AMSER Case of the Month
May 2025

40-year-old female with newly diagnosed left breast ductal carcinoma in situ (DCIS) presents for workup of additional incidental finding in the contralateral breast

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Making Cancer History®

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Patient Presentation

- HPI: Patient is a 40-year-old female who initially presented for baseline screening mammogram and was found to have bilateral abnormalities. She was recalled for diagnostic workup of both breasts.
- PMHx: None
- Medications: None
- Family Hx: Maternal aunt diagnosed with lymphoma at age 65. Maternal grandfather diagnosed with lung cancer at age 70s. Maternal great aunt diagnosed with breast cancer at unknown age.
- Physical Exam: Pea-sized nodule directly underneath the areola at 12:00 on the left. No masses palpated on the right. No axillary lymphadenopathy.

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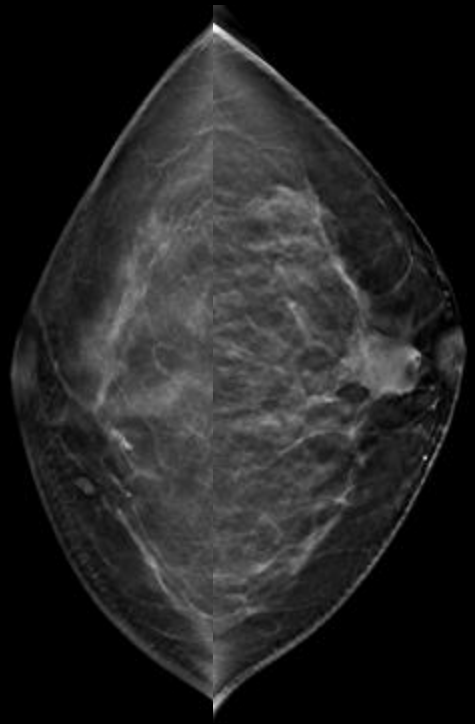
Pertinent Labs

None

Screening mammogram findings (unlabeled)



Right breast CC view

Left breast CC view

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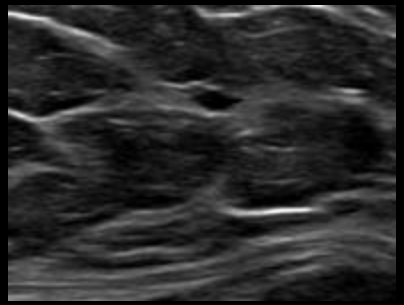
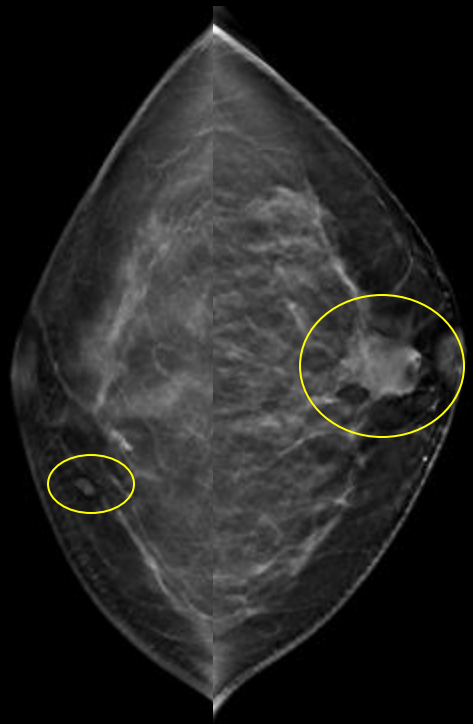
Screening mammogram findings (labeled)

Oval circumscribed sub centimeter mass in the upper inner right breast

Targeted ultrasound of the area demonstrated a simple cyst



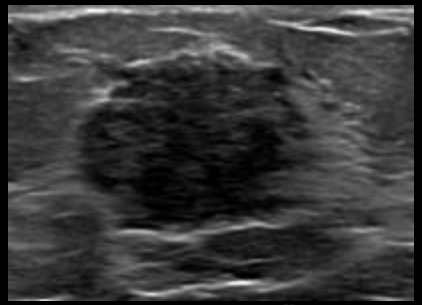


Right breast CC view

Left breast CC view

Partially obscured mass in the subareolar left breast

Targeted ultrasound and subsequent ultrasound-guided core biopsy was performed, and pathology results demonstrated DCIS



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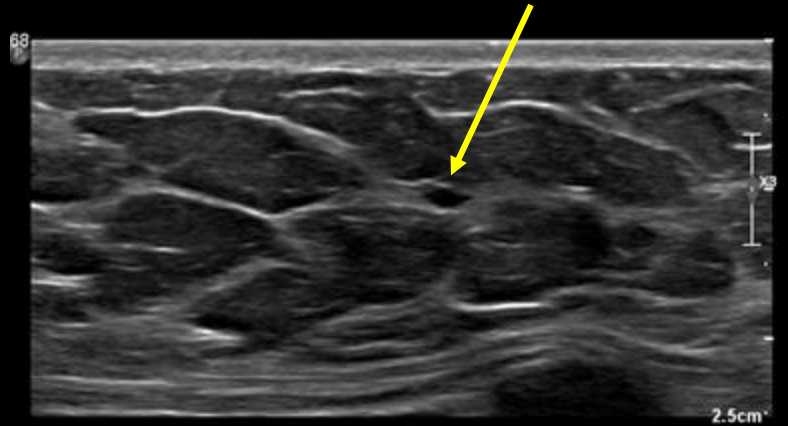
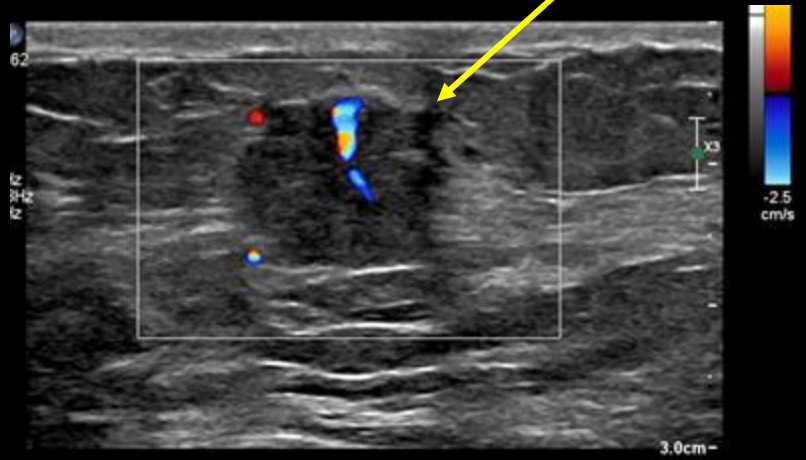
Breast ultrasound findings (labeled)



Right Breast 2:00 7 CMFN ARAD

Targeted ultrasound of the right upper inner quadrant demonstrated a 0.4 cm cyst, corresponding to the mammographic findings.



Left Breast 12:00 RETROAREOLAR

Targeted ultrasound of the retro areolar left breast demonstrated a 1.7 x 1.8 x 1.2 cm irregular microlobulated hypoechoic mass, which demonstrates internal vascularity on color Doppler. Pathology results showed DCIS.

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At this point, the patient is diagnosed with DCIS in the LEFT breast and simple subcm cyst in the RIGHT breast.

What Imaging Should We Order Next?

Select the applicable ACR Appropriateness Criteria

New 2024

American College of Radiology
ACR Appropriateness Criteria®
Imaging of Ductal Carcinoma in Situ (DCIS)

Variant 1: **Adult. Newly diagnosed DCIS. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Digital breast tomosynthesis diagnostic	Usually Appropriate	☢☢
Mammography diagnostic	Usually Appropriate	☢☢
US breast	May Be Appropriate	O
MRI breast without and with IV contrast	May Be Appropriate	O
Mammography with IV contrast	Usually Not Appropriate	☢☢
MRI breast without IV contrast	Usually Not Appropriate	O
CT chest with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET breast dedicated	Usually Not Appropriate	☢☢☢
Sestamibi MBI	Usually Not Appropriate	☢☢☢

This modality was ordered by the surgeon to stage the disease

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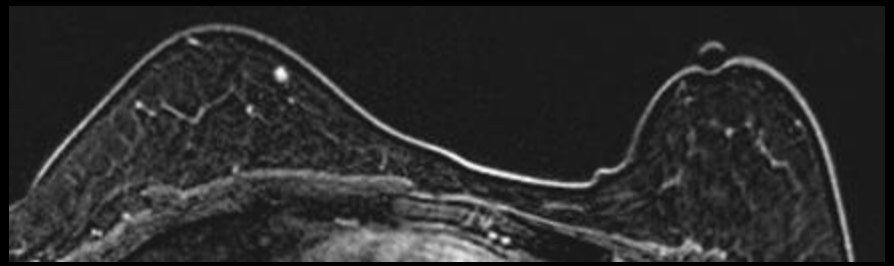
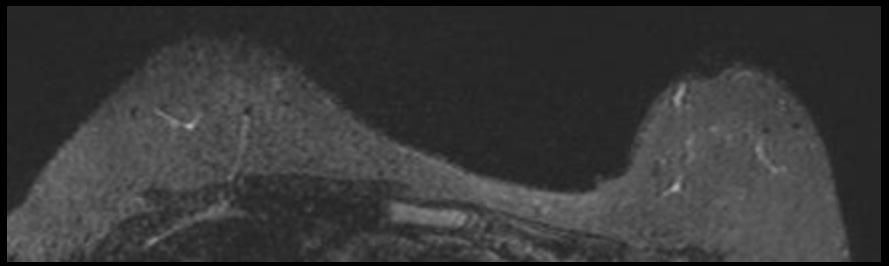
Breast MRI findings (unlabeled)



T1 fat-saturated postcontrast
axial subtraction MRI



Axial STIR

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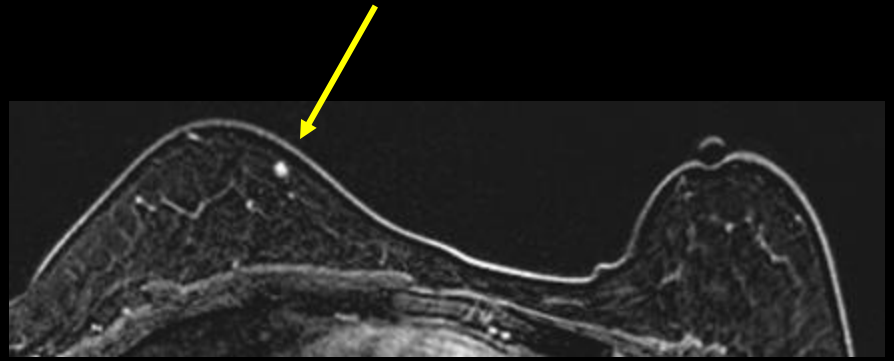
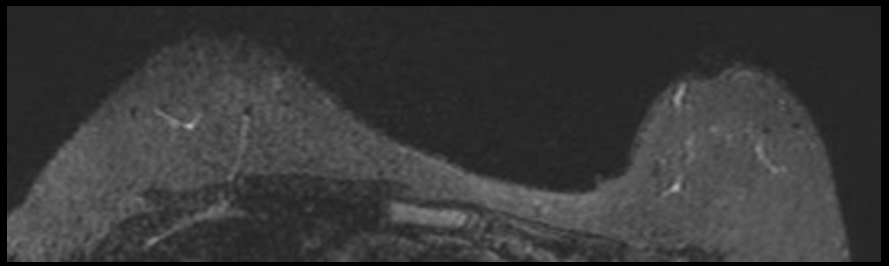
Breast MRI findings (labeled)



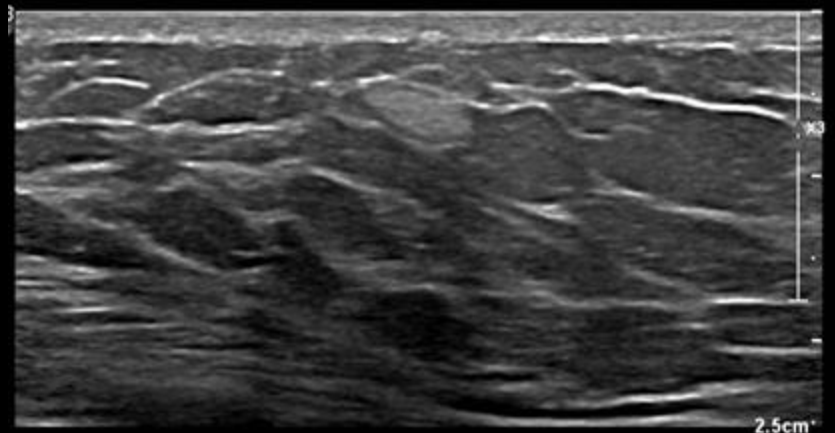
T1 fat-saturated postcontrast
axial subtraction MRI



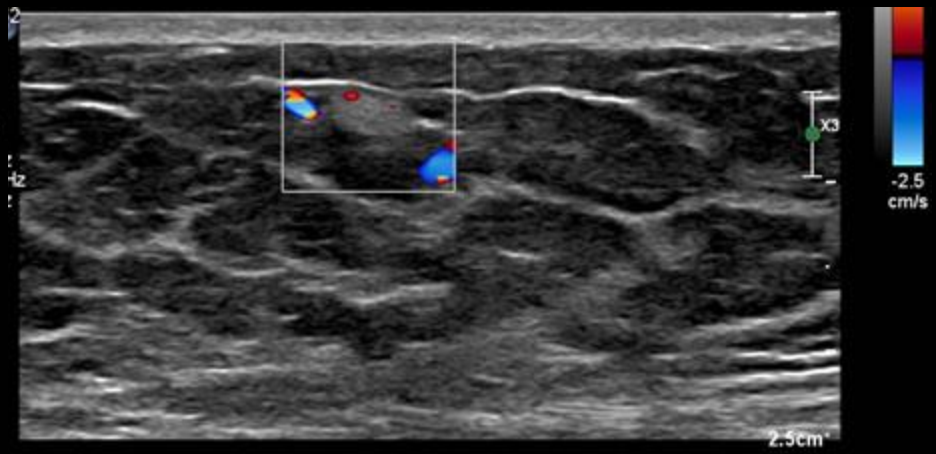
Axial STIR

Right breast: 5 mm oval circumscribed mass with homogenous enhancement without corresponding T2 hyperintensity.
Targeted ultrasound was recommended for further characterization.

Second look right breast ultrasound findings (unlabeled)



Right Breast 1:00 5 CMFN Rad |



Right Breast 1:00 5 CMFN A Rad

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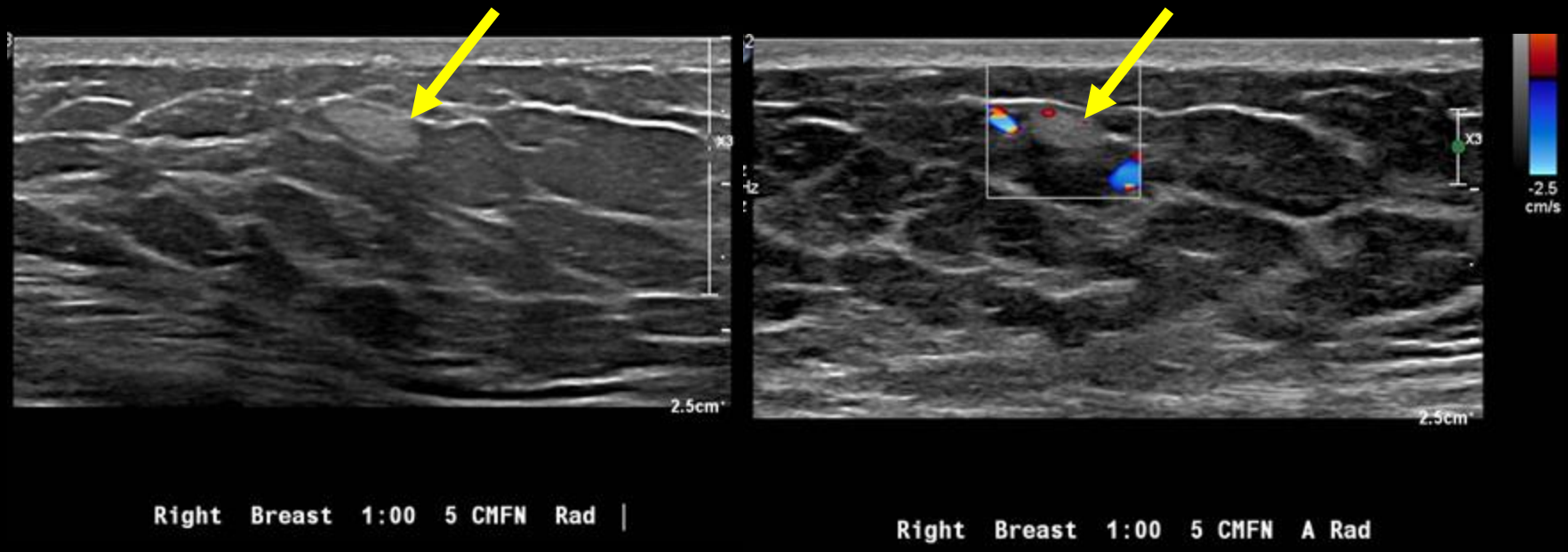
Second look right breast ultrasound findings (labeled)



Targeted ultrasound of the right upper inner quadrant demonstrated an echogenic, circumscribed, parallel 5mm mass with a thin hypoechoic rim and mild associated vascularity.

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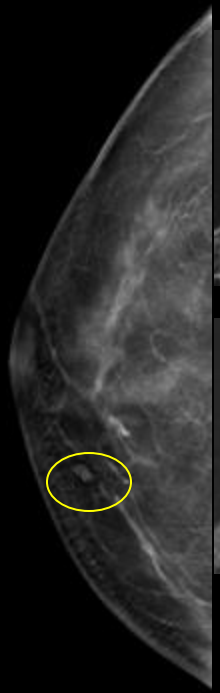
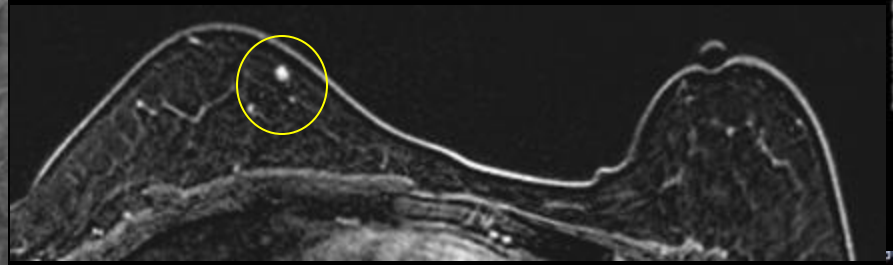
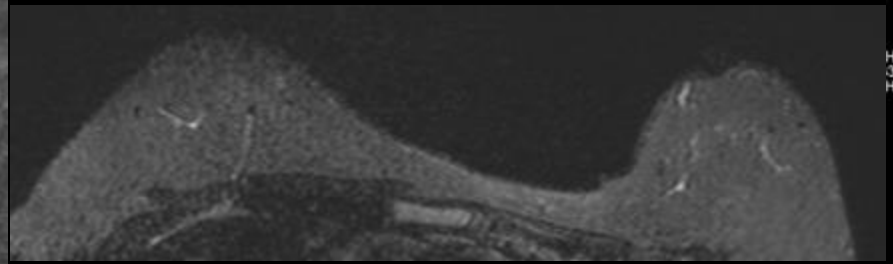
- Ultrasound-guided biopsy of the 5 mm right breast mass was requested for complete characterization prior to definitive LEFT breast surgery.
  - Pathology was consistent with cavernous hemangioma.
- The sub centimeter cyst in the right breast seen on initial ultrasound likely did not correspond to focal abnormality seen on screening mammogram.

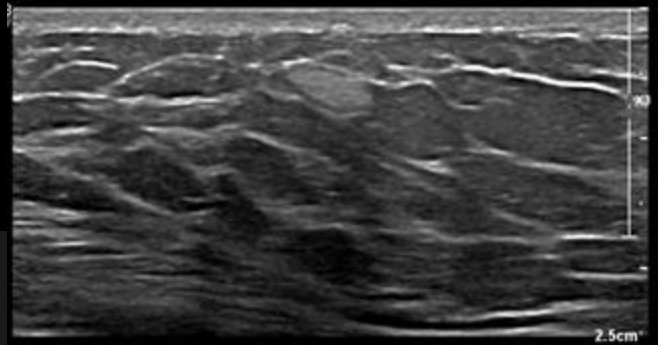
Final Dx:

Cavernous Hemangioma of the Breast

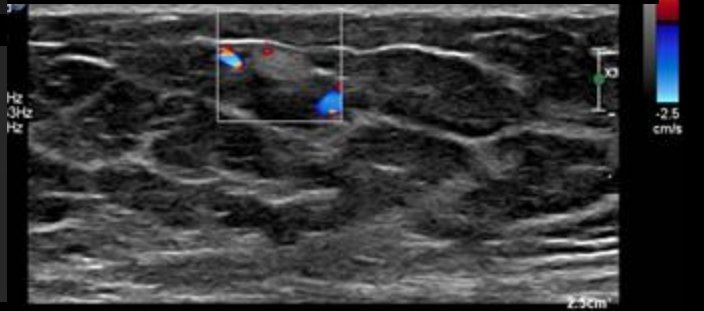








Right Breast 1:00 5 CMFN Rad |



Right Breast 1:00 5 CMFN A Rad

Case Discussion

Background:

- Breast hemangiomas are rare, benign tumors of vasculature that account for 0.4% of all breast tumors.[1]
- Classified into capillary, cavernous and venous subtypes, of which cavernous breast hemangiomas are the most common.[2]
- There is no evidence that shows that breast hemangiomas can spontaneously progress to malignant angiosarcoma.[3]

Diagnosis:

- Most cases are discovered incidentally on imaging and are found in up to 11% of port-mortem female specimens.[1]
- Initial diagnosis can be difficult due to variability in imaging features and resemblance to low-grade malignant angiosarcoma or ductal carcinoma in situ (DCIS).[2,4,5]
- Definitive diagnosis is through imaging-guided core biopsy.[1]
- Immunohistochemical markers of vascular endothelium such as CD31, CD34, and ERG can also help confirm the diagnosis.[2,5]

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Case Discussion

Management:

- Historically have been excised to avoid underdiagnosis of true breast malignancies.[3,4]
- However, recent studies suggest that most biopsy-confirmed hemangiomas do not need to be removed.[3,4]
- Continued indications for prompt surgical excision include cellular atypia and rapidly enlarging size.[3,4]
- Discordance between radiographic and pathologic findings may indicate malignancy and is another indication for removal.[3,4,5]

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References:

1. Salemis NS. Sinusoidal hemangioma of the breast: diagnostic evaluation management and literature review. Gland Surg. 2017 Feb;6(1):105-109. doi: 10.21037/gs.2016.11.06. PMID: 28210560; PMCID: PMC5293651

2. Aydın OU, Soylu L, Ercan Aİ, Bilezikçi B, Özbaş S. Cavernous Hemangioma in the Breast. J Breast Health. 2015 Oct 1;11(4):199-201. doi: 10.5152/tjbh.2015.2421. PMID: 28331722; PMCID: PMC5351427.

3. Sebastiano C, Gennaro L, Brogi E, Morris E, Bowser ZL, Antonescu CR, Pareja F, Brennan S, Murray MP. Benign vascular lesions of the breast diagnosed by core needle biopsy do not require excision. Histopathology. 2017 Nov;71(5):795-804. doi: 10.1111/his.13291. Epub 2017 Sep 8. PMID: 28644513; PMCID: PMC5708168.

4. Alysha Dhami, Meng Hao, Uzma Waheed, Brittany Z Dashevsky, Gregory R Bean, Breast Hemangiomas: Imaging Features With Histopathology Correlation, Journal of Breast Imaging, Volume 6, Issue 3, May/June 2024, Pages 288–295, https://doi.org/10.1093/jbi/wbae011

5. Huina Zhang, Bradley M. Turner, Hani Katerji, David G. Hicks, Xi Wang, Vascular lesions of the breast: Essential pathologic features and diagnostic pitfalls, Human Pathology Reports, Volume 26,2021,300570, ISSN 2772-736X, https://doi.org/10.1016/j.hpr.2021.300570.

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