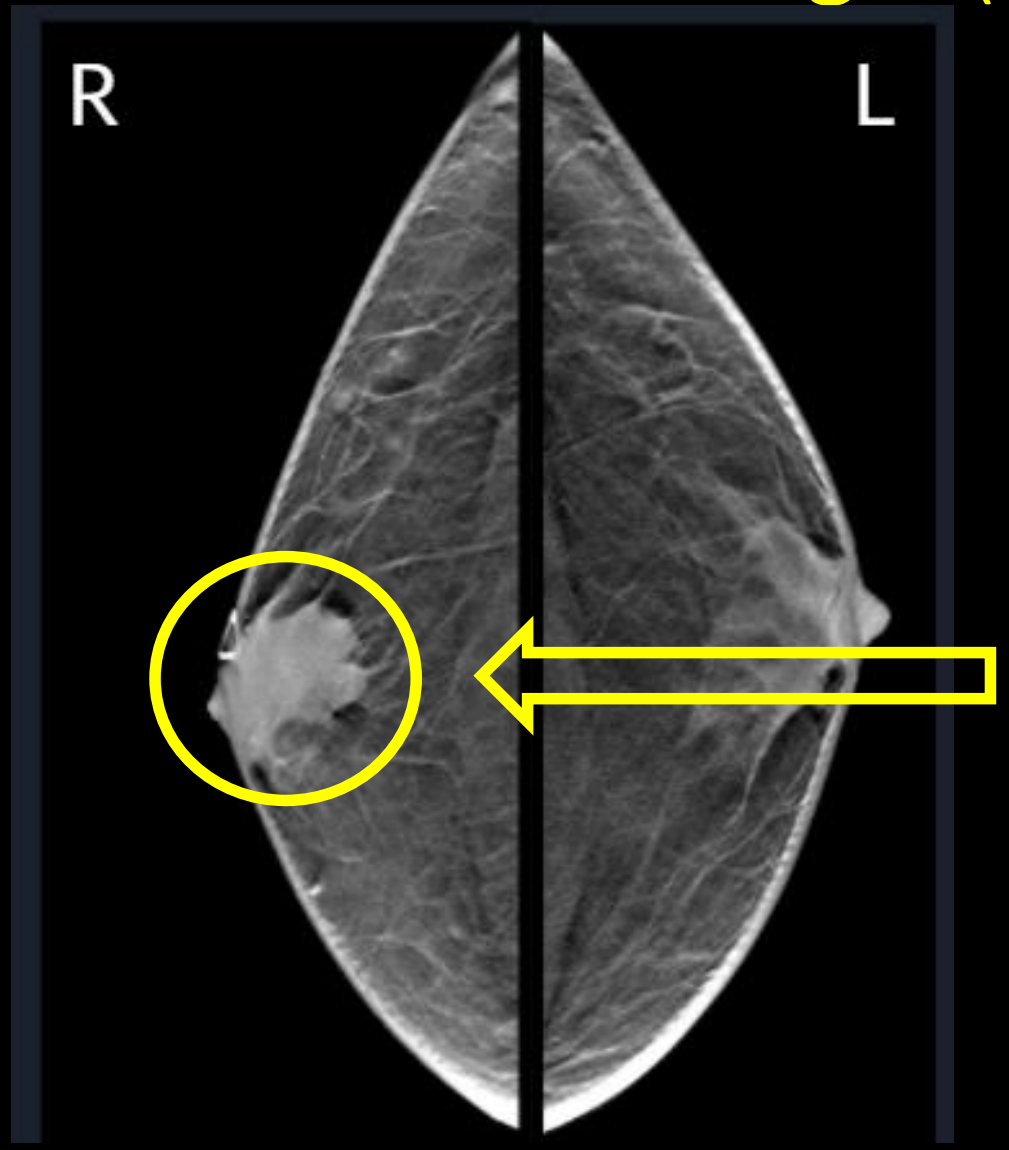
Mammography diagnostic and digital breast tomosynthesis were ordered to evaluate palpable right breast mass

Findings (unlabeled)





Findings: (labeled)

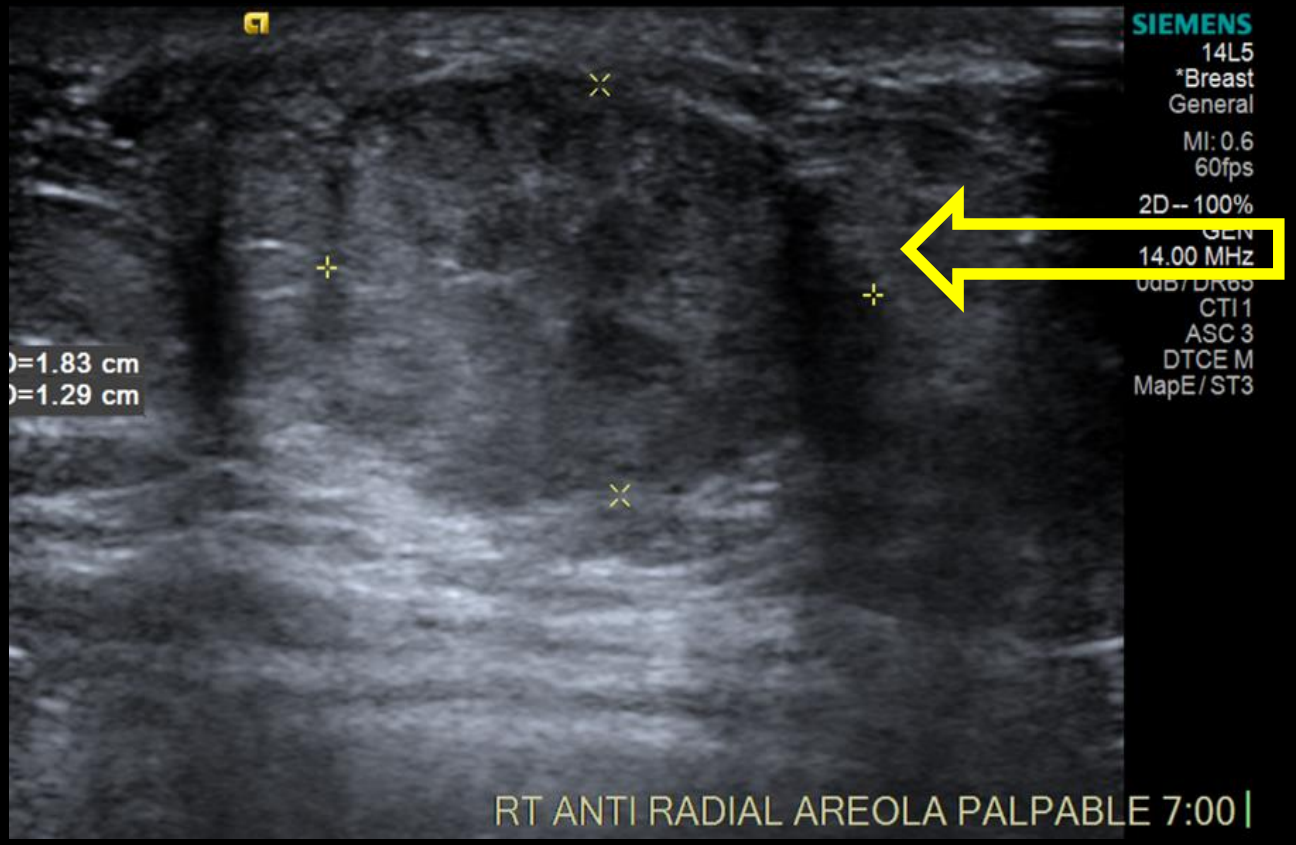


Digital breast tomosynthesis:

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 see in the retroareolar region of the right breast at 7 o'clock.

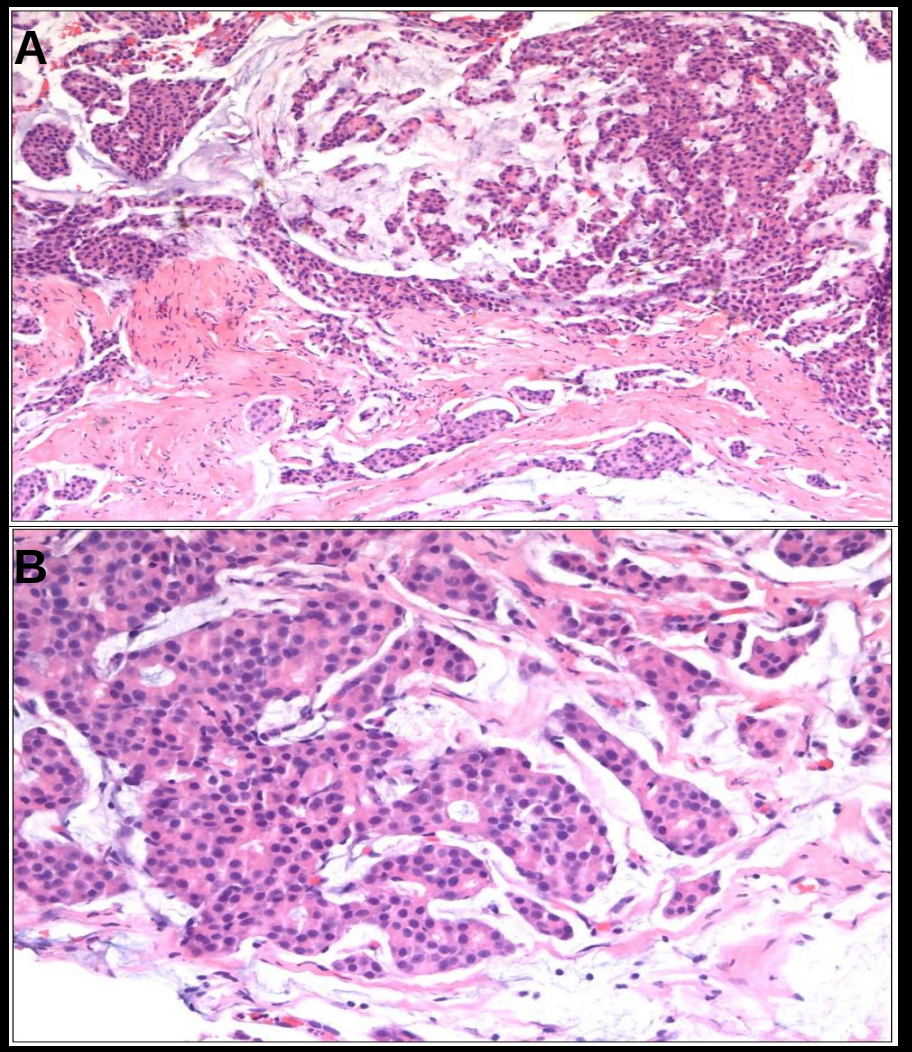
Associated features include internal vascularity (Doppler not shown).

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)

References

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