AMSER Case of the Month
December 2023

63 yo female presents for annual screening mammogram

Samantha D’Amico - William Carey University College of Osteopathic Medicine
Madeline Waara - Cooper Medical School of Rowan University
Robyn Roth, MD - Cooper University Hospital
Pauline Germaine, DO - Cooper University Hospital
Patient Presentation

63 year old G6P5 female presents with a new breast mass on annual screening mammogram. The patient denies any concerns on self breast exams. She also denies any visible changes to either breast or any nipple discharge. There is no history of prior breast related issues or biopsies.
Patient Presentation

**PMH:** Asthma, Diabetes Mellitus, Hypertension, Hiatal Hernia

**Family Hx:** Stomach cancer in mother, maternal grandmother and maternal aunt; no other hx of breast, ovarian, endometrial, or colon cancer

**Social Hx:** Pt smokes cigarettes, about 0.5 PPD with a 7.5 total pack years; Pt drinks alcohol occasionally; Denies other drug use

**Physical Exam:** Bilateral breast exam shows no skin dimpling, retraction discharge, or masses; no palpable axillary, supraclavicular or clavicular lymphadenopathy bilaterally

**Gynecologic Hx:** Onset of menses at 12 yo; First delivery at 18 yo; G6P5; has never used HRT; Used OCPs for ~3 mo; Menopause occurred in her 40s
What Imaging Should We Order?
# ACR Appropriateness Criteria

**Variant 1:** Breast cancer screening. Average-risk women: women with <15% lifetime risk of breast cancer.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammography screening</td>
<td>Usually Appropriate</td>
<td>🌟🌟</td>
</tr>
<tr>
<td>Digital breast tomosynthesis screening</td>
<td>Usually Appropriate</td>
<td>🌟🌟</td>
</tr>
<tr>
<td>US breast</td>
<td>May Be Appropriate</td>
<td>🌟</td>
</tr>
<tr>
<td>MRI breast without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>🌟</td>
</tr>
<tr>
<td>MRI breast without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>🌟</td>
</tr>
<tr>
<td>FDG-PET breast dedicated</td>
<td>Usually Not Appropriate</td>
<td>🌟🌟🌟</td>
</tr>
<tr>
<td>Sestamibi MBI</td>
<td>Usually Not Appropriate</td>
<td>🌟🌟🌟</td>
</tr>
</tbody>
</table>

These imaging modalities were ordered
Findings (unlabeled)
Findings (unlabeled)
Findings (labeled)

Spiculated mass
Findings (labeled)

A 0.4cm x 0.4cm x 0.5cm irregular hypoechoic mass with posterior acoustic shadowing in the right breast at 11:00 16cm from the nipple, corresponding to mammographic finding.
Final Diagnosis:

Granular Cell Tumor based on ultrasound-guided biopsy of the mass
Granular Cell Tumor

• **About**
  - Rare tumor composed of Schwann cells that is often benign and can be found anywhere on the body, but is most common in the skin, oral cavity, and digestive tract
  - Between 5-8% of cases are found in the breast, where it often mimics the characteristics of breast carcinoma clinically, radiographically, and microscopically
  - Also known as Abrikosoff’s tumor, Granular cell myoblastoma, Granular cell nerve sheath tumor, and Granular cell schwannoma

• **Epidemiology**
  - Most common in women aged 30-50 yo
  - Frequency of ~1 in 1000 breast cancers
  - Arises from the intralobular breast stroma and occurs within the distribution of the cutaneous branches of the supraclavicular nerve often in the upper inner quadrant
Granular Cell Tumor

- **Clinical Presentation**
  - May mimic carcinoma with a palpable mass with a hard, fibrous consistency

- **Radiographic Presentation**
  - **Mammography** - Masses may appear ill-defined or spiculated, which can be similar to carcinoma
    - Microcalcifications are atypical
  - **Ultrasound** - Presentation can vary depending on the extent of infiltration and the degree of reactive fibrosis with tumors appearing as solid, hypoechoic, ill-defined masses with posterior shadowing or circumscribed, oval masses with posterior enhancement
Granular Cell Tumor

• **Diagnosis**
  - Because imaging appearance can vary, pathological investigation is necessary
    - Cells characteristically have eosinophilic granules and abundant cytoplasm
    - Positive immunohistochemical staining for S-100, CD68 (KP-1), Neuron-specific enolase, and CEA supports the Schwann cell origin of granular cell tumors

• **Treatment**
  - Wide local excision is the standard treatment as the tumor has no capsule and proliferation is invasive

• **Prognosis**
  - Excellent - Recurrence has been observed in cases with incomplete resection
References: