

AMSER Case of the Month

July 2026

54-year-old female patient with painful, palpable left breast lump for 2 months

Jack Quillen, B.S

Penn State College of Medicine

Dr. Rebecca T. Sivarajah, MD

Penn State Milton S. Hershey Medical Center

Patient Presentation

History of Present Illness: Patient is a 54-year-old female who presents to the breast imaging center with a painful, palpable lump in her left breast at 1 o'clock she first noticed 2 months ago. She denies any associated redness, swelling, warmth, skin changes, or nipple discharge.

Patient History

- **Past Medical History:** Cerebral meningioma s/p focal radiation therapy in 2021
- **Gynecologic history:**
 - Onset of Menses at age 12
 - G6P5
- **Surgical History:** C-Section
- **Family History:** Mother with breast cancer (age 37)
- **Physical Exam:** Hard, irregularly shaped mass palpated in the left breast at 1 o'clock that is tender to palpation with increased vascularity over the area. Right breast was normal.

What Imaging Should We Order?

ACR Appropriateness Criteria

Palpable Breast Masses

Variant: 1 Adult female, 40 years of age or older. Palpable breast mass. Initial imaging.

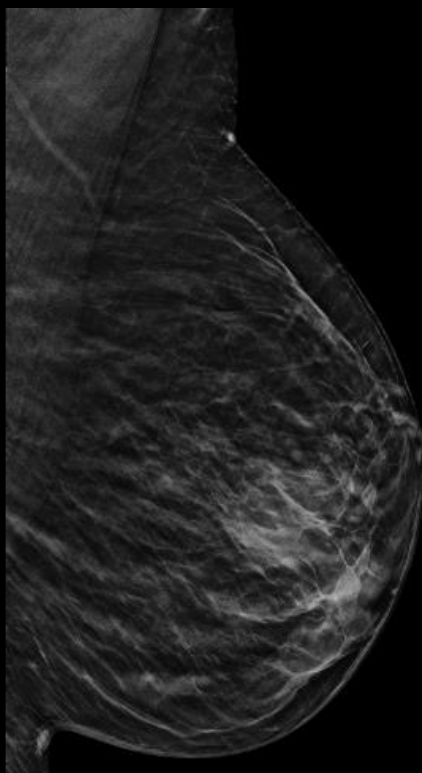
Procedure	Appropriateness Category	Relative Radiation Level
Digital breast tomosynthesis diagnostic	Usually Appropriate	☢☢
Mammography diagnostic	Usually Appropriate	☢☢
US breast	May Be Appropriate	○
Digital breast tomosynthesis screening	Usually Not Appropriate	☢☢
Mammography screening	Usually Not Appropriate	☢☢
Image-guided core biopsy breast	Usually Not Appropriate	Varies
Image-guided fine needle aspiration breast	Usually Not Appropriate	Varies
MRI breast without and with IV contrast	Usually Not Appropriate	○
MRI breast without IV contrast	Usually Not Appropriate	○
FDG-PET breast dedicated	Usually Not Appropriate	☢☢☢
Sestamibi MBI	Usually Not Appropriate	☢☢☢

This imaging modality was ordered by the PCP

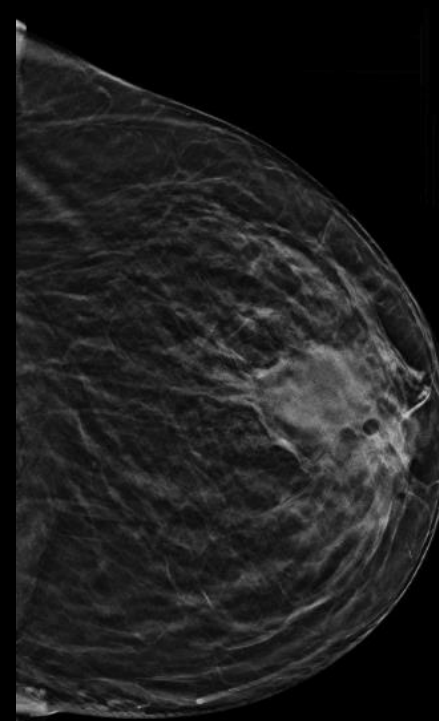


Mammogram Findings (unlabeled)

Left MLO with tomosynthesis

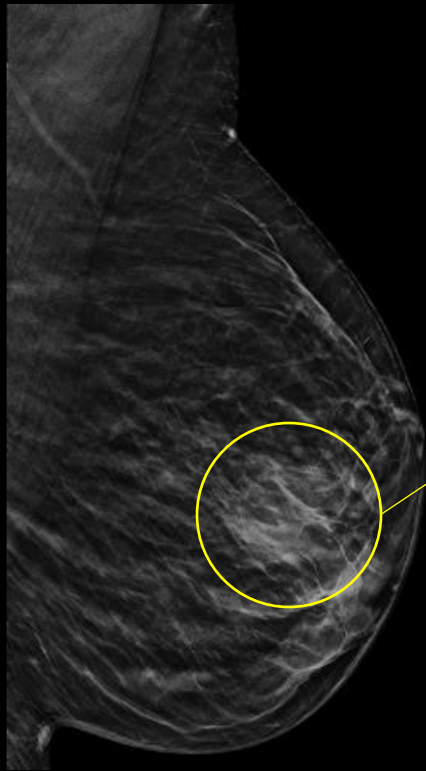


Left CC with tomosynthesis



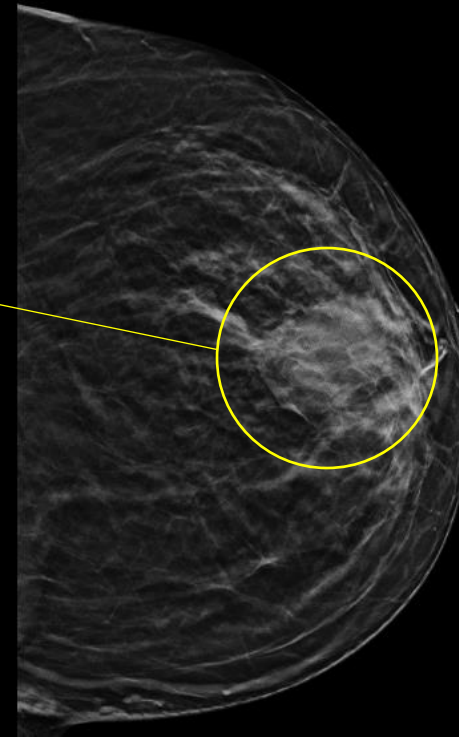
Mammogram Findings (labeled)

Left MLO with tomosynthesis



High density, irregular mass measuring 30 mm with indistinct margins and associated nipple retraction in the left breast at 1 o'clock, 2 cm from the nipple

Left CC with tomosynthesis



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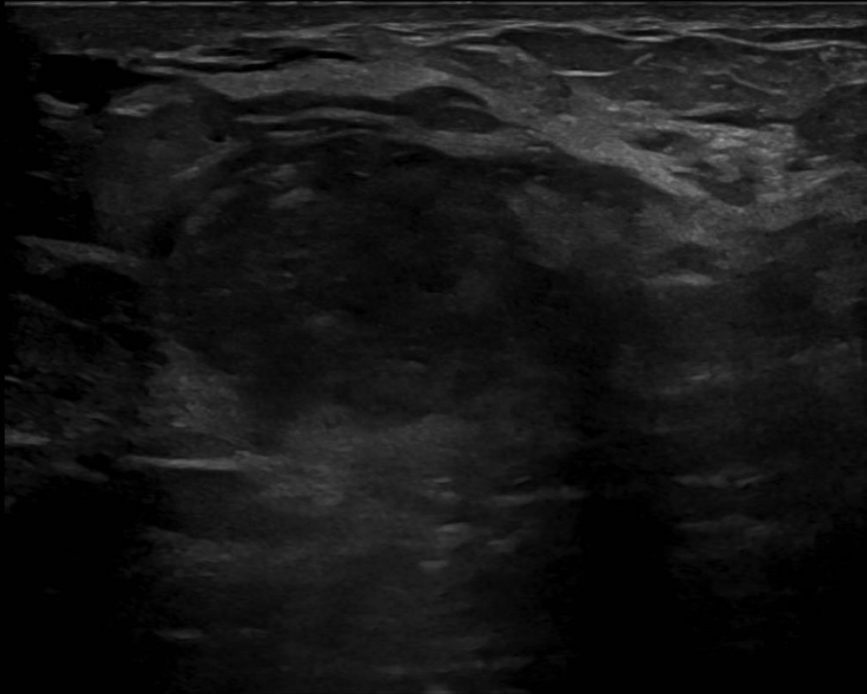
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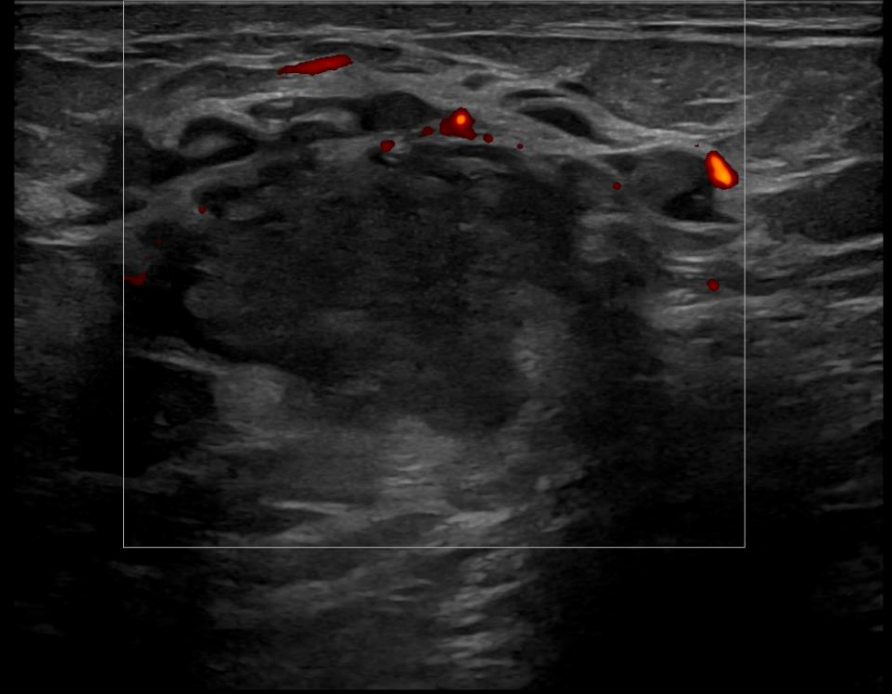
Left Breast Ultrasound Findings (unlabeled)

Series #1
1M0260023850 LOGIQ



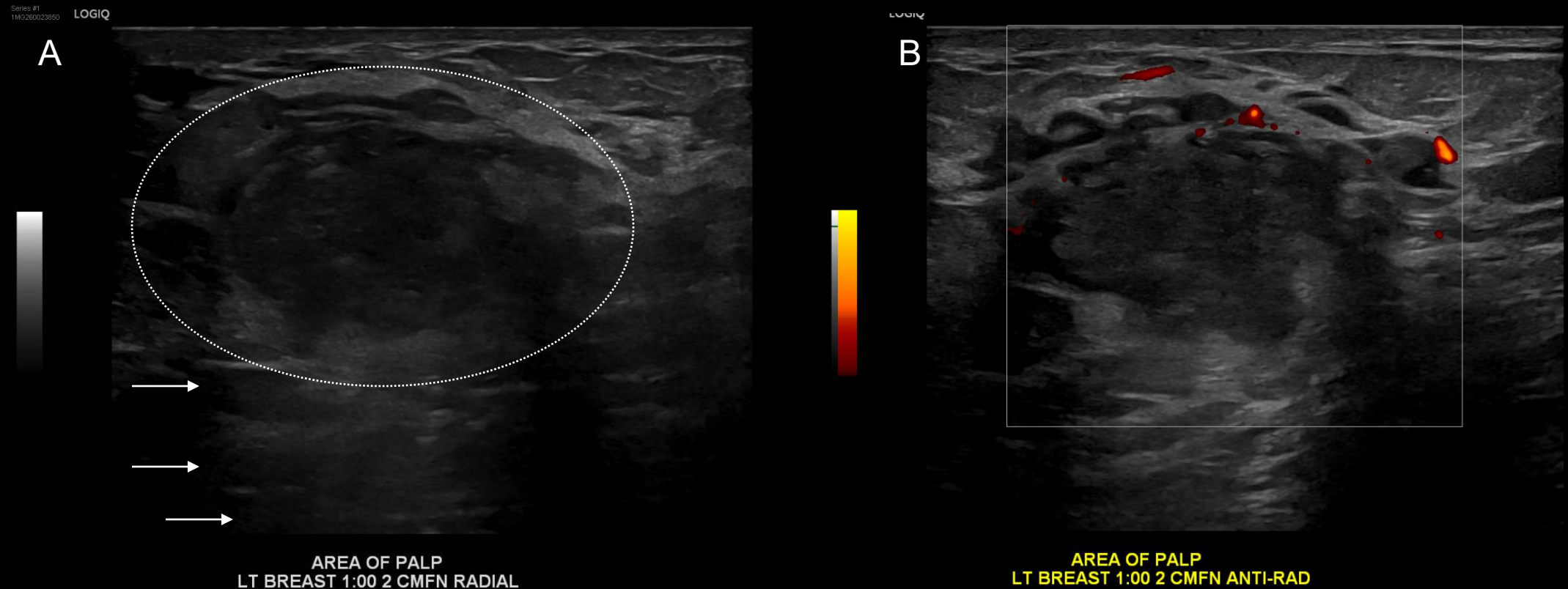
AREA OF PALP
LT BREAST 1:00 2 CMFN RADIAL

LOGIQ



AREA OF PALP
LT BREAST 1:00 2 CMFN ANTI-RAD

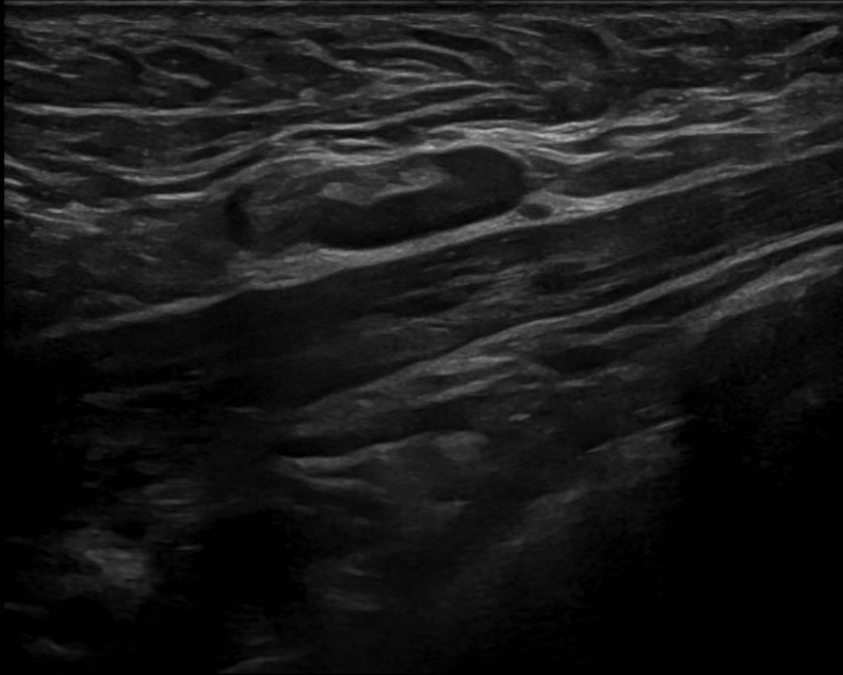
Left Breast Ultrasound Findings (unlabeled)



Targeted ultrasound of the palpable finding in the left breast without (A) and with color Doppler (B) demonstrates a hypoechoic irregular mass with indistinct margins measuring 24 x 17 x 24 mm (circle). There is posterior acoustic enhancement (arrows) and peripheral vascularity (red color in B).

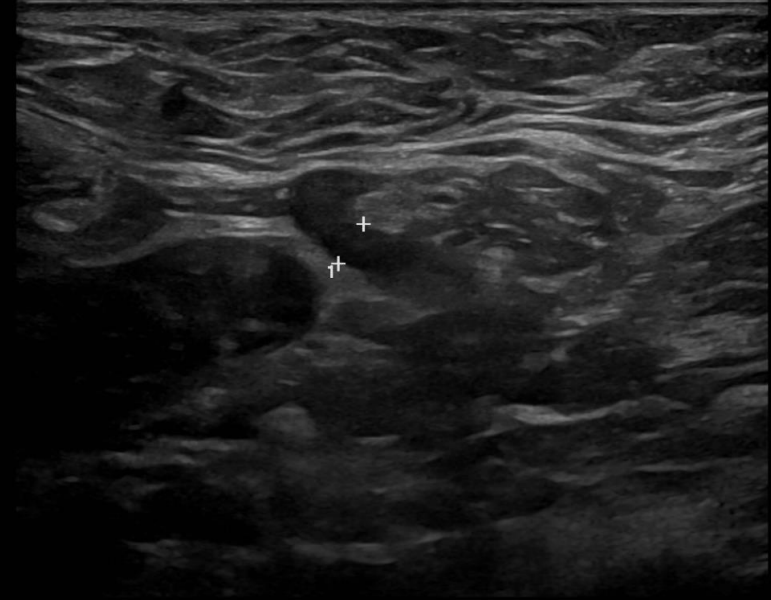
Left Axilla Ultrasound Findings (unlabeled)

LOGIQ



LT AXILLA LONG

LOGIQ



1 L 0.31 cm

LT AXILLA TRANS

ORIGINAL/PR

Left Axilla Ultrasound Findings (labeled)



A thickened left axillary lymph node is demonstrated (circle) with cortex measuring up to 3.1 mm. Comparison targeted US of right axilla (not shown) demonstrated lymph nodes with thin cortices measuring up to 1.3 mm.

Ultrasound Core Needle Biopsy Findings

Diagnosis (Verified)

- _ 1. Breast, left, 1:00, 2cmfn, Ultrasound Guided Needle Core Biopsy with a <> shaped tissue marker:
 - Breast tissue with an inflammatory process.
 - No definite atypia or malignancy identified.
 - See the microscopic description and comment.

- _ 2. Breast, left axillary, Ultrasound Guided Needle Core Biopsy with a BARD coil shaped tissue marker:
 - Fragments of lymph node, negative for carcinoma.

_ The sections in part 1 demonstrate perilobular with a mixed inflammatory infiltrate composed of central lipid vacuoles rimmed by neutrophils and an outer cuff of epithelioid histiocytes. The surrounding inflammatory infiltrate contains lymphocytes, plasma cells, and scattered multinucleated giant cells. There is a focus suspicious for microorganism in the lipid vacuoles but loss on deeper levels.

Comment: The findings are suggestive of a cystic neutrophilic granulomatous mastitis.

Differential Diagnosis

- Palpable, painful breast mass in adult female
 - Breast cyst
 - Fibrocystic changes
 - Fibroadenoma
 - Breast abscess
 - Granulomatous mastitis
 - Malignant breast mass

Final Dx:

Cystic Neutrophilic Granulomatous Mastitis

Cystic Neutrophilic Granulomatous Mastitis (CNGM)

- **Summary**

- CNGM is a rare subtype of granulomatous mastitis with a highly distinct histological pattern, strongly associated with *Corynebacterium* species.¹
- Accounts for <1% of breast specimens noted average age of 35 years.¹
- More common in parous patients with an interval of several years since last delivery²
- Commonly presents as a unilateral, palpable mass, occasionally with pain (~12%) that can mimic breast carcinoma on both exam and imaging.¹
- Recurrence rate is significant (~25%)³

- **Pathophysiology**

- Remains unclear, however, it is postulated that entry of *Corynebacterium* into deep breast tissue may trigger surrounding granulomatous inflammatory reaction.¹

Cystic Neutrophilic Granulomatous Mastitis (CNGM)

- Initial diagnosis

- Mammography typically demonstrates asymmetry or irregularly shaped mass³
- US typically shows hypoechoic, irregular masses, hyperemia, and/or phlegmon³
- Can be associated with enlarged, reactive, suspicious axillary lymph nodes³
- Core needle biopsy is required to rule out malignancy³
- Histology notable for clear lipid vacuoles lined by peripheral neutrophils, often containing gram positive bacilli⁴

- Treatment

- Optimal treatment remains unclear with many patients requiring a combination of antibiotics, immunosuppressant agents, and/or surgery⁵
- Reported success with empiric antibiotic treatment including extended courses of tetracycline or doxycycline¹
- Mild symptoms can be observed and treated with oral anti-inflammatory medications³
- Moderate disease may benefit from US-guided aspiration and ILS³
- Surgical management reserved for severe refractory cases. Minimally invasive approach is preferred, mastectomy is rarely indicated³

Case Resolution and Management

- Patient was prescribed doxycycline 100 mg twice daily for 3 months
- If symptoms recur despite antibiotic treatment, intralesional steroid injection could be considered
- No additional imaging recommendations at present
- Patient to be monitored closely with follow-up scheduled for 1 month

References

1. Wu JM, Turashvili G. Cystic neutrophilic granulomatous mastitis: an update. *J Clin Pathol*. 2020;73(8):445-453. doi:10.1136/jclinpath-2019-206180. Published online February 24, 2020.
2. Paviour S, Musaad S, Roberts S, et al. Cystic neutrophilic granulomatous mastitis: association with gram-positive bacilli and *Corynebacterium*. *Am J Surg Pathol*. 2002;26(9):1235-1240. doi:10.1097/00000478-200209000-00012.
3. Mitchell KB, Valente SA, Snider HC, et al. American Society of Breast Surgeons, Society of Breast Imaging, and College of American Pathology 2025 guidelines for the management of infectious and inflammatory lesions of the breast. *JAMA Surg*. Published online April 1, 2026. doi:10.1001/jamasurg.2026.0613.
4. Villavicencio JJ, Ferris-James DM, Dialani V, et al. Cystic neutrophilic granulomatous mastitis: imaging features with histopathologic correlation. *J Breast Imaging*. 2025;7(2):204-214. doi:10.1093/jbi/wbae077. Published online December 06, 2024.
5. Dobinson HC, Anderson TP, Chambers ST, et al. Cystic neutrophilic granulomatous mastitis: a clinicopathologic study of a distinct entity with supporting evidence of a role for *Corynebacterium*-targeted therapy. *Am J Surg Pathol*. 2015;39(8):1059-1066. doi:10.1097/PAS.0000000000000449.