

AMSER Case of the Month

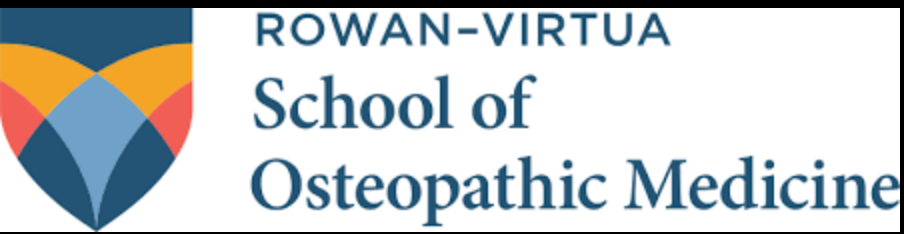
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21 year old women with right breast lump and pain

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Patient Presentation

21 year old woman presenting with a progressively enlarging right breast mass with localized pain. She first noted the lump four years earlier, shortly after childbirth. The mass exhibited minimal growth initially but demonstrated rapid enlargement with pain beginning three months prior to presentation.

What Imaging Should We Order?

ACR Appropriateness Criteria

Variant 6:

Adult female, younger than 30 years of age. Palpable breast mass. Initial imaging.

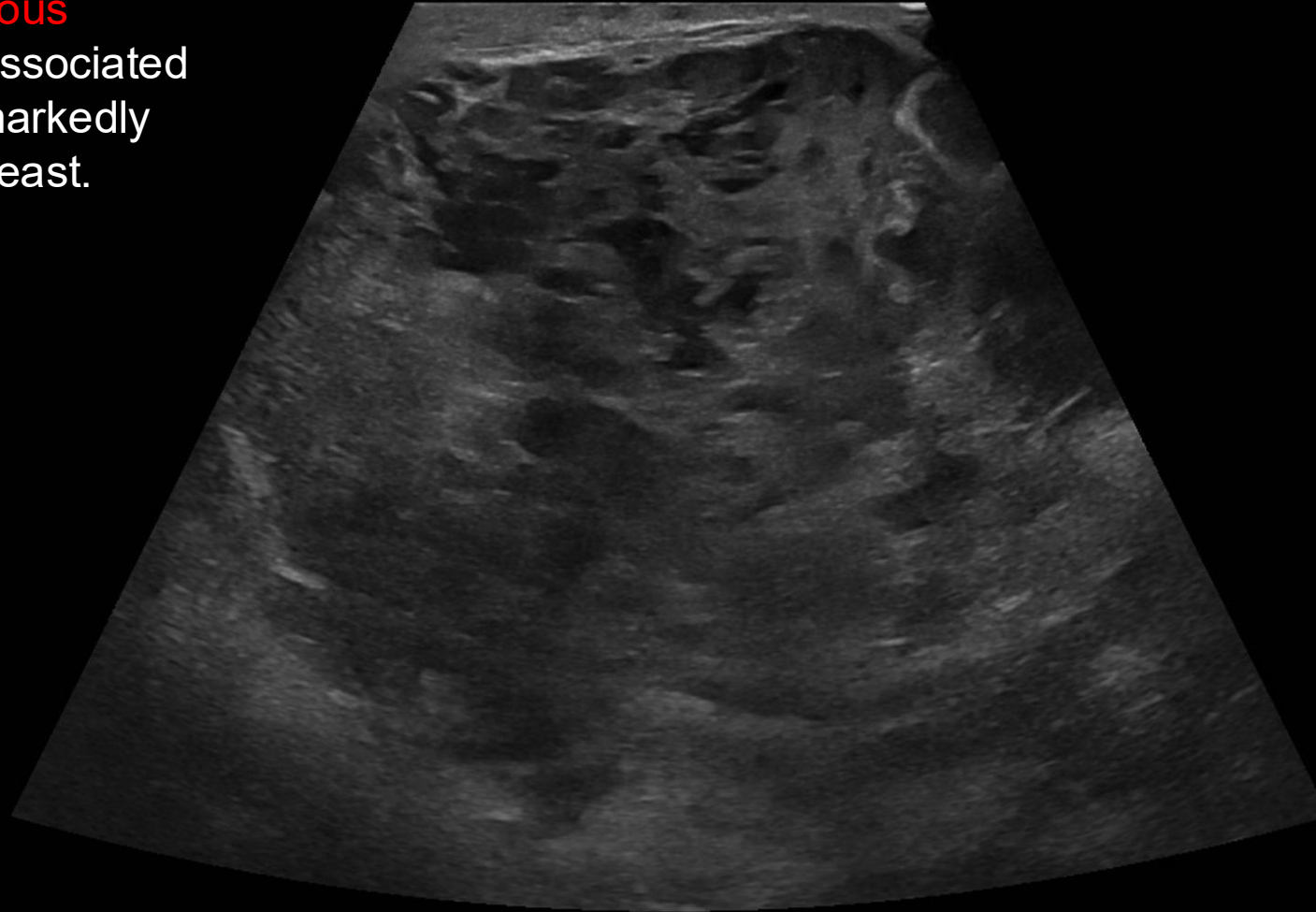
Procedure	Appropriateness Category	Relative Radiation Level
US breast	Usually Appropriate	0
Digital breast tomosynthesis diagnostic	Usually Not Appropriate	☼☼
Digital breast tomosynthesis screening	Usually Not Appropriate	☼☼
Mammography diagnostic	Usually Not Appropriate	☼☼
Mammography screening	Usually 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	0
MRI breast without IV contrast	Usually Not Appropriate	0
Sestamibi MBI	Usually Not Appropriate	☼☼☼
FDG-PET breast dedicated	Usually Not Appropriate	☼☼☼



This imaging modality was ordered

Ultrasound Breast

Diffusely **heterogeneous**
irregular mass with associated
internal vascularity markedly
enlarging the right breast.



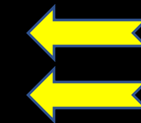
What Imaging Should We Order?

ACR Appropriateness Criteria

Variant 7:

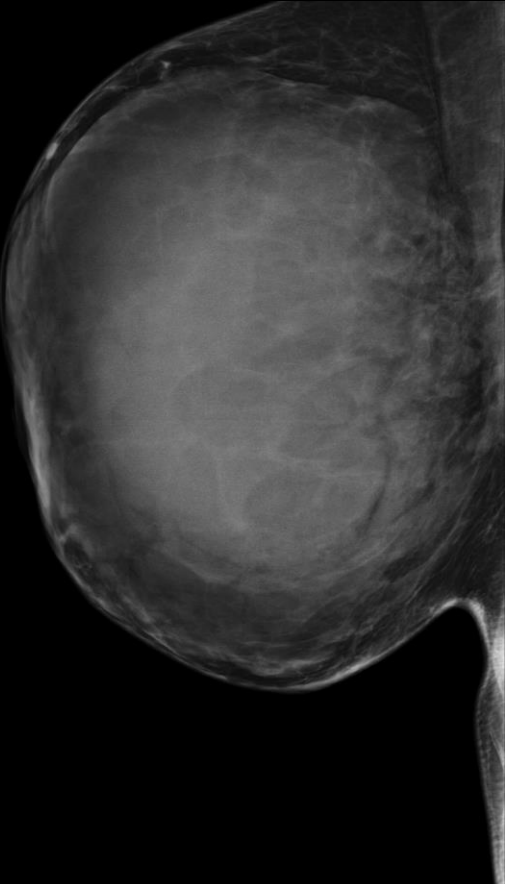
Adult female, younger than 30 years of age. Palpable breast mass. US findings are suspicious or highly suggestive of malignancy (BI-RADS 4 or 5). Next imaging study.

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

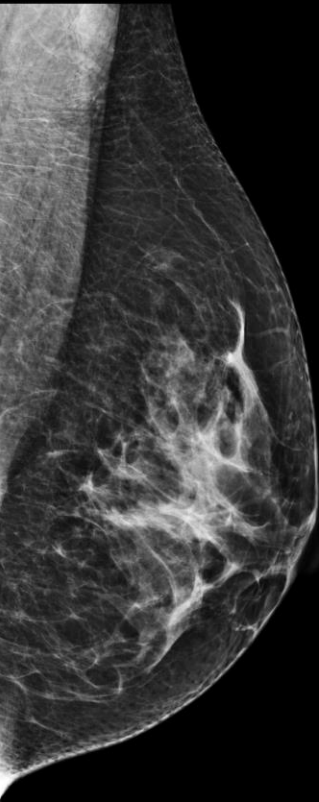


This imaging modality was ordered

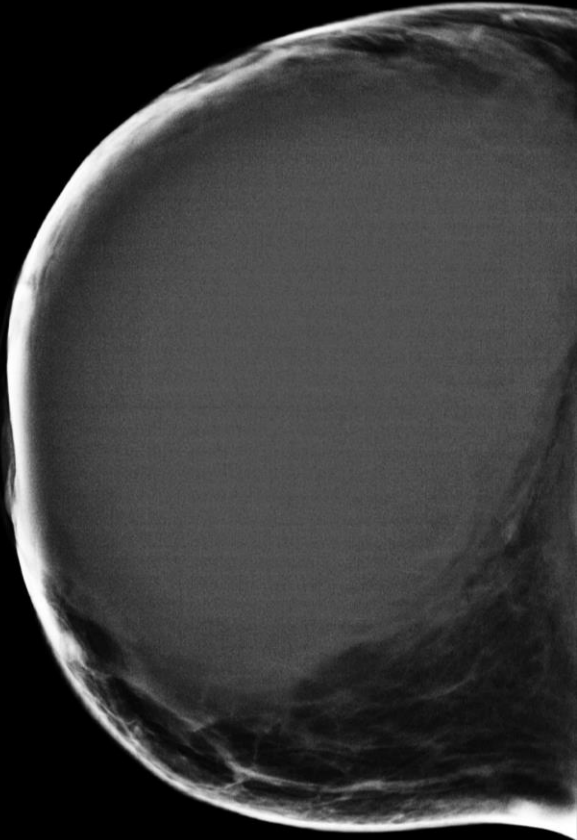
Mammogram



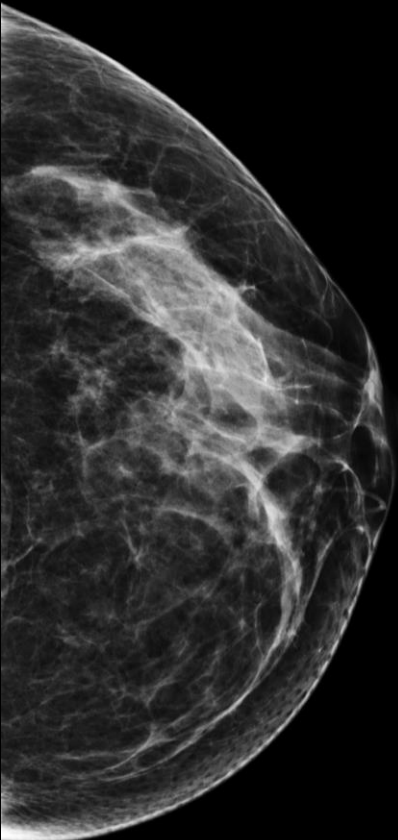
R-MLO



L-MLO



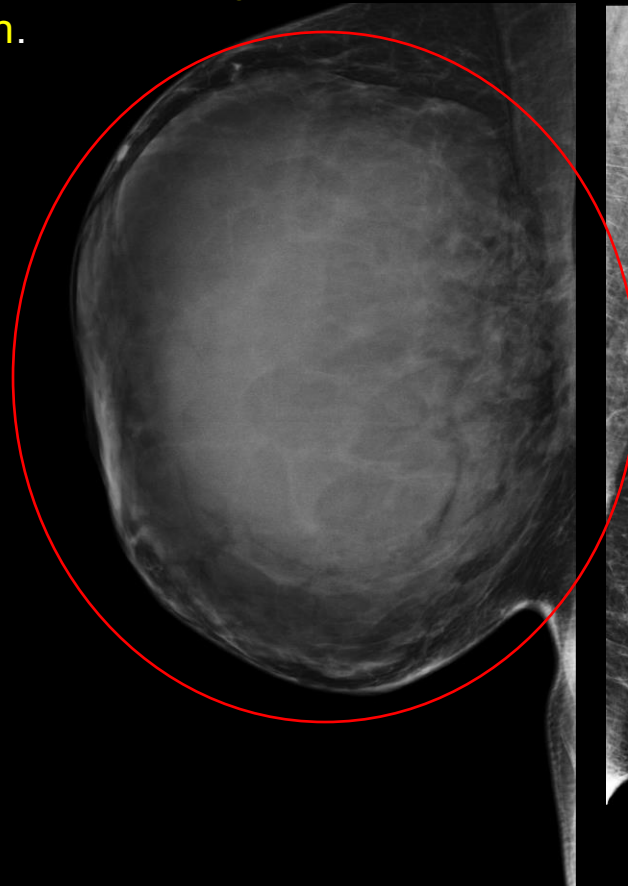
R-CC



L-CC

Right breast **hyperdense mass** with indistinct margins measuring 14 cm, markedly enlarging the right breast with associated **diffuse skin thickening** and **nipple retraction**.

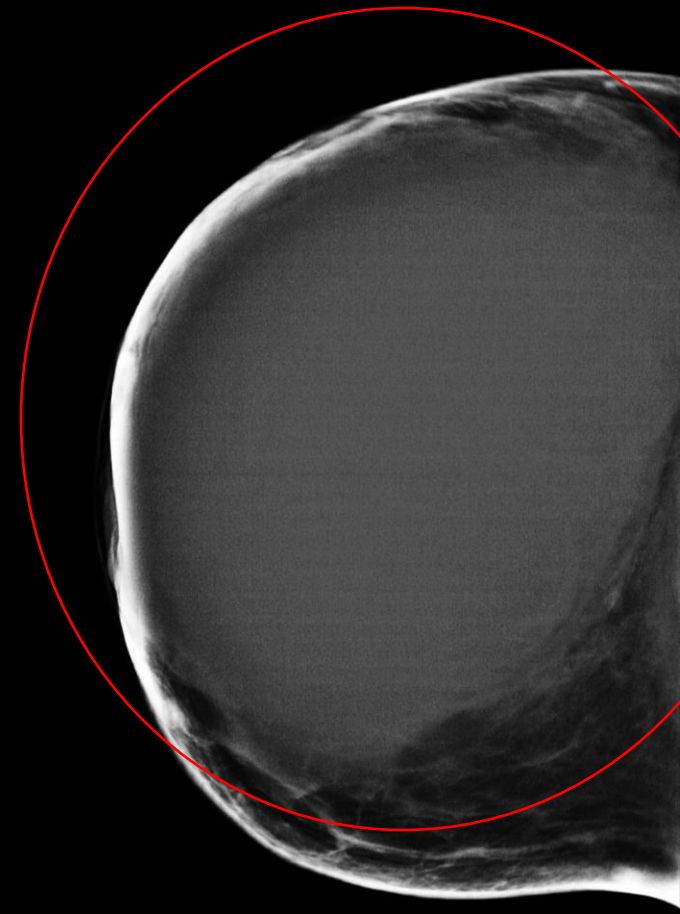
Mammogram



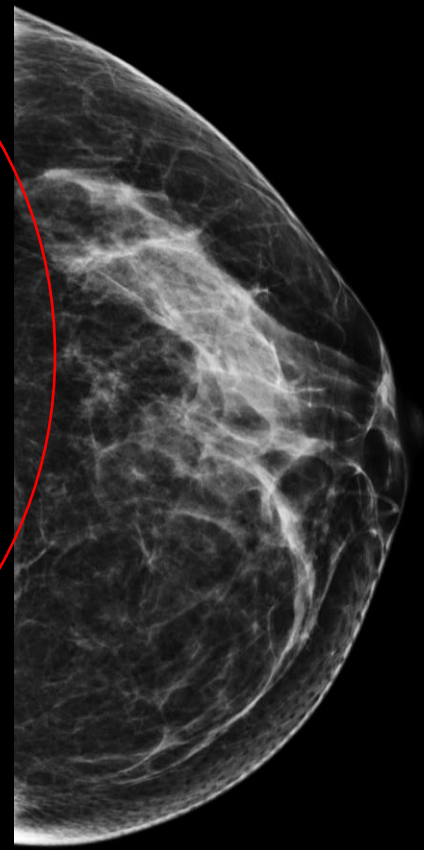
R-MLO



L-MLO

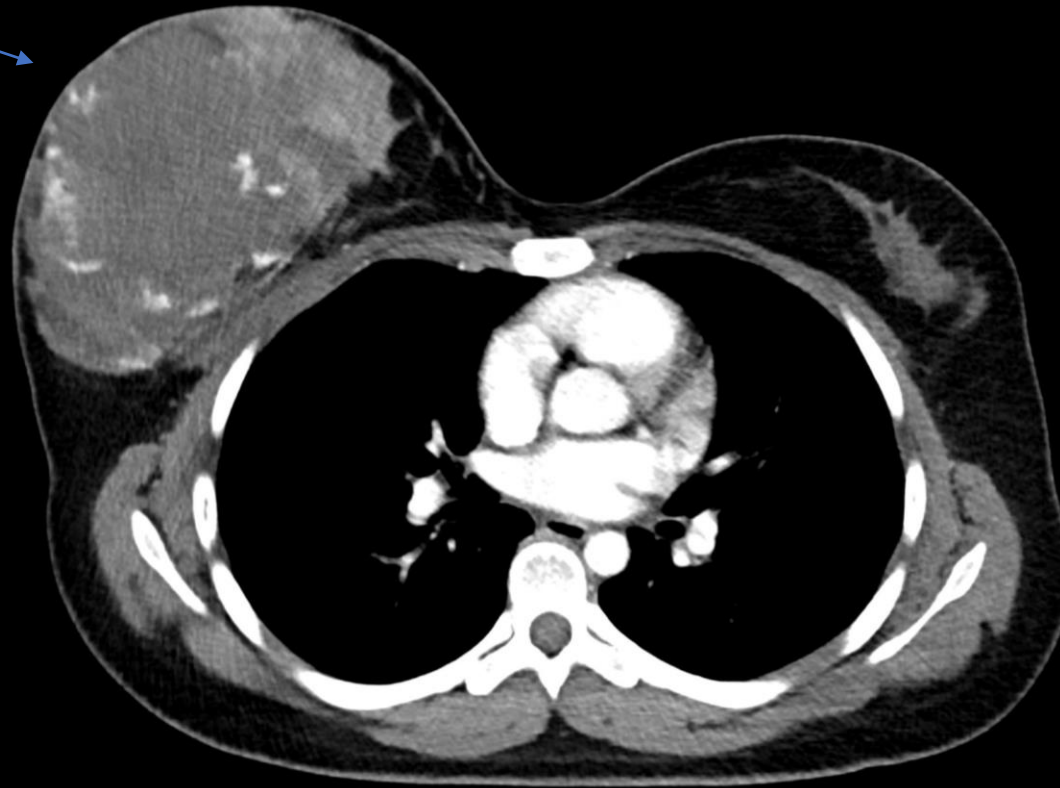


R-CC



L-CC

CT Chest



Large, heterogenous **right breast mass** demonstrating areas of irregular enhancement. Lesion is **poorly marginated**, with **mass effect** on the overlying breast parenchyma.

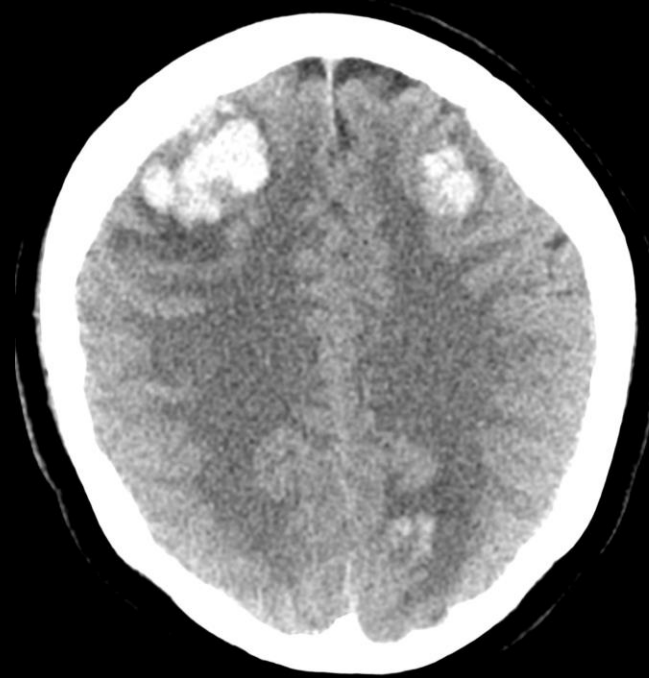
Pertinent Labs

- Tumor site: Right breast
- Tumor size: 14.2 cm
- Histologic Type: Angiosarcoma
- Mitotic Rate: 9 mitosis per mm²
- Necrosis: Present, extent ~10%

Final Dx:

Primary Right Breast Angiosarcoma

Follow-Up



Multiple **hyperdense, bilateral** lobulated **hemorrhagic metastases** with associated surrounding hypodensity compatible with vasogenic edema. Additionally, CT Chest demonstrated **multiple pulmonary nodules** consistent with metastatic disease.

Case Discussion

Background

- Primary breast angiosarcoma is exceptionally rare (<0.05% of breast malignancies).¹ More often affecting younger women (20s–40s).²
- Angiosarcoma arises from endothelial cells and behaves aggressively with early hematogenous spread (lung, liver, brain).³
- Risk factors include prior breast irradiation (secondary angiosarcoma), chronic lymphedema, and possibly pregnancy-related hormonal influences.⁴

Diagnosis

- Typical presentation of primary angiosarcoma is a rapidly enlarging palpable mass with painful or violaceous skin changes.⁵
- Mammography may show a large heterogeneous mass with indistinct margins, skin thickening, or nipple retraction.⁶ MRI often demonstrate a poorly marginated, heterogeneously enhancing mass.⁷

Case Discussion

Management

- Definitive management prioritizes surgical resection with wide margins—most commonly mastectomy—given high local-recurrence risk.^{2,3}
- The roles of adjuvant chemotherapy (e.g., anthracycline or taxane regimens) and radiotherapy are individualized.⁸
- Prognosis worsens with larger size (>5 cm), higher grade, and necrosis.⁹
- For metastatic disease, reported median survival is often under five years.¹⁰

Case Discussion

Connecting to Case

- 21-year-old with a 14-cm, rapidly enlarging breast mass exemplifies the young age and aggressive growth associated with primary angiosarcoma.
- Imaging showed a large, heterogeneously enhancing, poorly defined lesion with skin changes, and pathology confirmed high-grade angiosarcoma with necrosis and mitoses.
- Subsequent brain and lung metastases reflect the characteristic hematogenous dissemination.

References:

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