

Connecting the Mammo Room and Reading Room: Interactive Case Review

Stamatia Destounis, MD, FACR, FSBI, FAIUM

Louise Miller, R.T.(R)(M)(ARRT), CRT(M), FSBI, FNCBC
Director of Education, Mammography Educators



MAMMOGRAPHY
EDUCATORS

© 2026 Mammography Educators

1

ACR Images vs Real Life

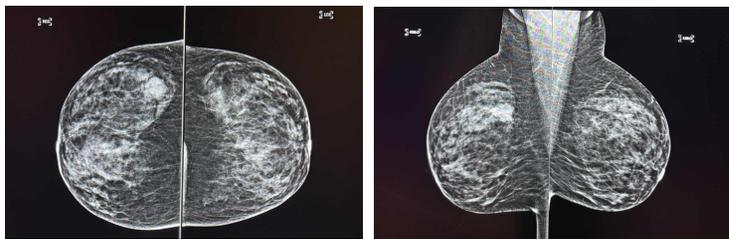
- What are realistic expectations in a daily practice
- What are the key components for the CC and MLO
- Variations in breast size, density, mobility, tenderness
- Variations in body habitus: kyphosis, limited ROM, mobility issues etc.



MAMMOGRAPHY
EDUCATORS

2

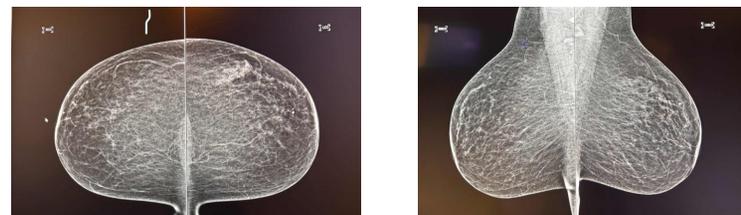
ACR Accreditation: Perfect!!



MAMMOGRAPHY
EDUCATORS

3

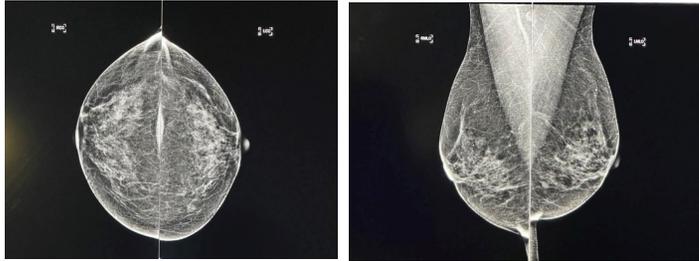
ACR Accreditation: Perfect!!



MAMMOGRAPHY
EDUCATORS

4

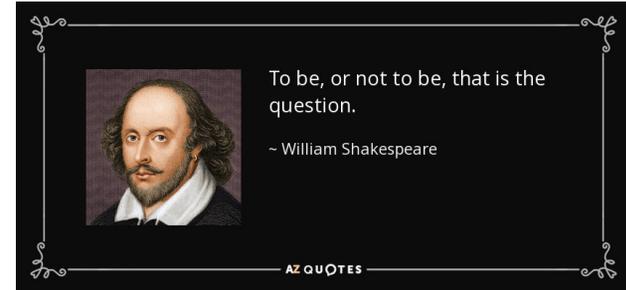
Meets Image Quality Standards



MAMMOGRAPHY
EDUCATORS

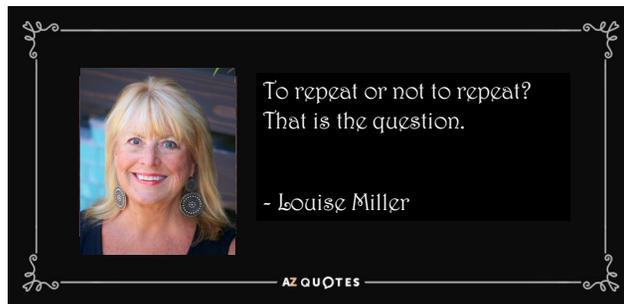
5

What is a “Repeatable Offense”?



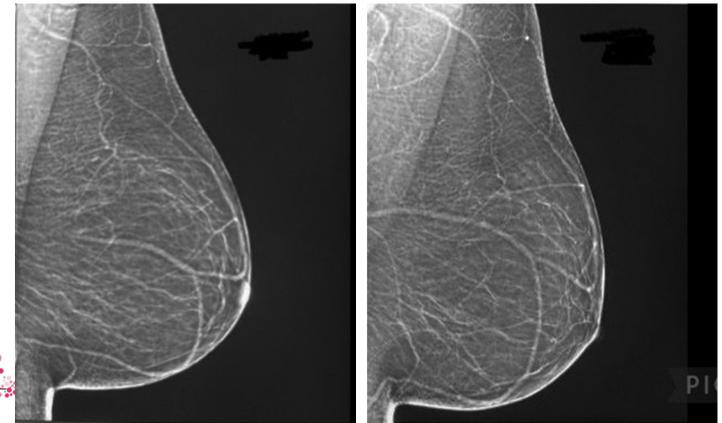
MAMMOGRAPHY
EDUCATORS

6



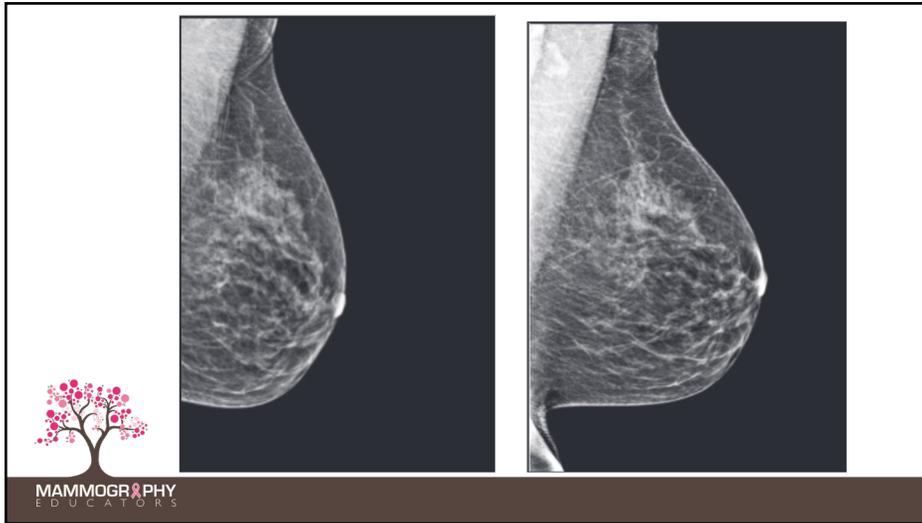
MAMMOGRAPHY
EDUCATORS

7

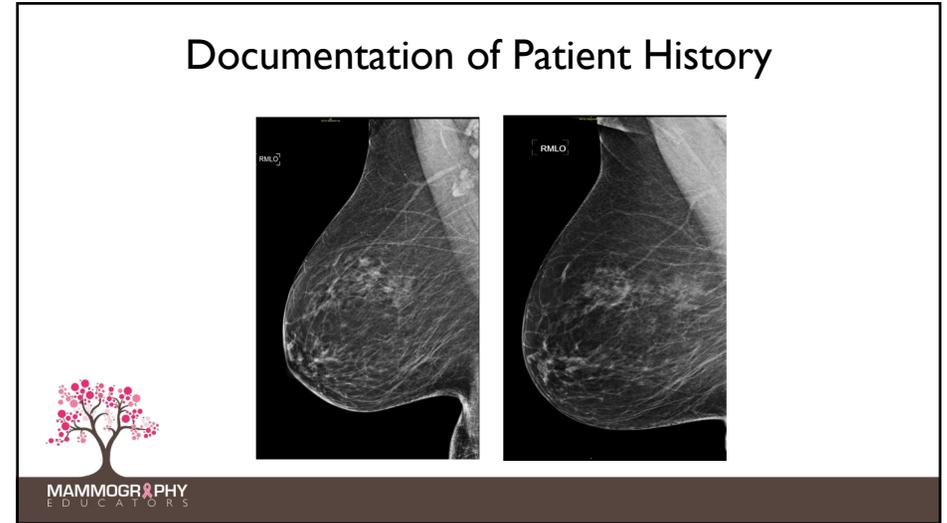


MAMMOGRAPHY
EDUCATORS

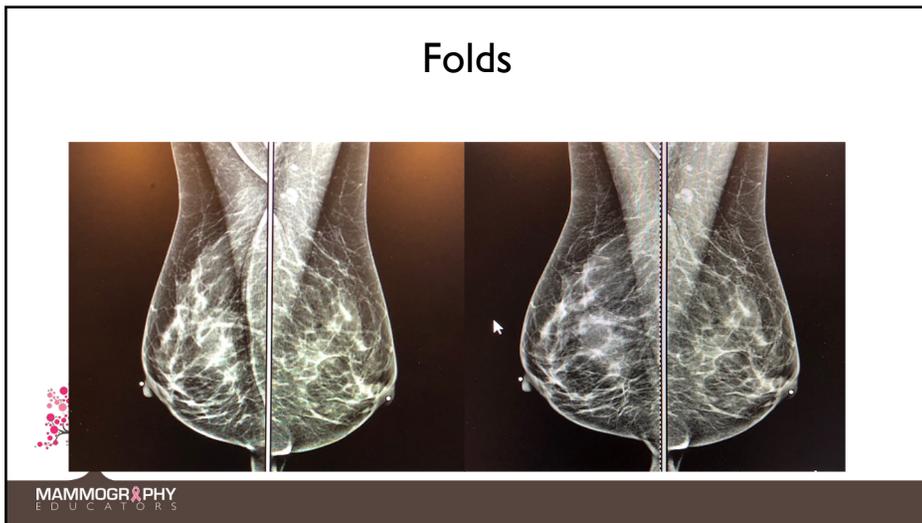
8



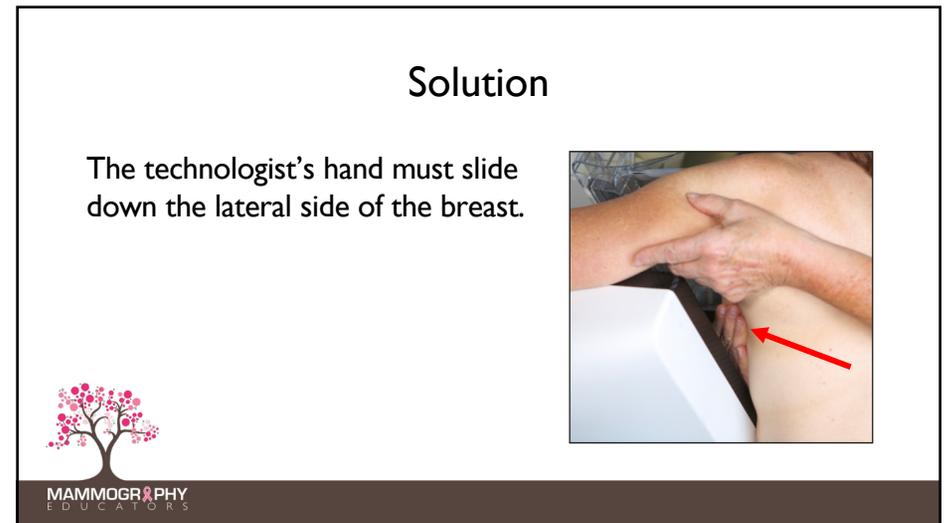
9



10



11



12

IMF Issues

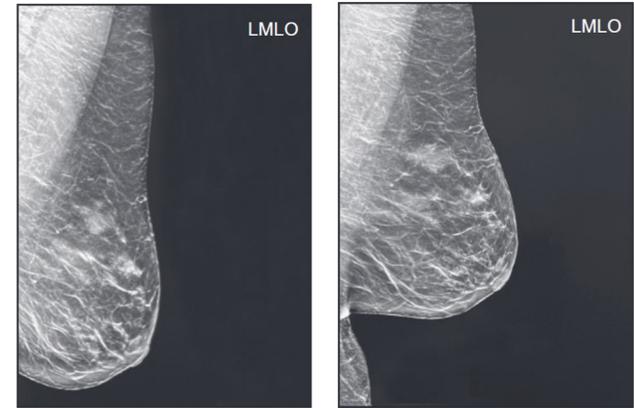


MAMMOGRAPHY
EDUCATORS

13

LMLO

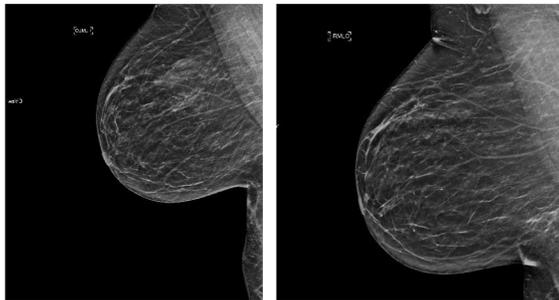
LMLO



MAMMOGRAPHY
EDUCATORS

14

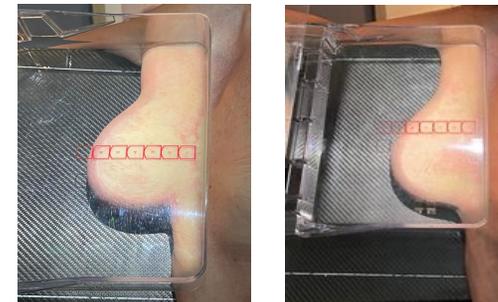
Centering on IR – Changing Paddles



MAMMOGRAPHY
EDUCATORS

15

Solution



24x30

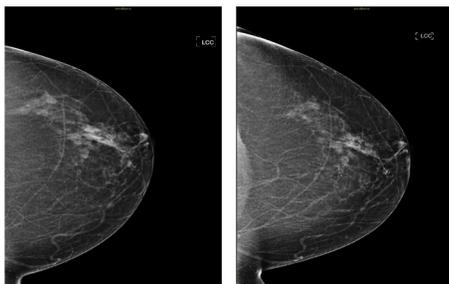
18x24



MAMMOGRAPHY
EDUCATORS

16

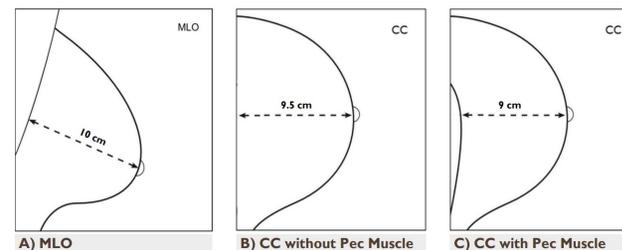
Short CC – Inclusion of More Posterior Breast Tissue



17

How to Measure the PNL

Example 1. PNL measurement on the CC must be within 1 cm of PNL measurement on the MLO.



Source: Mammography Educators

18

PNL Dilemmas

- What if the nipple is not centered?
- What if there is inadequate muscle is (short or concave) on the MLO?
- What if the nipple is not in profile?



19

PNL Dilemmas



20

Measurement of PNL if Nipple is Not Centered

NO **YES**



MAMMOGRAPHY
EDUCATORS

21



PNL Measurements on CC and MLO

© 2012 American College of Radiology®. All rights reserved.



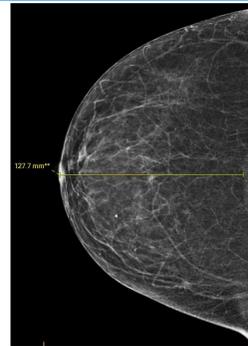
MAMMOGRAPHY
EDUCATORS

22

American College of Radiology®

PNL Measurement on CC

- PNL on CC view is measured along a line that extends directly posteriorly from the base of the nipple to the pectoral muscle or the edge of the film, whichever comes first¹



ACR LEARNING NETWORK

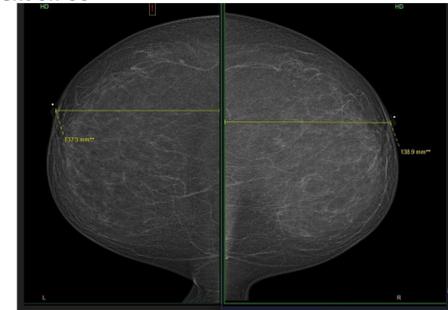
¹Bassett LW, et al. Mammographic positioning: evaluation from the view box. Radiology. 1993 Sep;188(3):803-6.

MAMMOGRAPHY
EDUCATORS

23

American College of Radiology®

PNL Measurement on CC



ACR LEARNING NETWORK

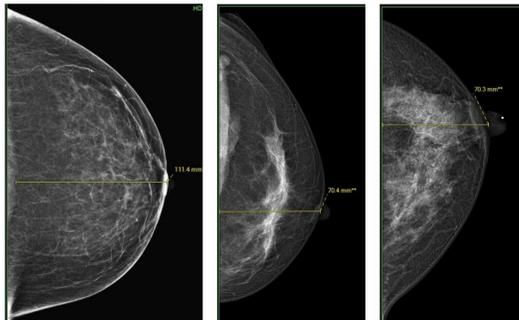
American College of Radiology®



MAMMOGRAPHY
EDUCATORS

24

PNL Measurement on CC



ACR LEARNING NETWORK



MAMMOGRAPHY
EDUCATORS

PNL Measurement on MLO

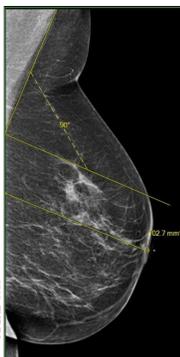
- To measure the PNL on MLO view, you need to accurately determine a 90-degree angle. This is done using the angle function on your PACS or Review Workstation (RWS) systems.
- The following slides show 3 ways to measure the PNL on MLO view when the pectoral muscle doesn't reach the nipple line.

ACR LEARNING NETWORK

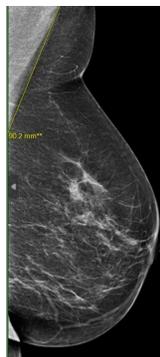


MAMMOGRAPHY
EDUCATORS

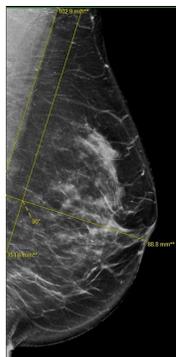
Option 1



Option 2



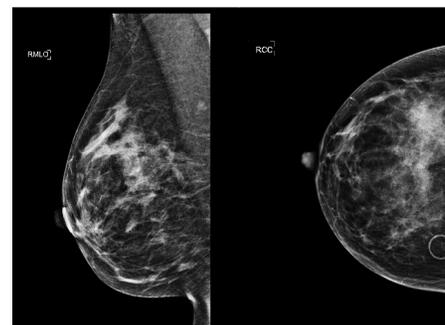
Option 3



MAMMOGRAPHY
EDUCATORS

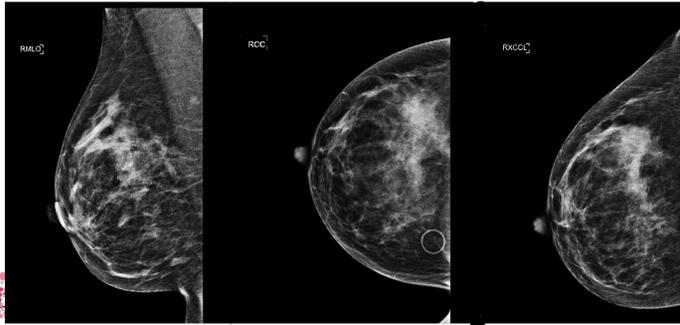
Source: ACR Learning Network

The Use (and Misuse) of the XCCL



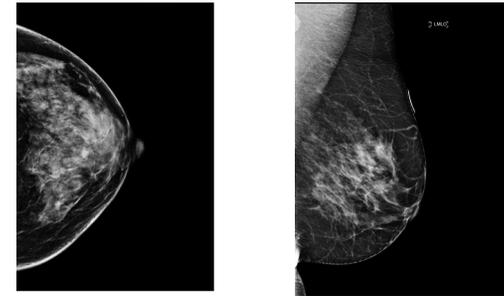
MAMMOGRAPHY
EDUCATORS

Use of the XCCL



29

Subsequent Screening Mammogram No XCCL Needed!



30

Use of the XCCL – Standard of Care

- XCCLs should be done on *baseline* mammograms when posterior breast tissue is excluded on the CC
- On subsequent screening mammograms, if glandular breast tissue is imaged back to the retromammary fat space an XCCL **does not** need to be done
- *There is no data that shows that the use of XCCLs for screening finds more breast cancers!*



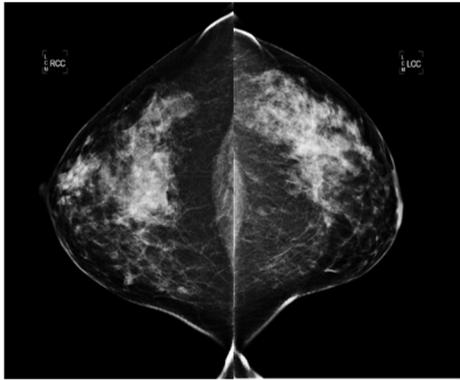
31

Use of the XCCL

- Should be performed on less than 5% of all patients
- Performed at 0-degree angulation
- Patient's body should be at 45-degree angle to IT
- Nipple should be pointing towards the upper corner of the image receptor



32



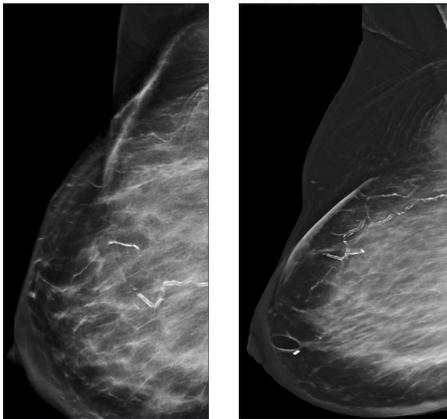
33

Motion

Exam done with patient seated, patient unable to lift left arm, difficulty breathing, on oxygen



34



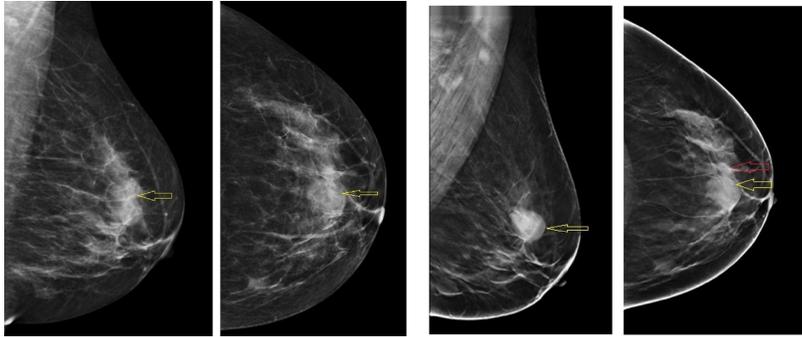
35

Repeats – Add Views

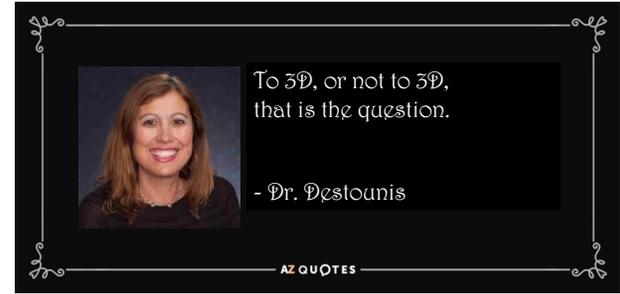
FFDM or DBT?



36



37



38

The Importance of Standardized Positioning

- Standardized
- Consistent
- Reproducible
- Efficient
- Proficient
- Ergonomically Sound



39

Consistency and Reproducibility Different techs – Different years



40

Consistency and Reproducibility

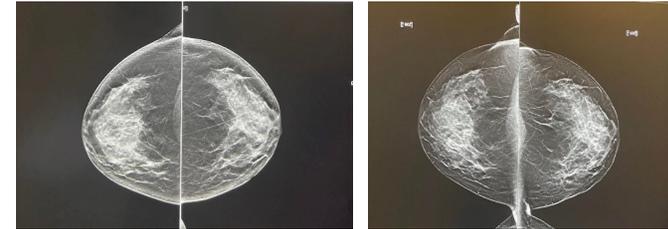
Different techs – Different years



MAMMOGRAPHY
EDUCATORS

41

Meet, **Beat**, Repeat



Year 1

Year 2



MAMMOGRAPHY
EDUCATORS

42

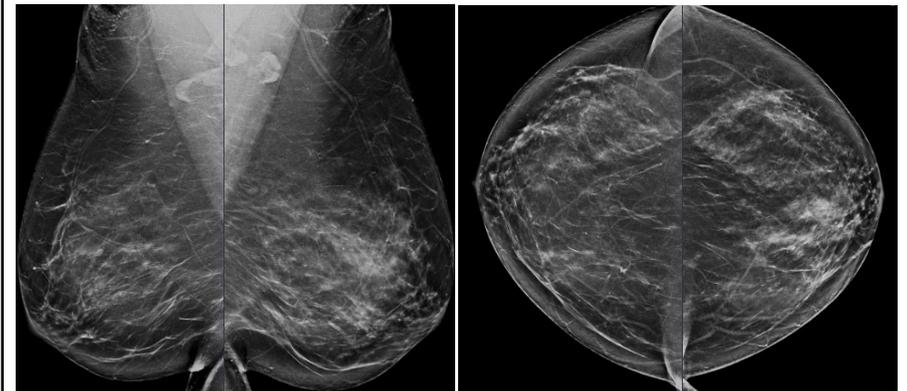
Diagnostic Workup

41-year-old patient presents for screening mammography and follow up diagnostic exam.



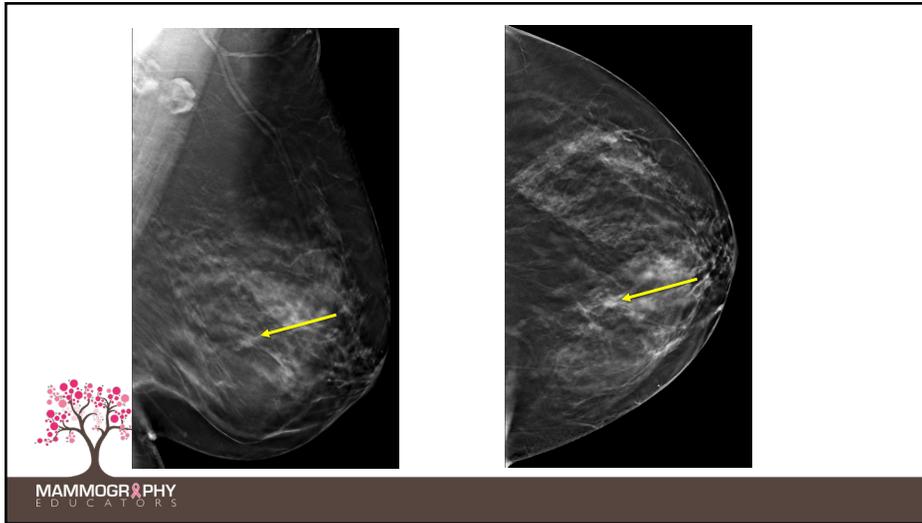
MAMMOGRAPHY
EDUCATORS

43

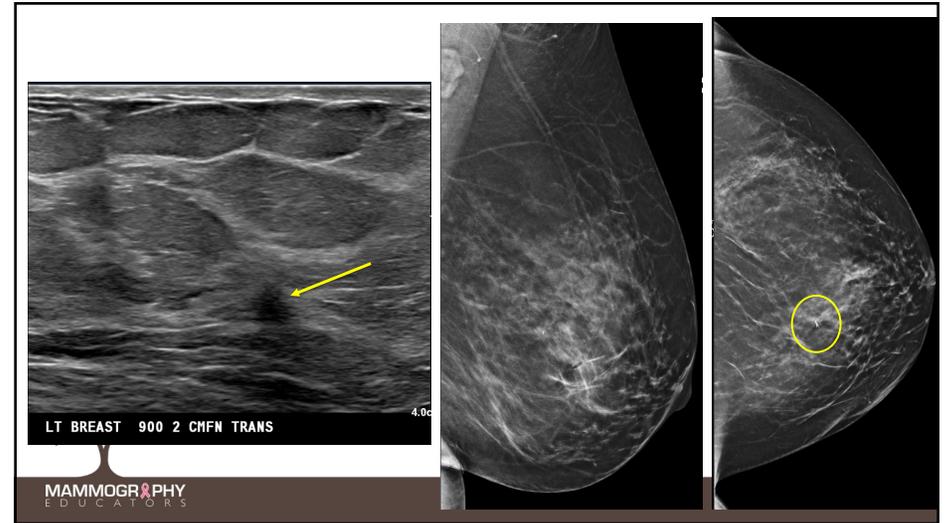


MAMMOGRAPHY
EDUCATORS

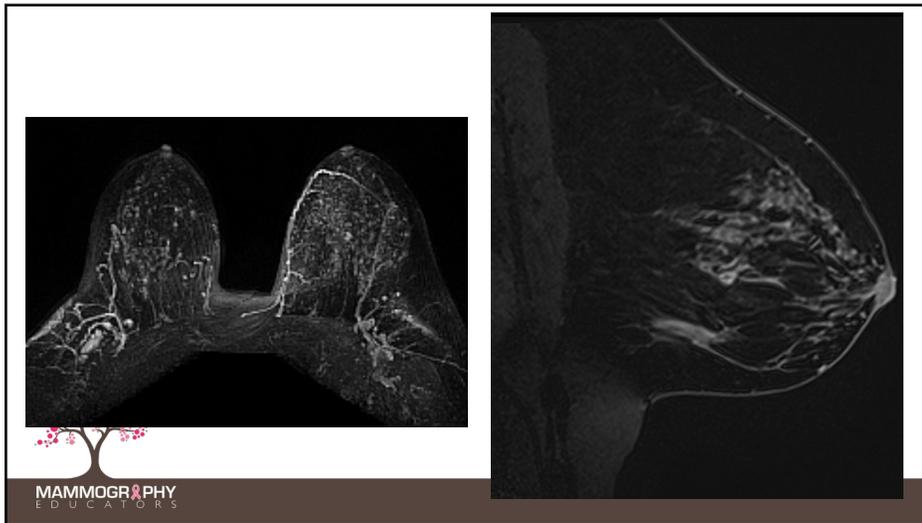
44



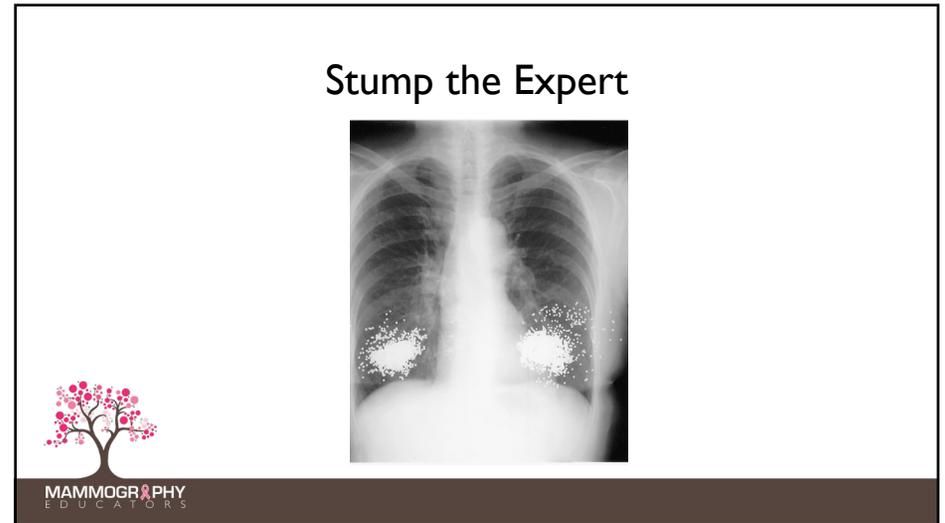
45



46



47



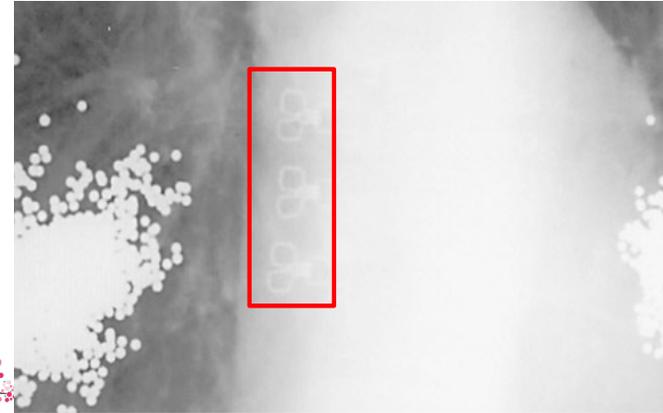
48

Stump the Expert



MAMMOGRAPHY
EDUCATORS

49



MAMMOGRAPHY
EDUCATORS

50

"BUCKSHOT BRA"



A WOMAN'S BRA IS PACKED WITH METALLIC SHOT TO MAKE HER BREASTS APPEAR LARGER. (COURTESY KEN SANDOCK, MD)



MAMMOGRAPHY
EDUCATORS

Reference: <https://medhopratus.com/ForeignBodies/>

51

Thank You!

Services we offer, include:

- Onsite Positioning Training
- Assistance with Accreditation & Inspection
- Live Webinars and Conferences
- On-Demand Continuing Education

For questions or more information:

619-663-8269

mammographyeducators.com

info@mammographyeducators.com



MAMMOGRAPHY
EDUCATORS

52

References

- AI Thinking. (2024, May 21). Can AI think for itself? Retrieved from AI Thinking website: <https://ai-thinking.ai/can-ai-think-for-itself/>
- Bassett, L. W., Hirbawi, I. A., DeBruhl, N., & Hayes, M. K. (1993). Mammographic positioning: evaluation from the view box. *Radiology*, 188(3), 803–806. <https://doi.org/10.1148/radiology.188.3.835135>
- Juzo. (2022). Juzo Thorax compression garment. [Online Image]. In Juzo. Retrieved from <https://www.juzo.com/en/products/compression-garments/oedema-therapy/fat-knit-compressions-for-maintenance-therapy/juzo-thorax-compression-vests>
- Miller, L. (2021, February 8). Clearing Up Confusion: How to Properly Measure the PNL. Retrieved from Mammography Educators website: <https://mammographyeducation.com/clearing-up-confusion/>
- Miller, L. (2024). *Mammography Positioning Guidebook* (Third Edition). Mammography Educators.
- Tomas, A. (2023, September). Introduction: AI Thinking is the human approach to interacting with artificial intelligence, a concept introduced by Zeng [1]. It's a framework that invites individuals to extract fresh insights from data patterns generated by machine learning—a subset of AI. Retrieved 2025, from LinkedIn.com website: <https://www.linkedin.com/pulse/what-could-ai-thinking-augusto-tomas/>
- US Food and Drug Administration. (2016, April 22). Poor positioning responsible for most clinical image deficiencies, failures. www.fda.gov/Radiation-EmittingProducts/MammographyQualityStandardsActandProgram/FacilityScorecard/ucm495378.html



MAMMOGRAPHY
EDUCATORS