

LRCB

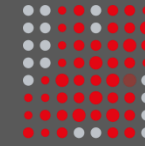
dutch expert centre
for screening

Introduction to screening

Klaas Schuur
Tanya Geertse
Ruud Pijnappel



How to read mammograms



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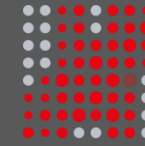
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Purpose:

Tips and tricks for a systematic approach of reading screening mammograms



Systematic approach



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Step 1
QUALITY

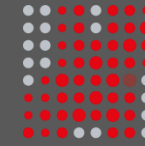
Step 2
DETECTION

Step 3
INTERPRETATION

Step 4
BI-RADS



Systematic approach



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Step 1
QUALITY

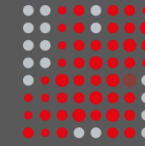
Step 2
DETECTION

Step 3
INTERPRETATION

Step 4
BI-RADS



Step 1: image quality



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Is the quality of the mammogram
alright (image quality and
positioning)?



Step 1: image quality

Radiologists → recognize problems



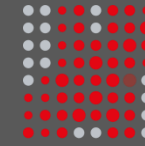
Step 1: image quality

Image quality → see presentation of
Ruben van Engen

Positioning → see presentation of
Cary van Landsveld



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Step 1
QUALITY

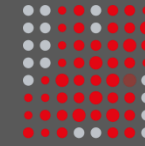
Step 2
DETECTION

Step 3
INTERPRETATION

Step 4
BI-RADS



Step 2: Environment



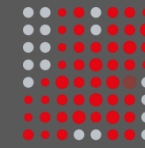
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**Quiet work
place**



Step 2: Environment



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**Dimmed
light**



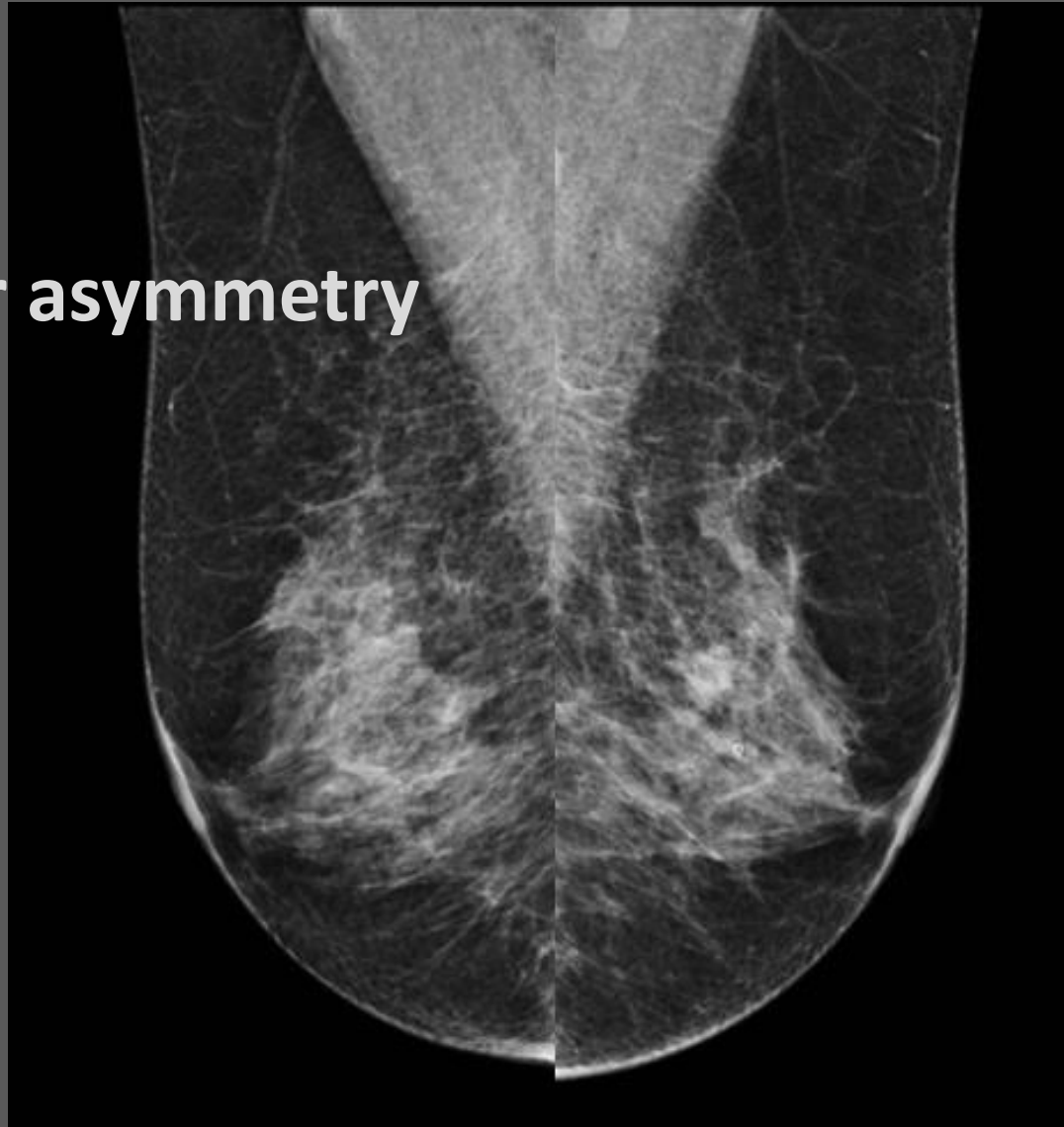
Step 2: Compare right / left

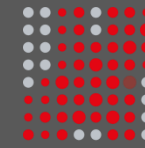


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Look for asymmetry

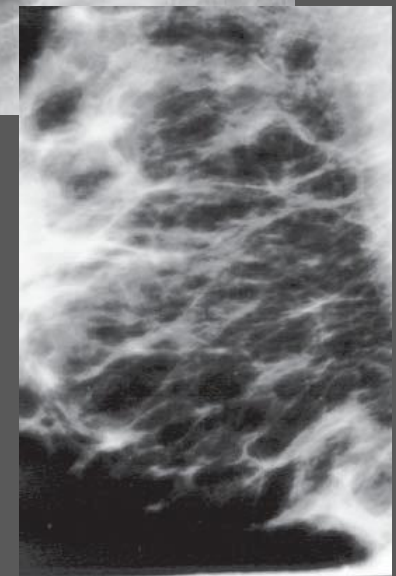
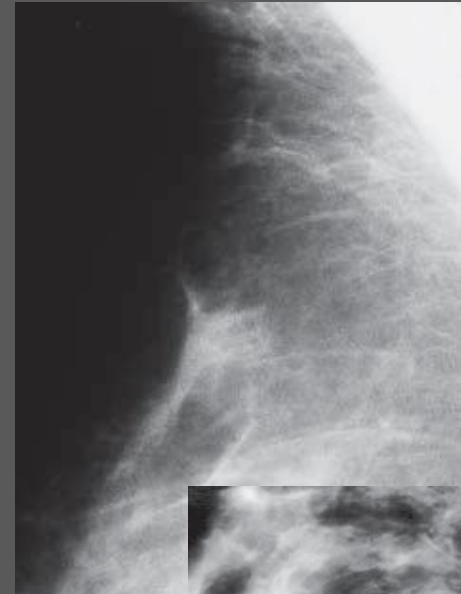
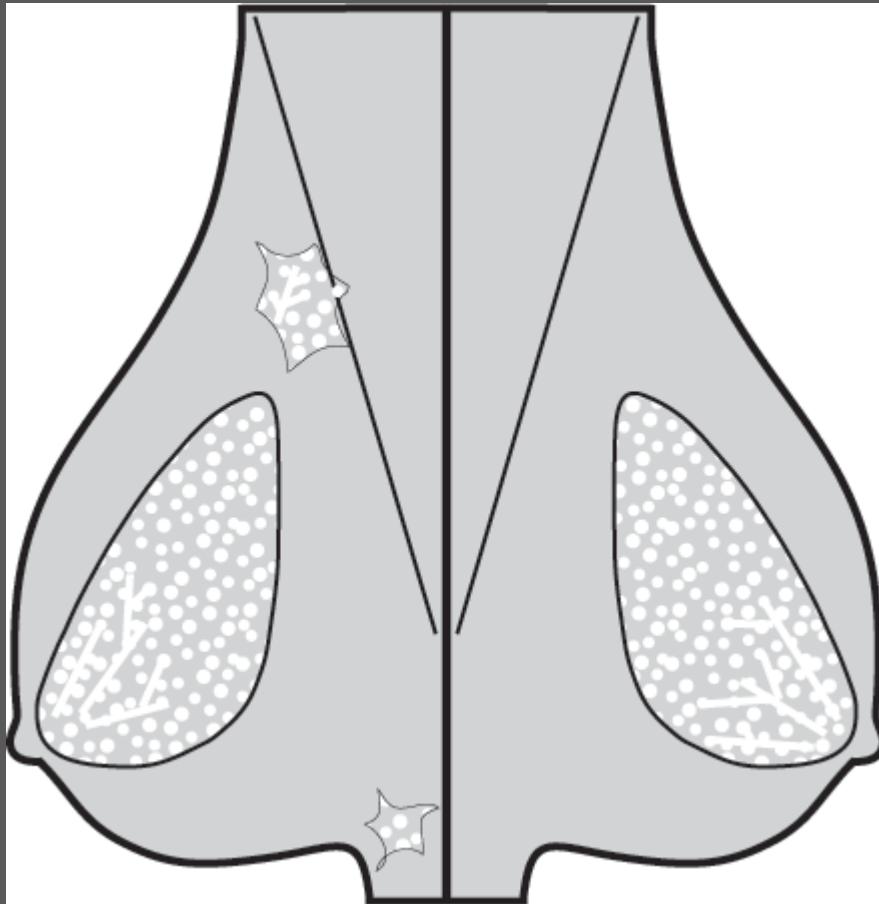


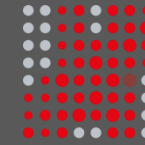


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Asymmetry:

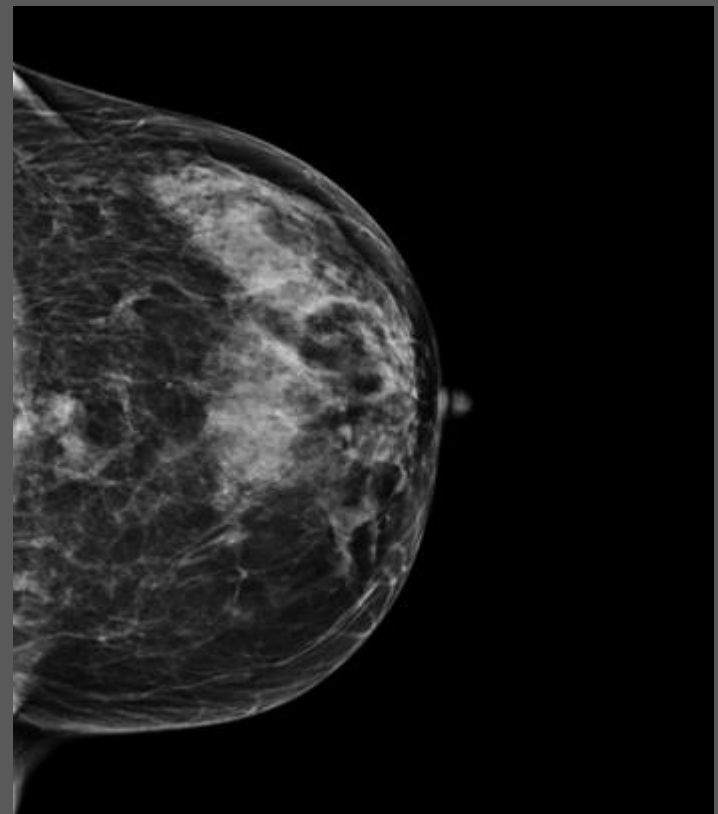
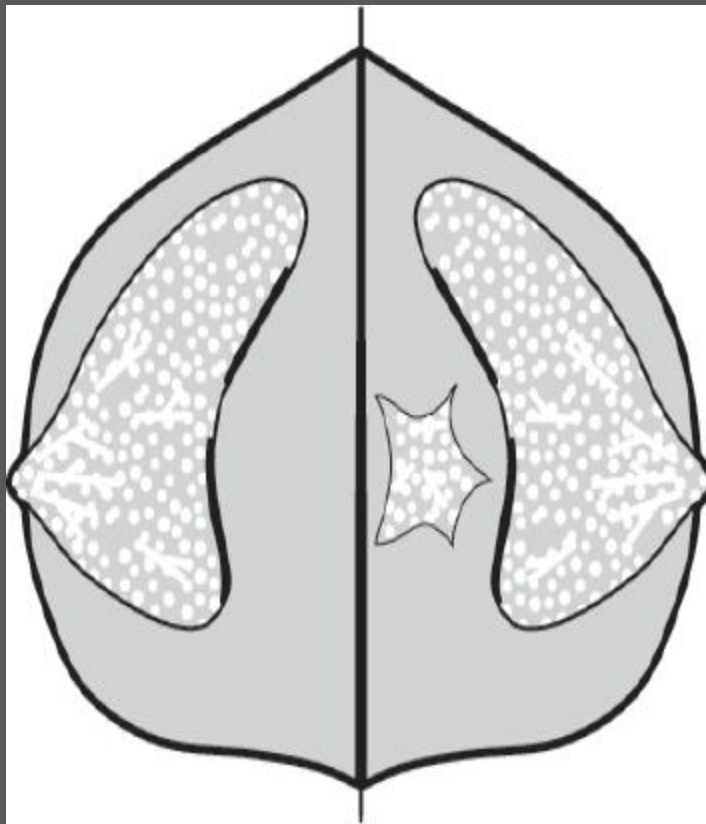




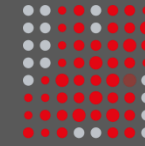
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Asymmetry:

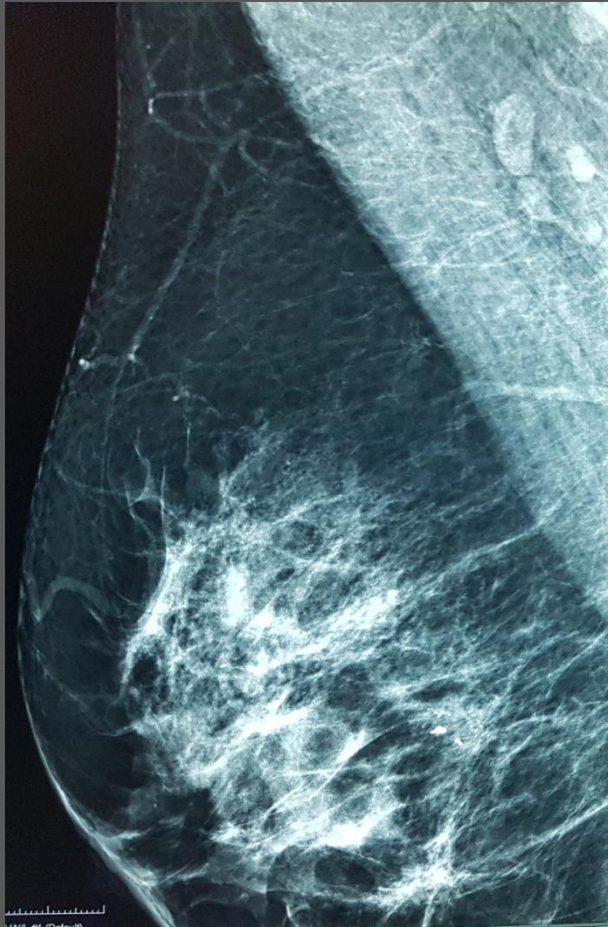


Step 2: 1:1 view

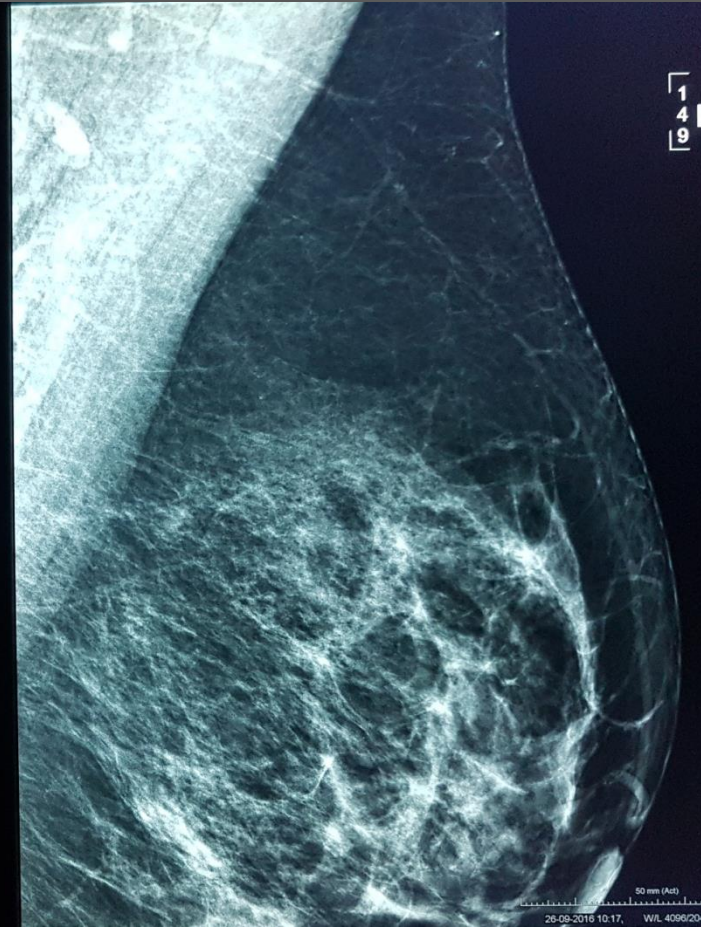


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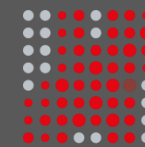
Quadrant view MLO re



Quadrant view MLO li



Step 2: Toggling

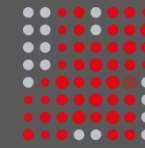


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Step 2: Toggling

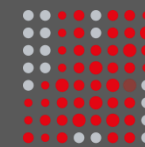


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Step 2: Toggling



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7
1 RMLO



7
1 LMLO

S
7
1 RMLO



S
7
1 LMLO

Step 2: Attention for special areas

Pay extra attention to:

Edge of mammogram!

"Forbidden areas"!



2012

$\begin{matrix} 7 \\ 8 \end{matrix}$ RMLO



$\begin{matrix} 7 \\ 8 \end{matrix}$ LMLO

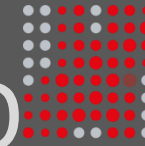
2014

0
5 RMLO
1



0
5 LMLO
1

Step 2: Forbidden areas MLO



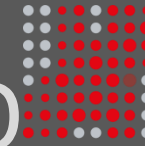
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- the "milky way" (retromammary fat): a 3-4 cm wide band parallel to the edge of the pectoral muscle
- retroareolar space

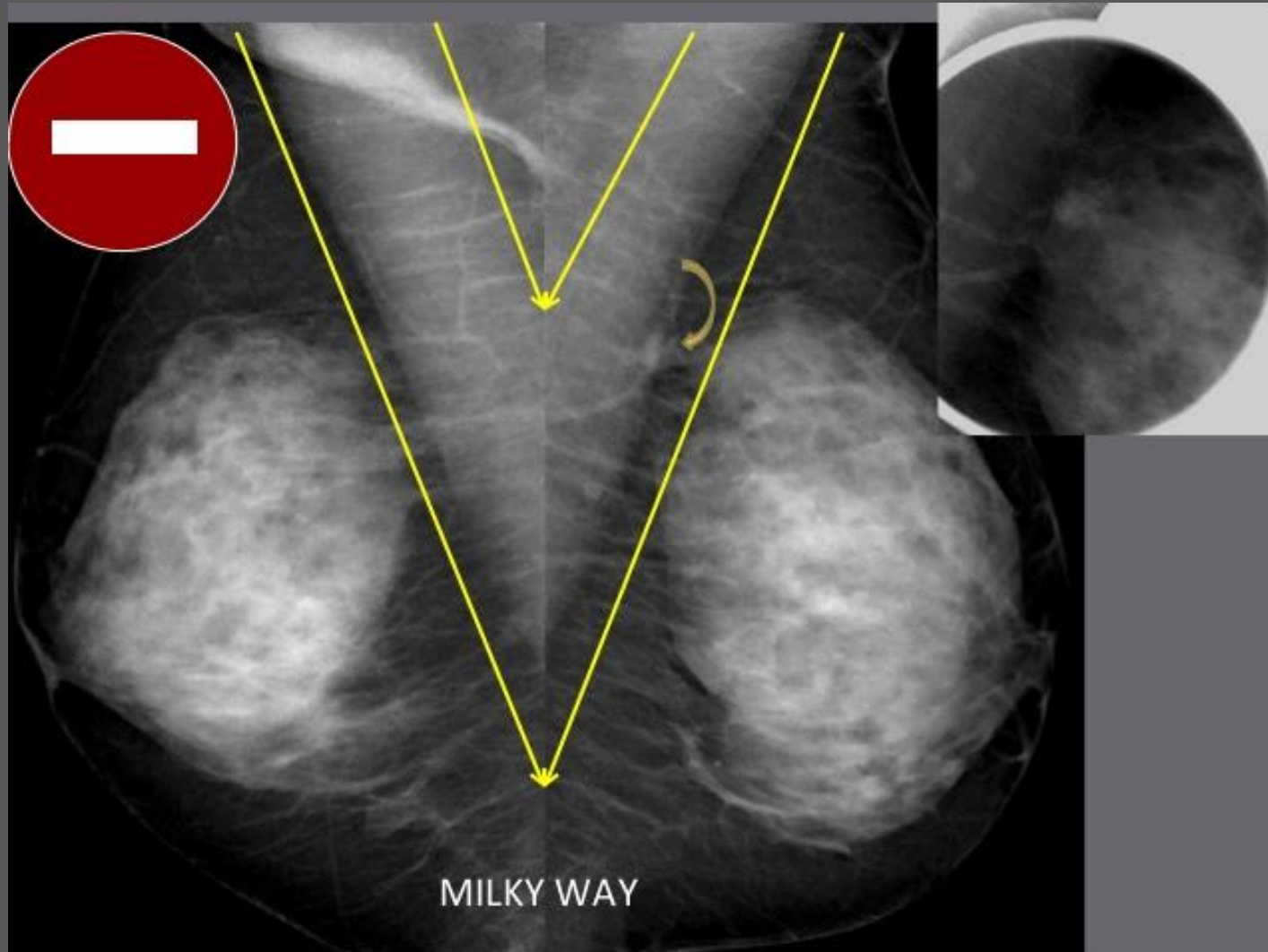


Step 2: Forbidden areas MLO

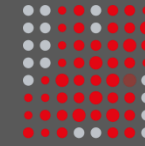


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Step 2: Forbidden areas CC



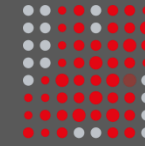
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- the medial half of the breast
- "No man's land" is the retroglandular clear space between the posterior border of the breast parenchyma and the chest wall on any view, especially on the CC view.

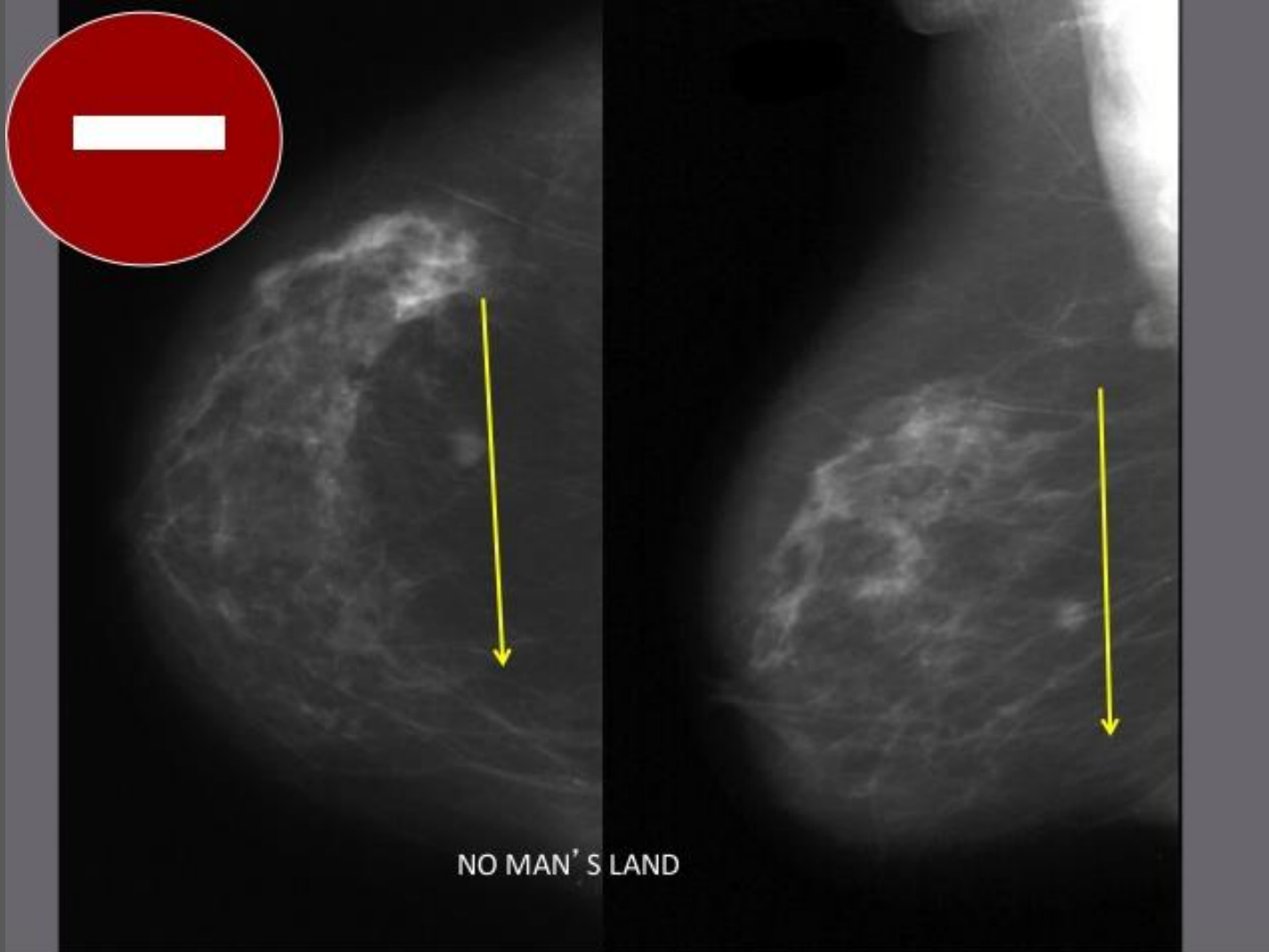


Step 2: Forbidden areas CC

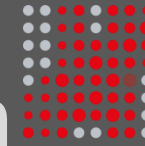


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Step 2: Satisfaction of search



LRCB

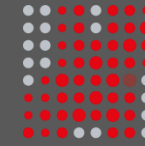
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Are there multiple lesions?

Don't stop looking after finding a lesion!



Step 2: Summary



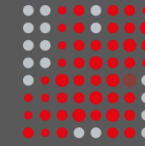
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- Be aware of environment
- Compare right and left breast
- Check for calcifications
- Compare current and previous
- Attention for special areas
- Satisfaction of search



Systematic approach



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Step 1
QUALITY

Step 2
DETECTION

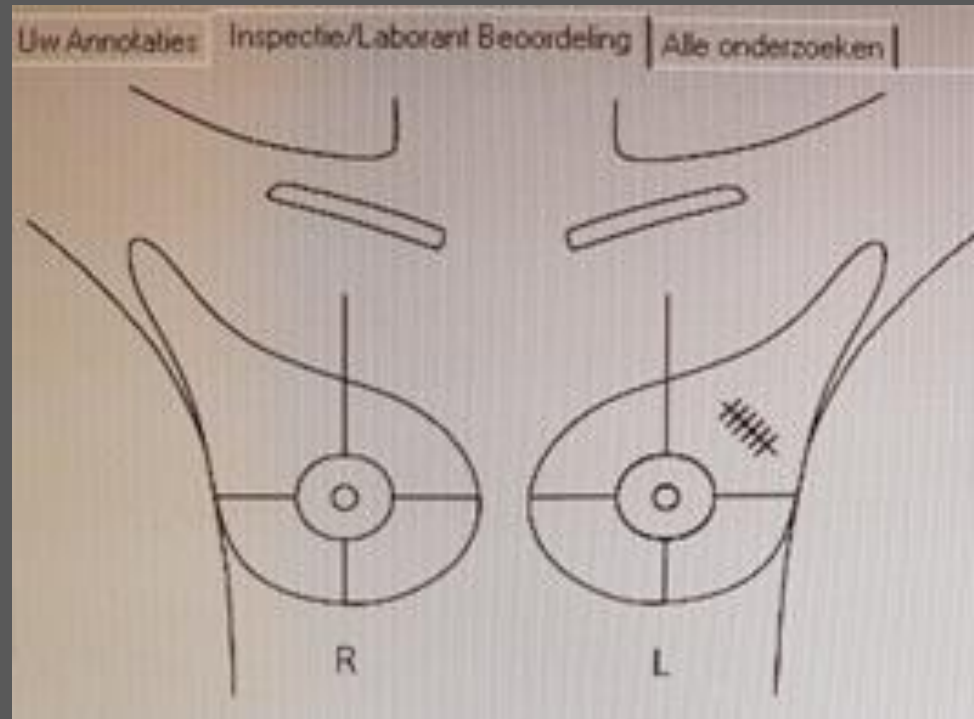
Step 3
INTERPRETATION

Step 4
BI-RADS

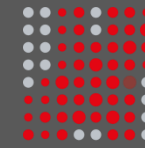


Step 3: Real lesion?

Did the radiographer see anything?
e.g. wart, scar, breast reduction



Step 3: Real lesion?

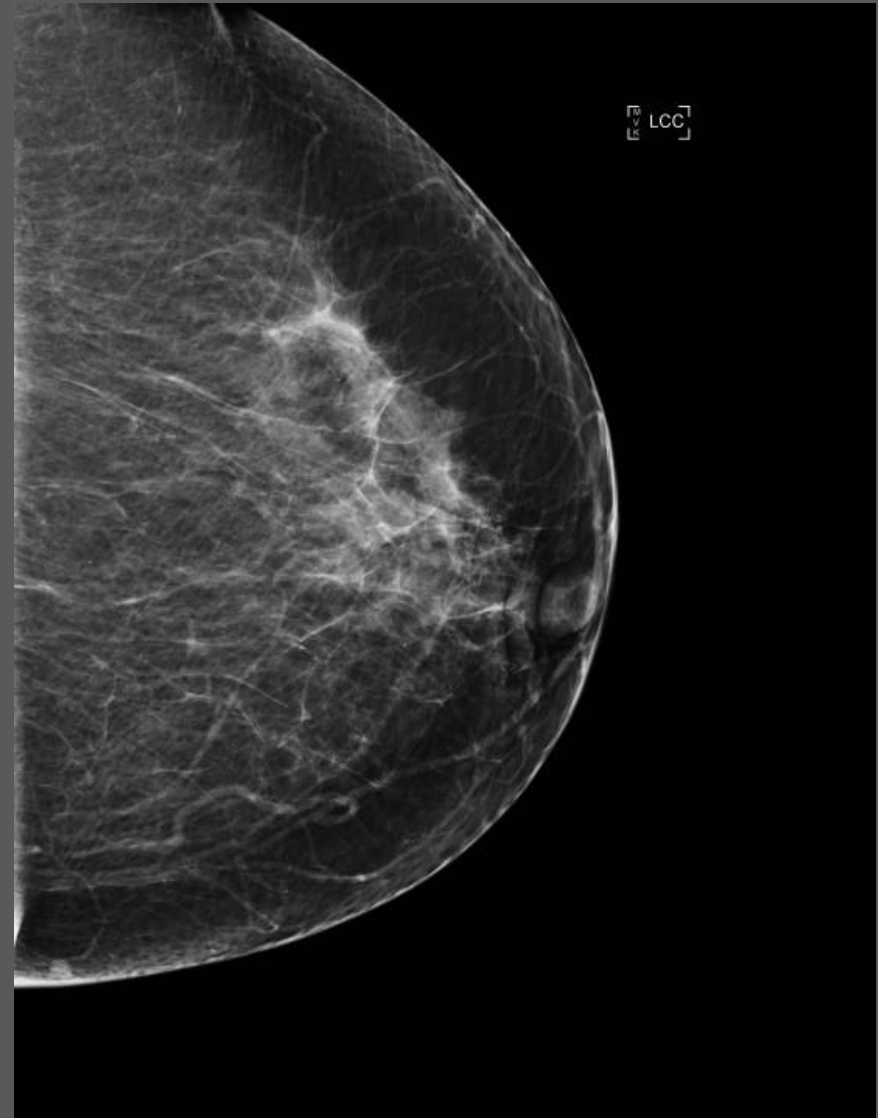


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What is location of lesion?

Inside or outside the breast?
e.g. skin lesion



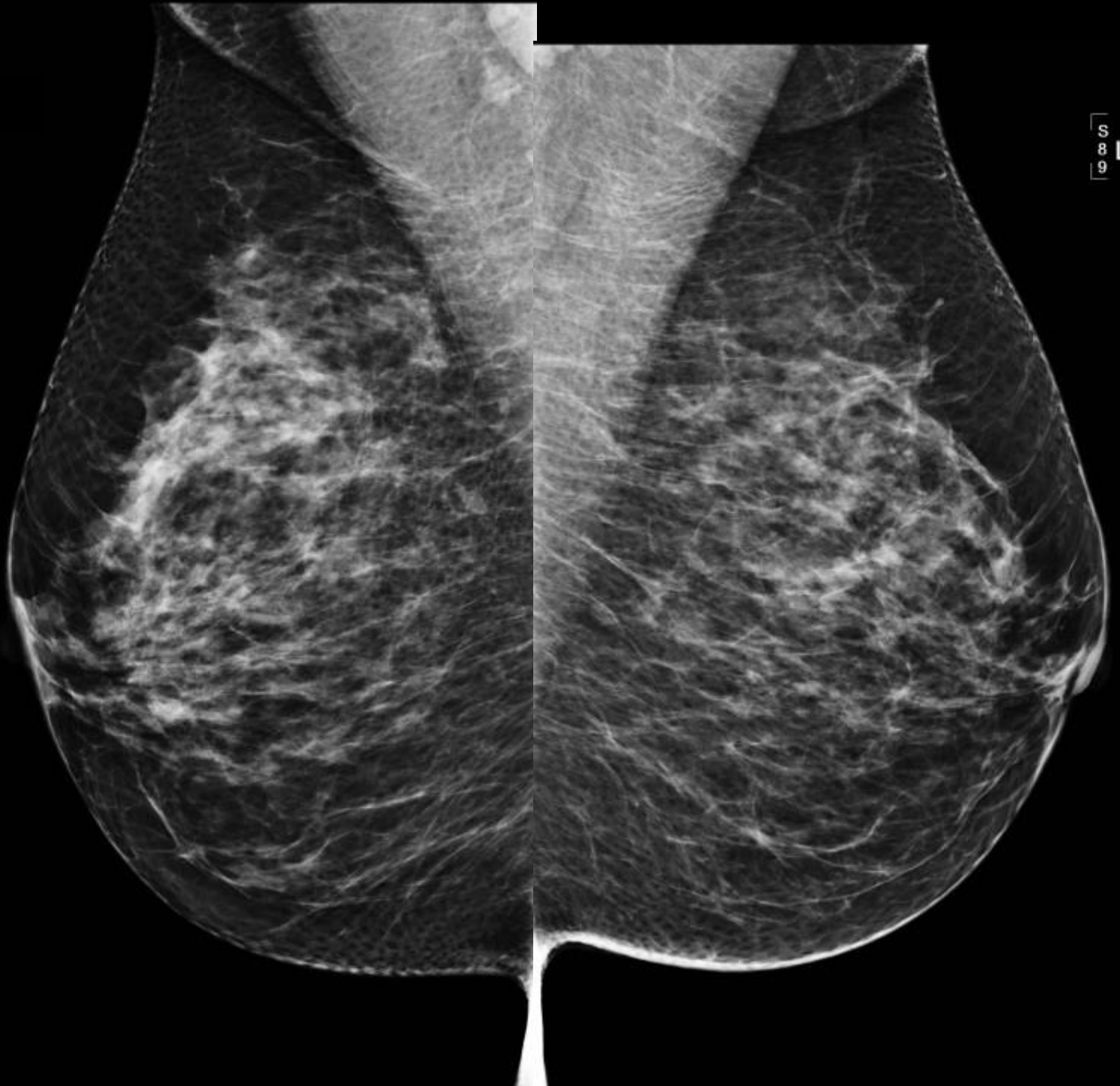
Step 3: Real lesion?

Is the lesion caused by superposition?



2015

S
8
9 LMLO



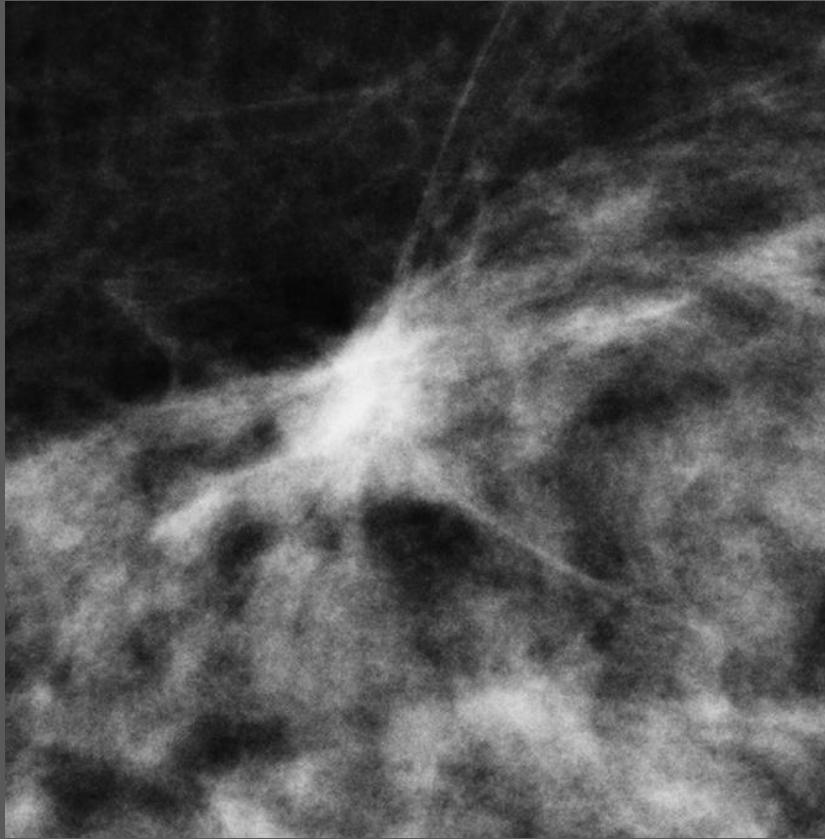
2013

S
8
9 LMLO



What about the lines?

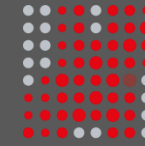
Real lesion



Crossing lines



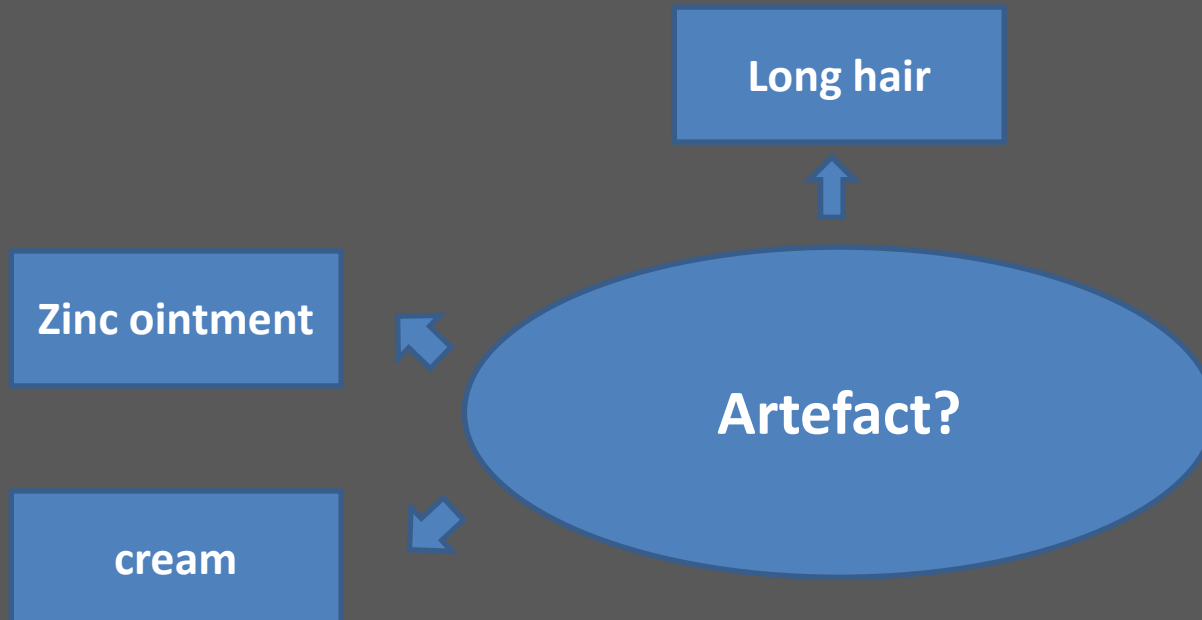
Step 3: Real lesion?



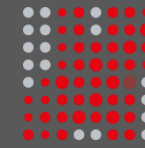
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Can the lesion be an artefact?



Step 3: Real lesion?

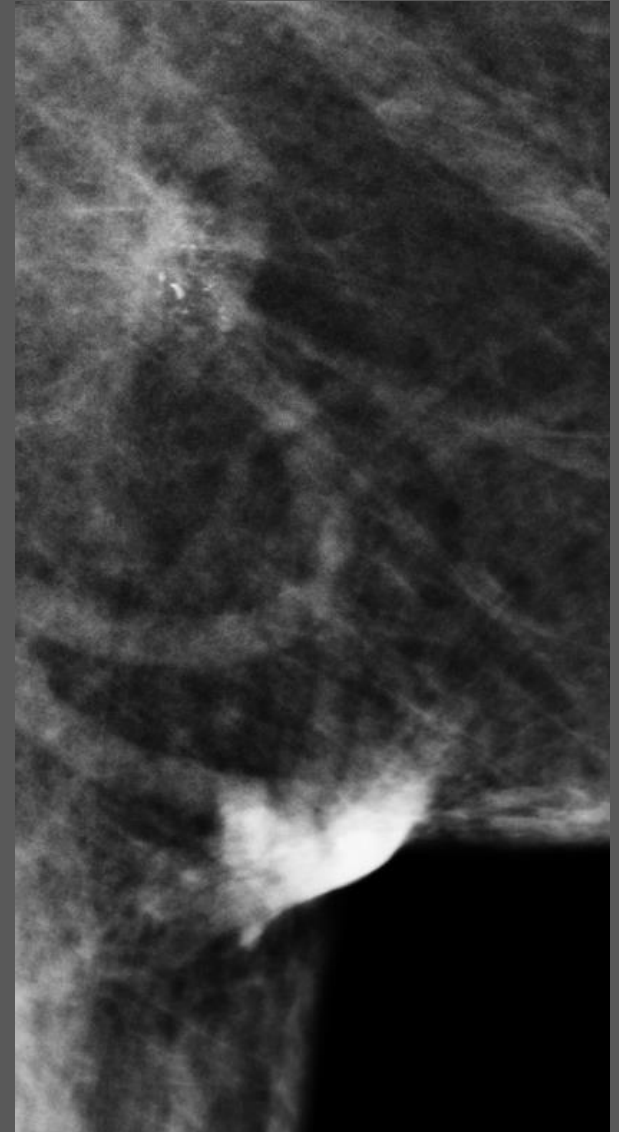


LRCB

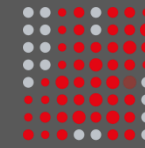
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Can the lesion be an artefact?

Zinc ointment



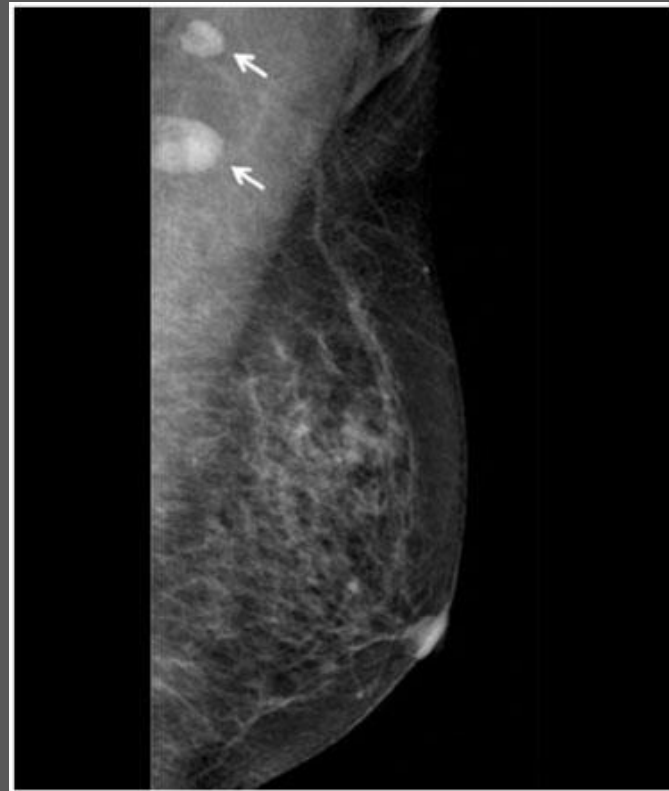
Step 3: Real lesion?



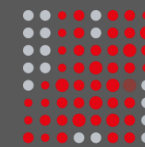
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Axillary lymphadenopathy



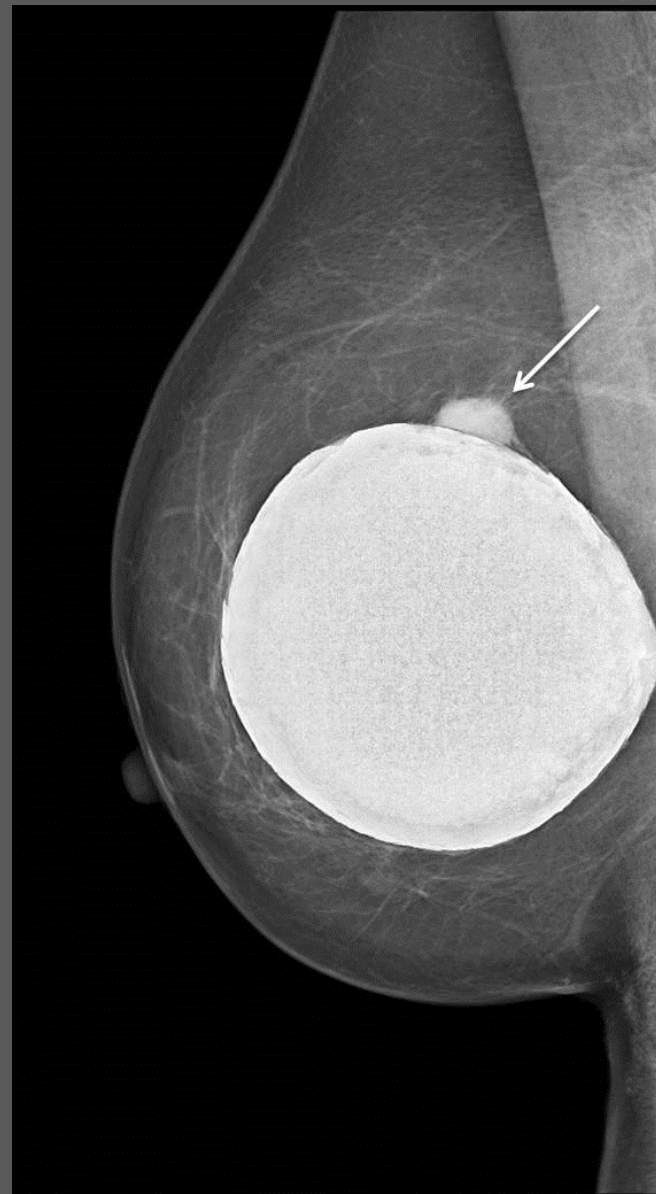
Step 3: Real lesion?



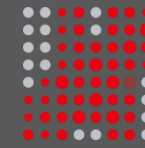
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Breast implant rupture



Step 3: Real lesion?

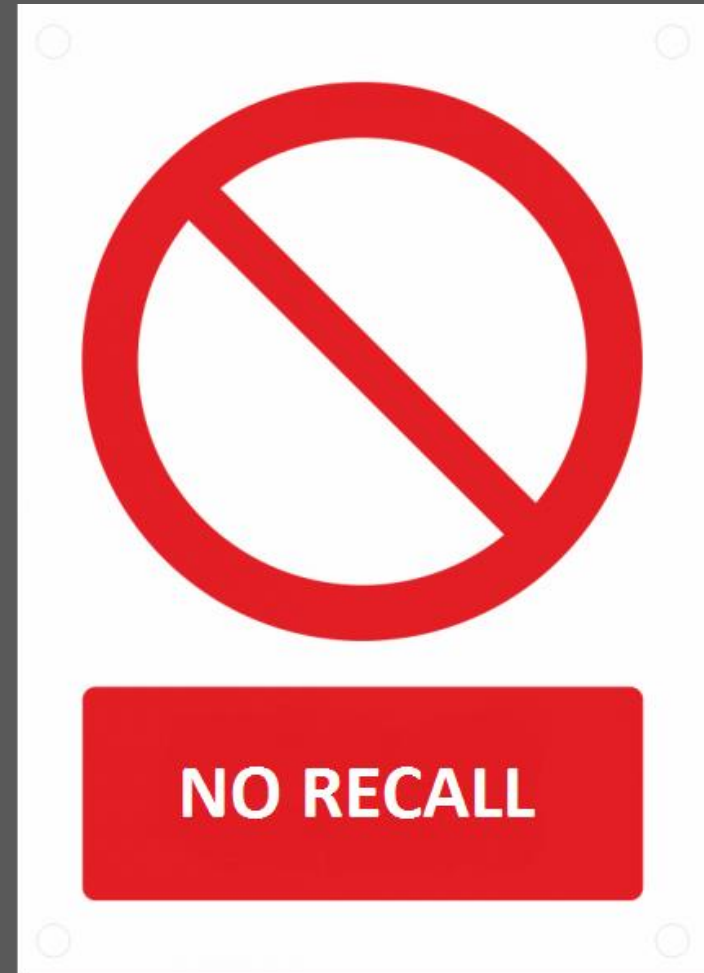


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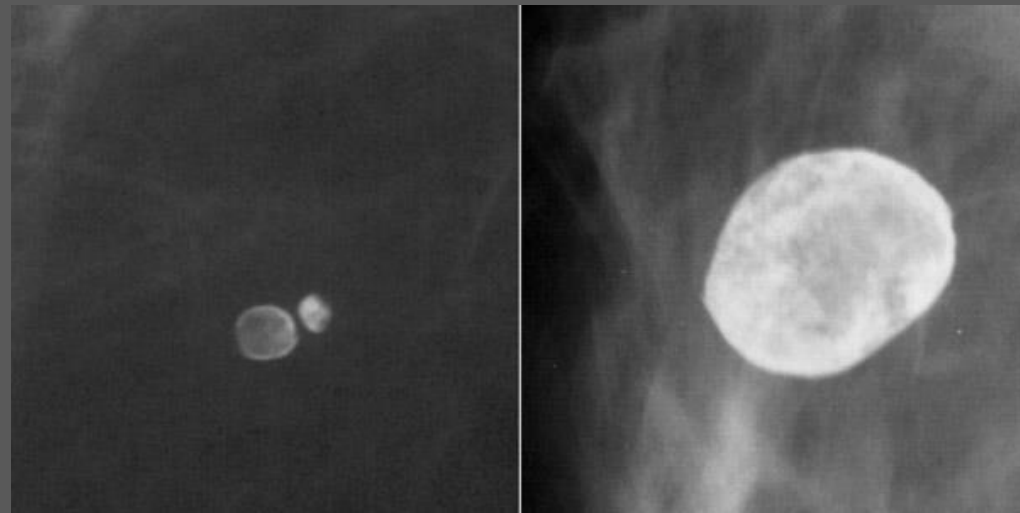
NO BREAST LESION

→ Contact GP

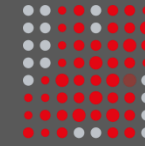


Step 3: Density

- Is the lesion more dens comparing the priors?
- Is the lesion (partly) lucent?



Step 3: Size of lesion



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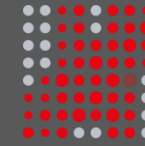
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Is the lesion new?

YES, ALWAYS RECALL



Step 3: Size of lesion



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Has it grown?

YES, ALWAYS RECALL

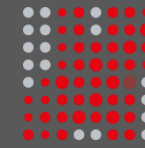


Step 3: Size of lesion

Is lesion unchanged but suspicious?
YES, ALWAYS RECALL



Step 3: Number of lesions

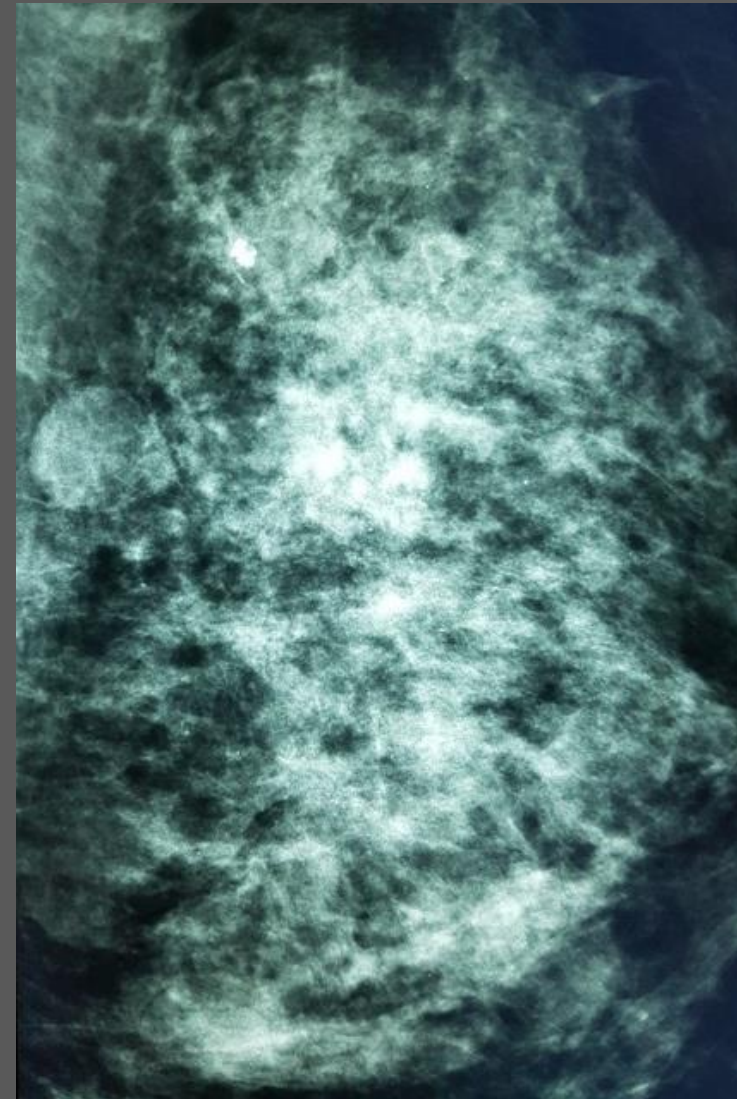


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Multiple well defined masses

DON'T RECALL

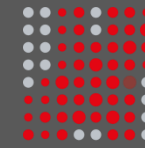


Step 3: Summary

- Real (breast) lesion?
- Density of lesion
- Size of lesion
- Number of lesions



Systematic approach



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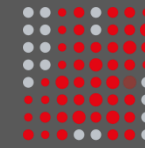
Step 1
QUALITY

Step 2
DETECTION

Step 3
INTERPRETATION

Step 4
BI-RADS





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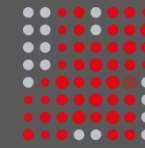
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In the Dutch screening:

Recall → BI-RADS 0 /4 /5



BI-RADS 0



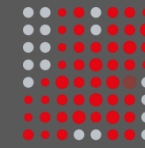
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Well defined mass (>75%)



BI-RADS 0



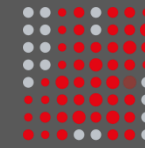
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Asymmetry



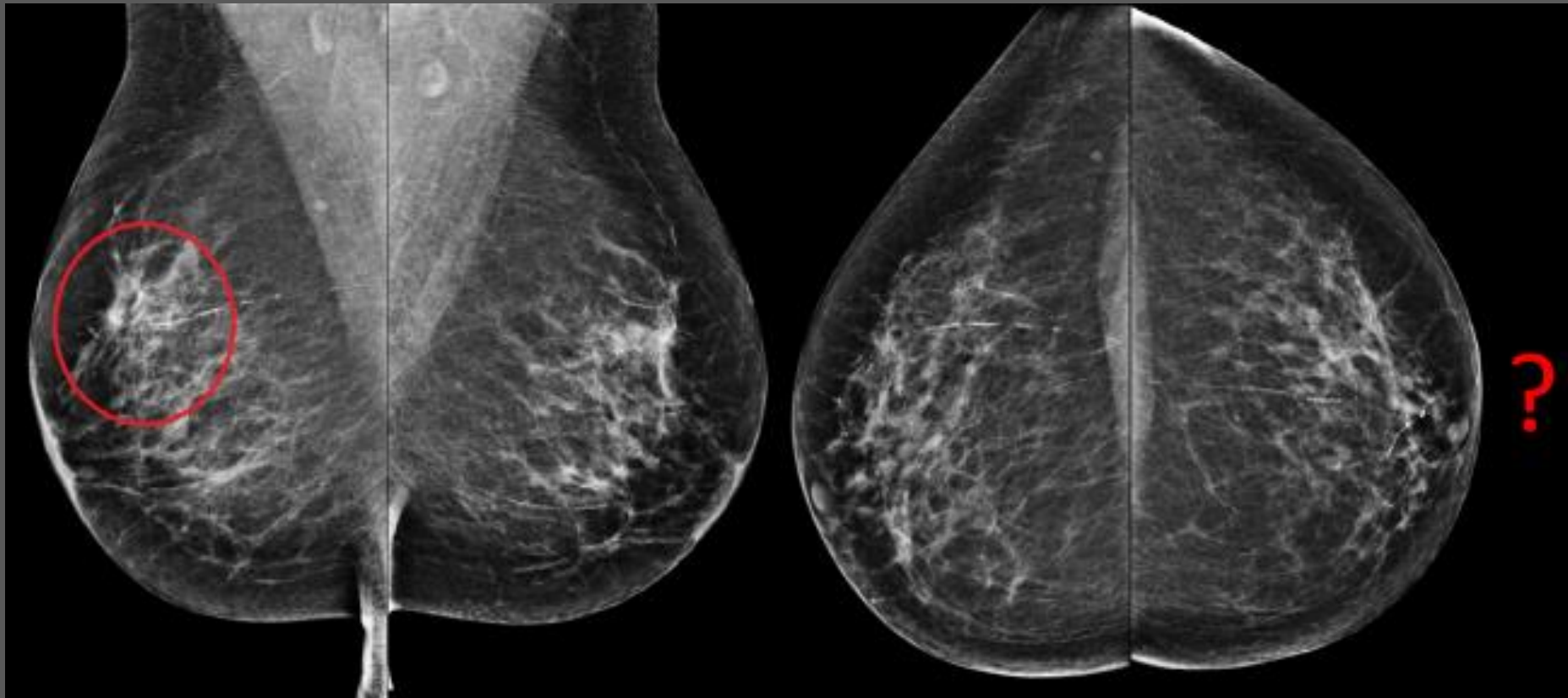
BI-RADS 0



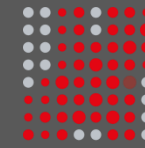
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- Architectural distortion, 1 view



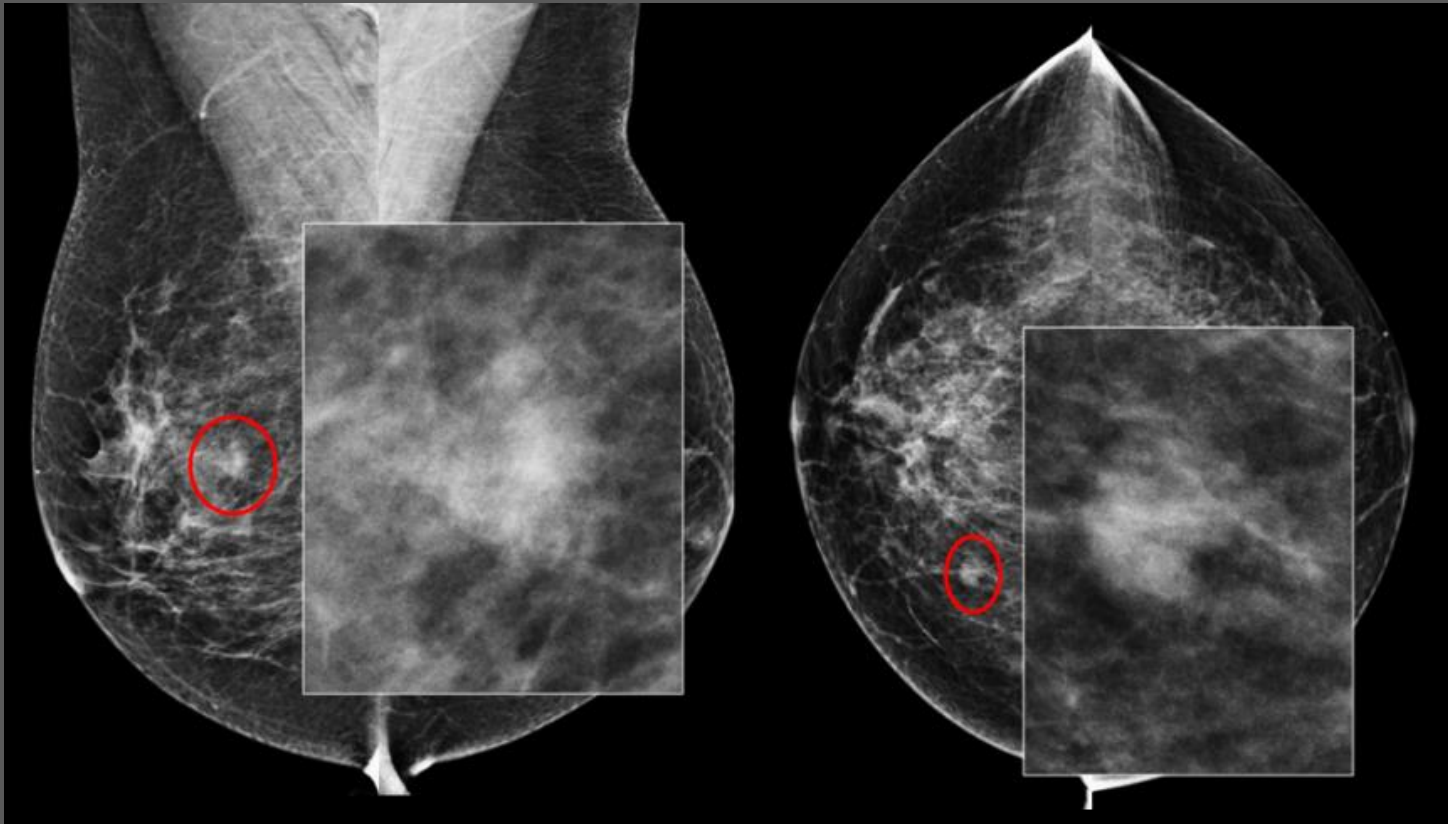
BI-RADS 4



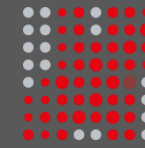
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- ill defined mass



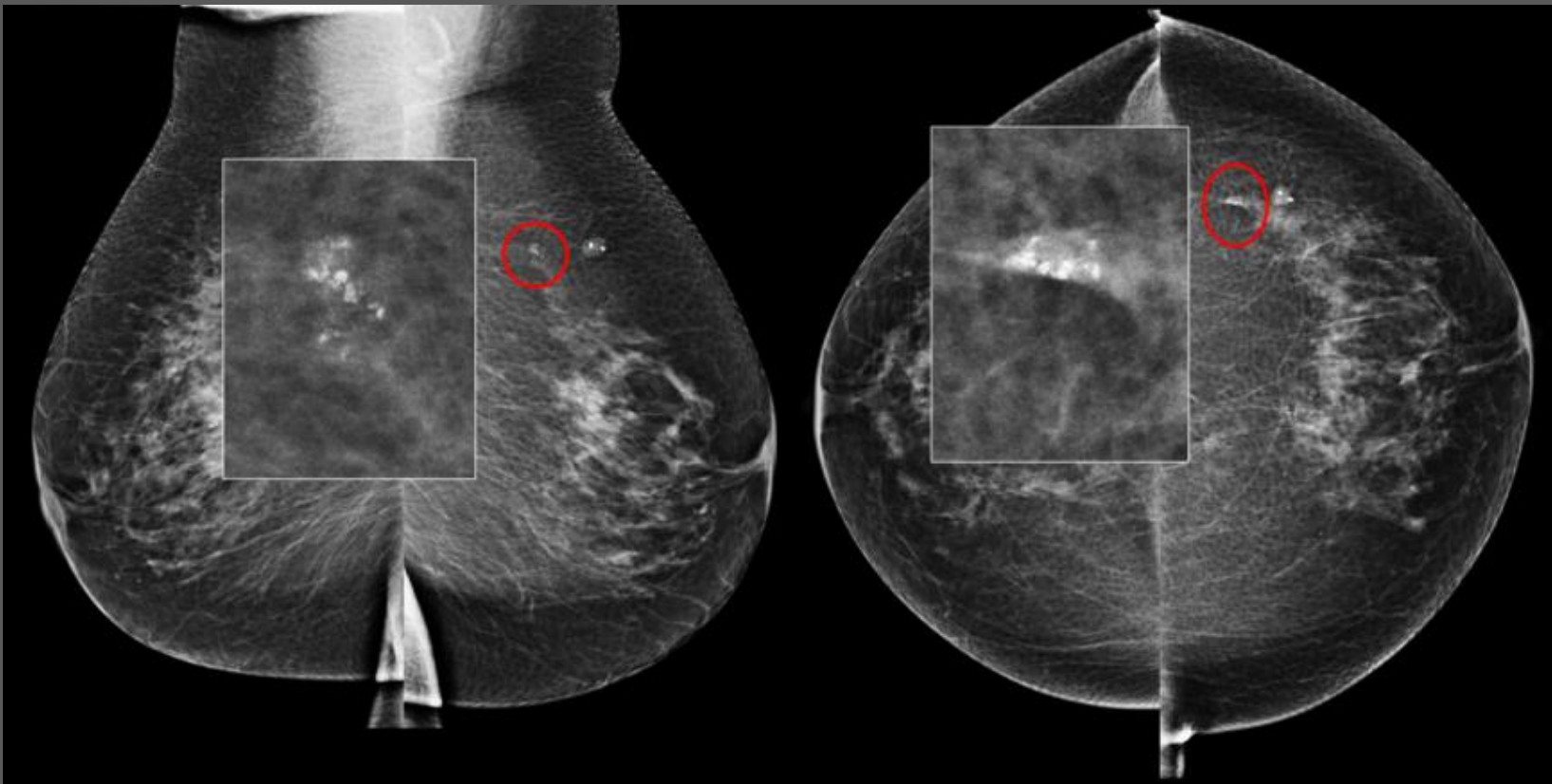
BI-RADS 4



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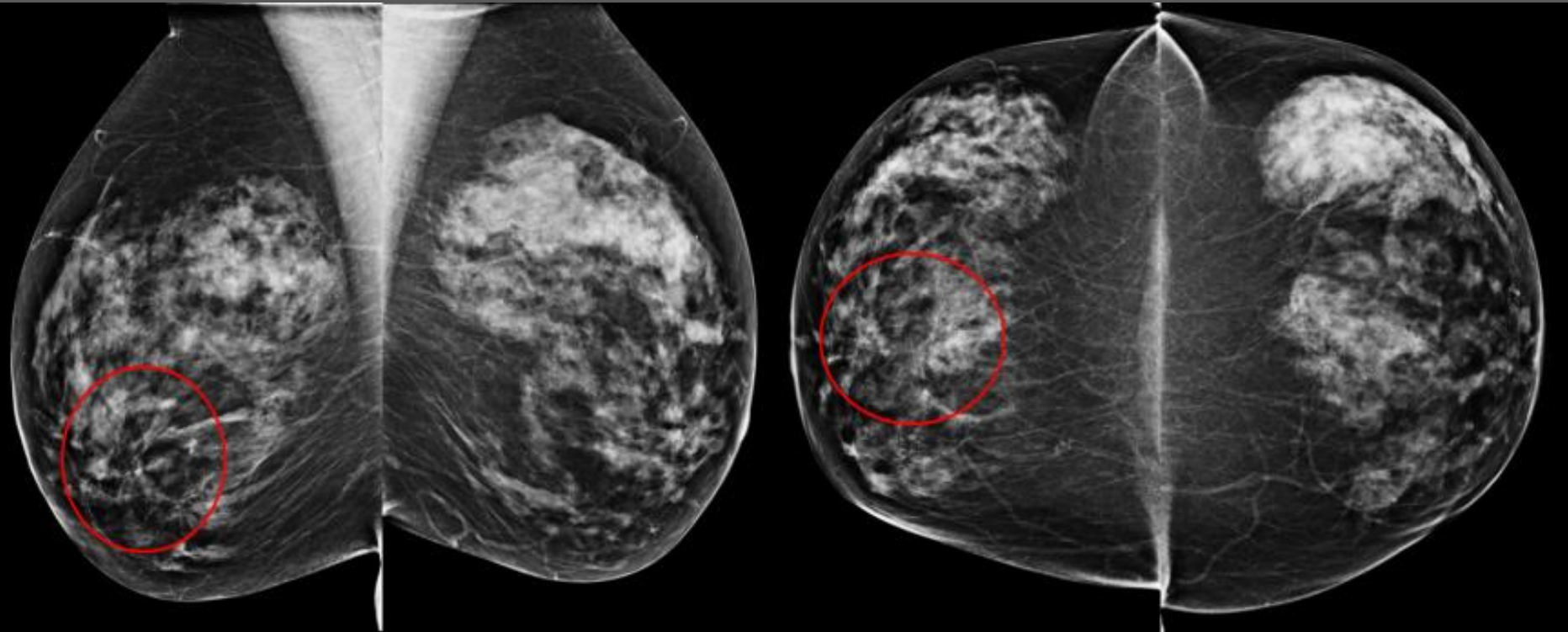
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- Grouped, calcifications

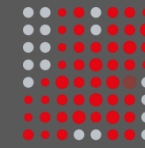


BI-RADS 4

- Architectural distortion, 2 views



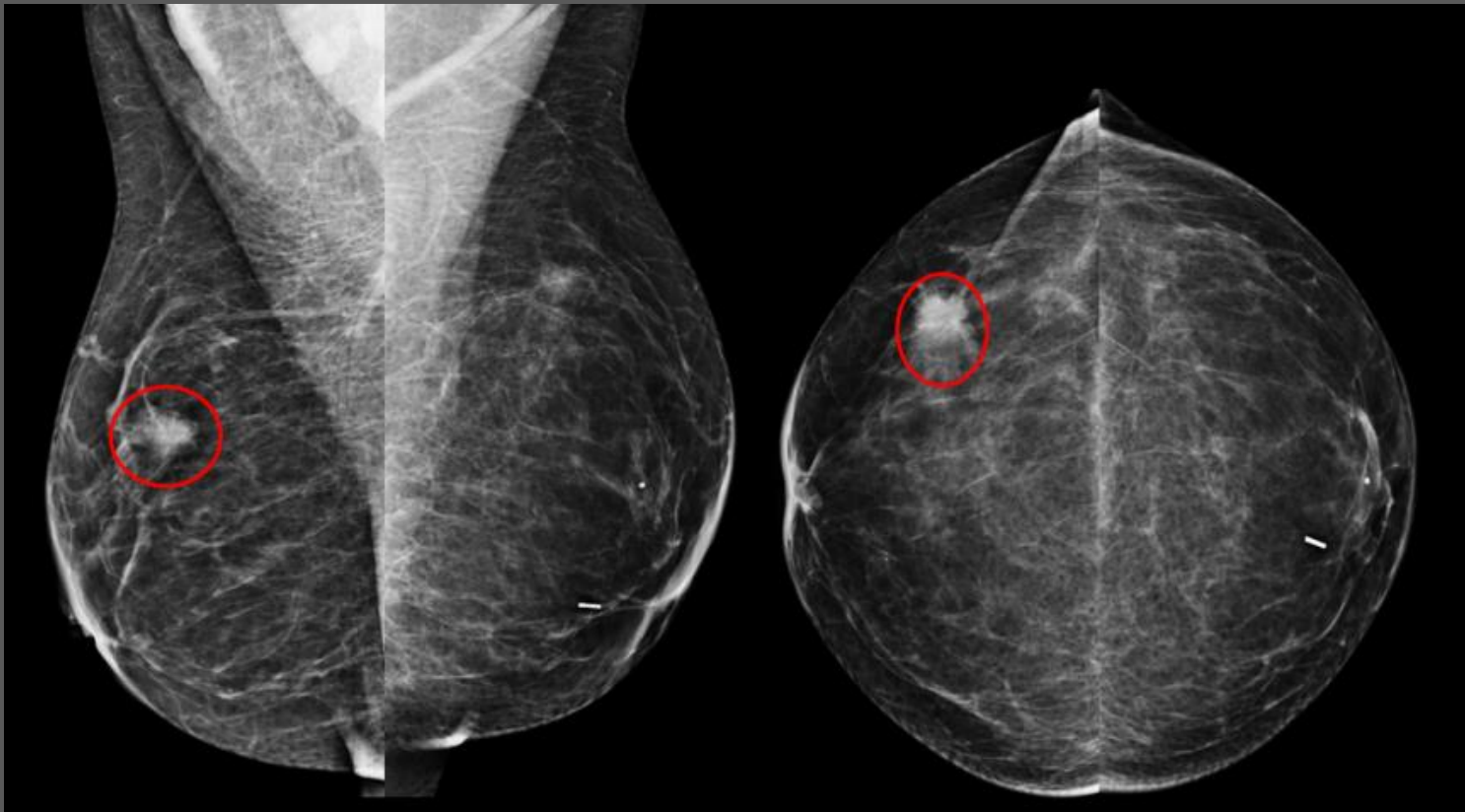
BI-RADS 5



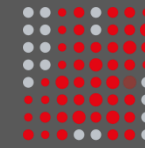
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- Spiculated mass



BI-RADS 5



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- Mass & calcifications

