



IMPROVEMENT OF QUALITY OF THE NATIONAL CANCER SCREENING PROGRAMMES IMPLEMENTATION (CRO SCREENING)



This project is funded by the European Union

Quality Assurance In Breast Cancer Screening Mammography

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Environment of screening mammography

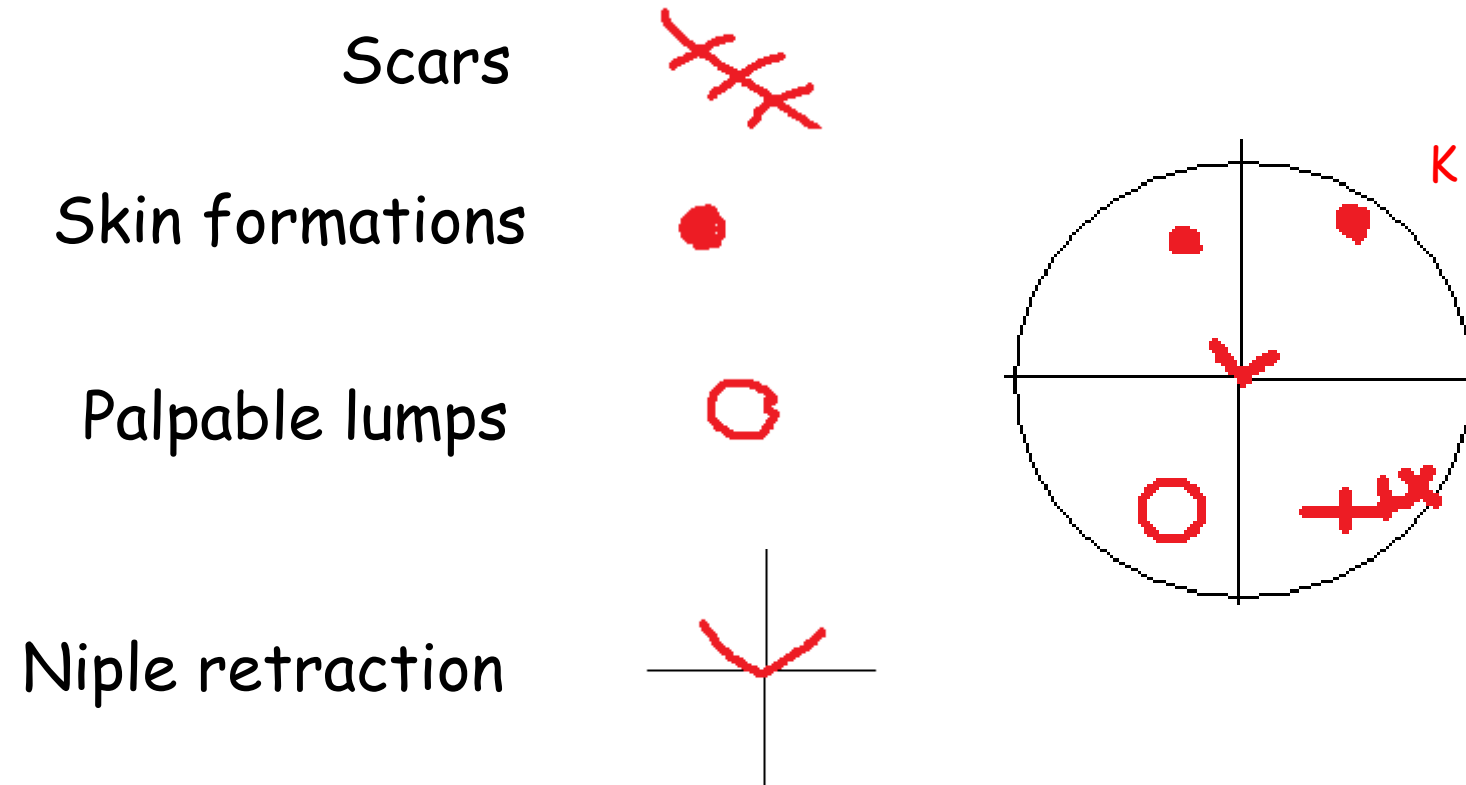
- The colour, size and placement of the mammography machine
- The room designated for breast imaging only.
- The temperature and the lighting in the X-ray room

Radiographer. Introduction to the examination

- Creation of personal relationship with the woman.
- Determination the woman's previous mammographic experience and past breast problems.
- Record of any current breast symptoms or information, which may be of importance to the radiologist, particularly on the underside of the breast



Information to the radiologist



Information to the woman

- The number of views to be taken and an outline of the positioning
- Explanation of the importance of compression
- The procedure for notifying the results

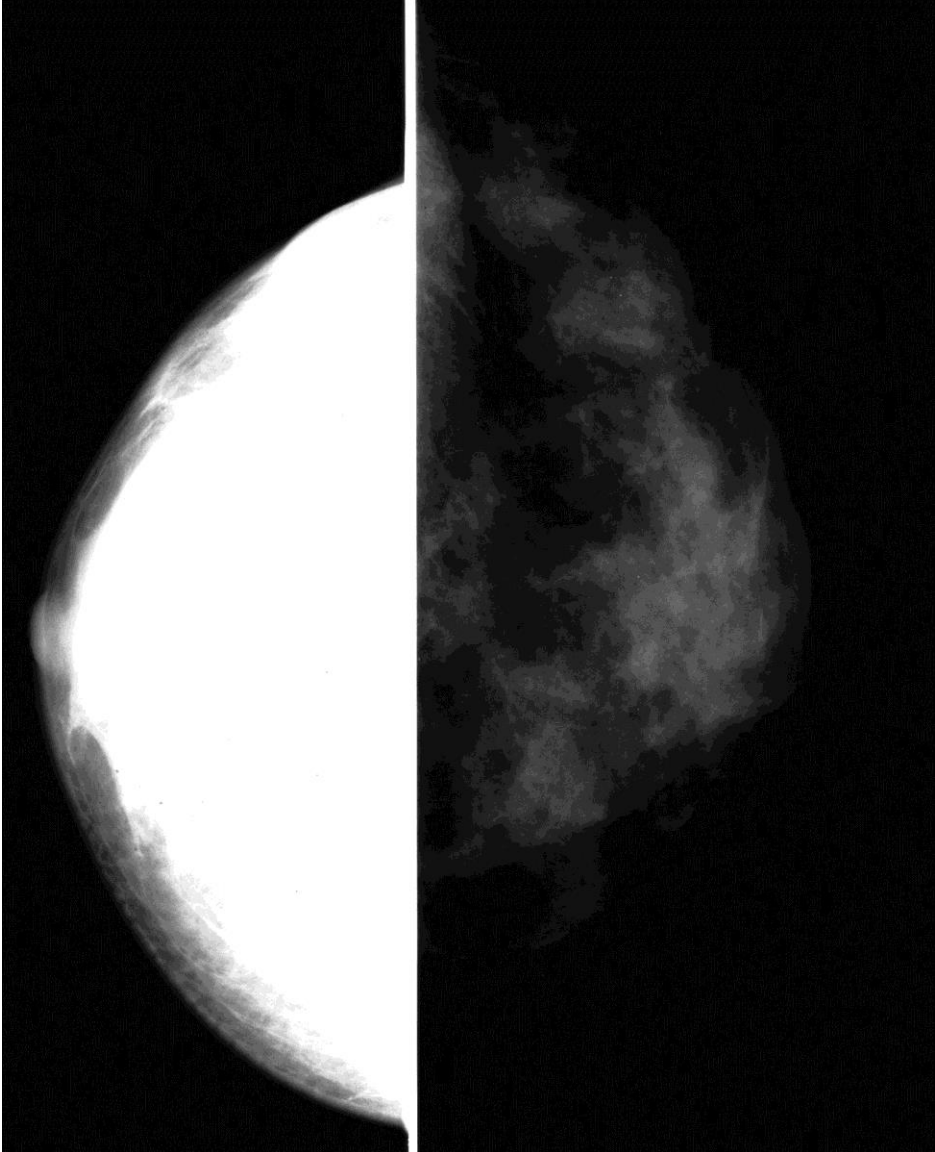


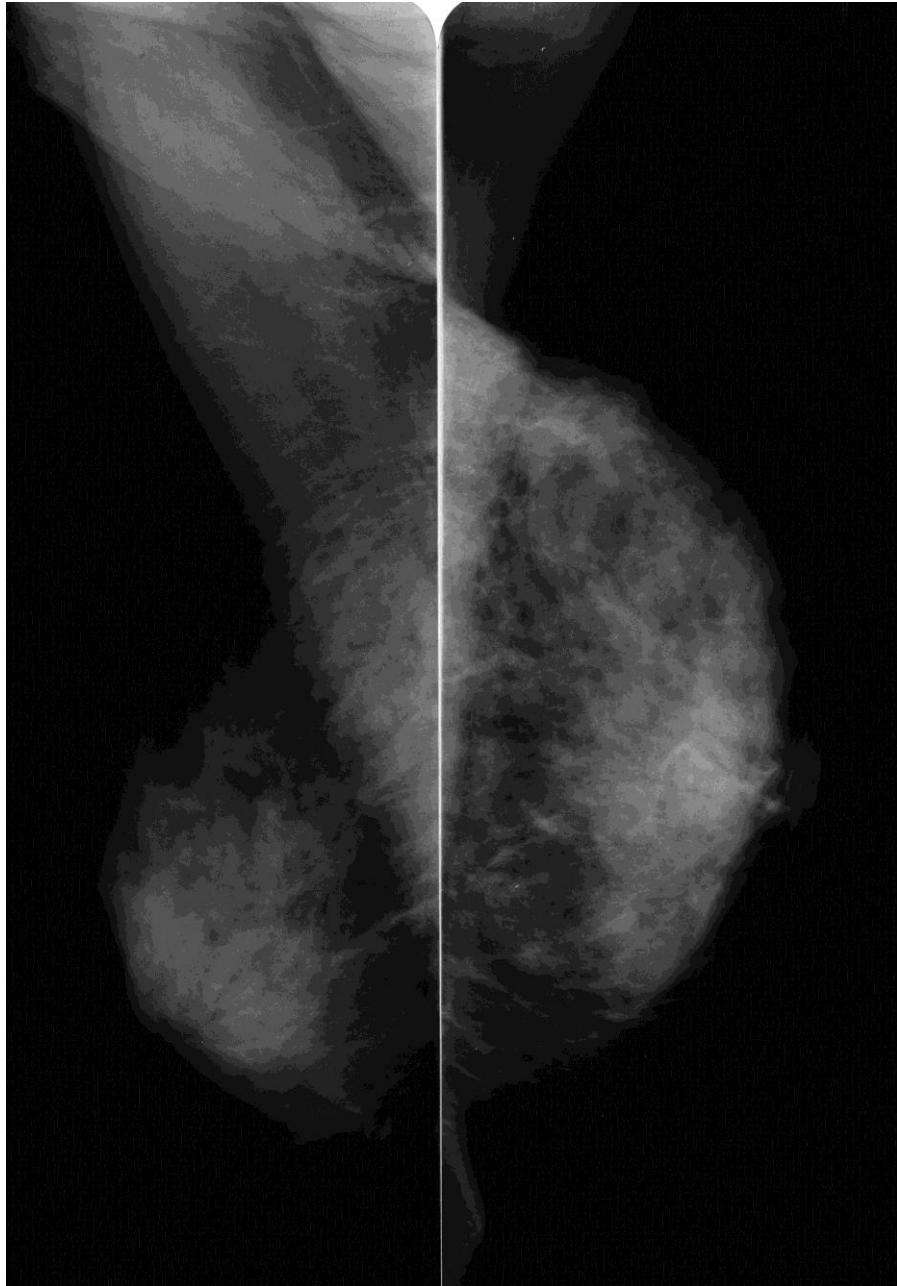
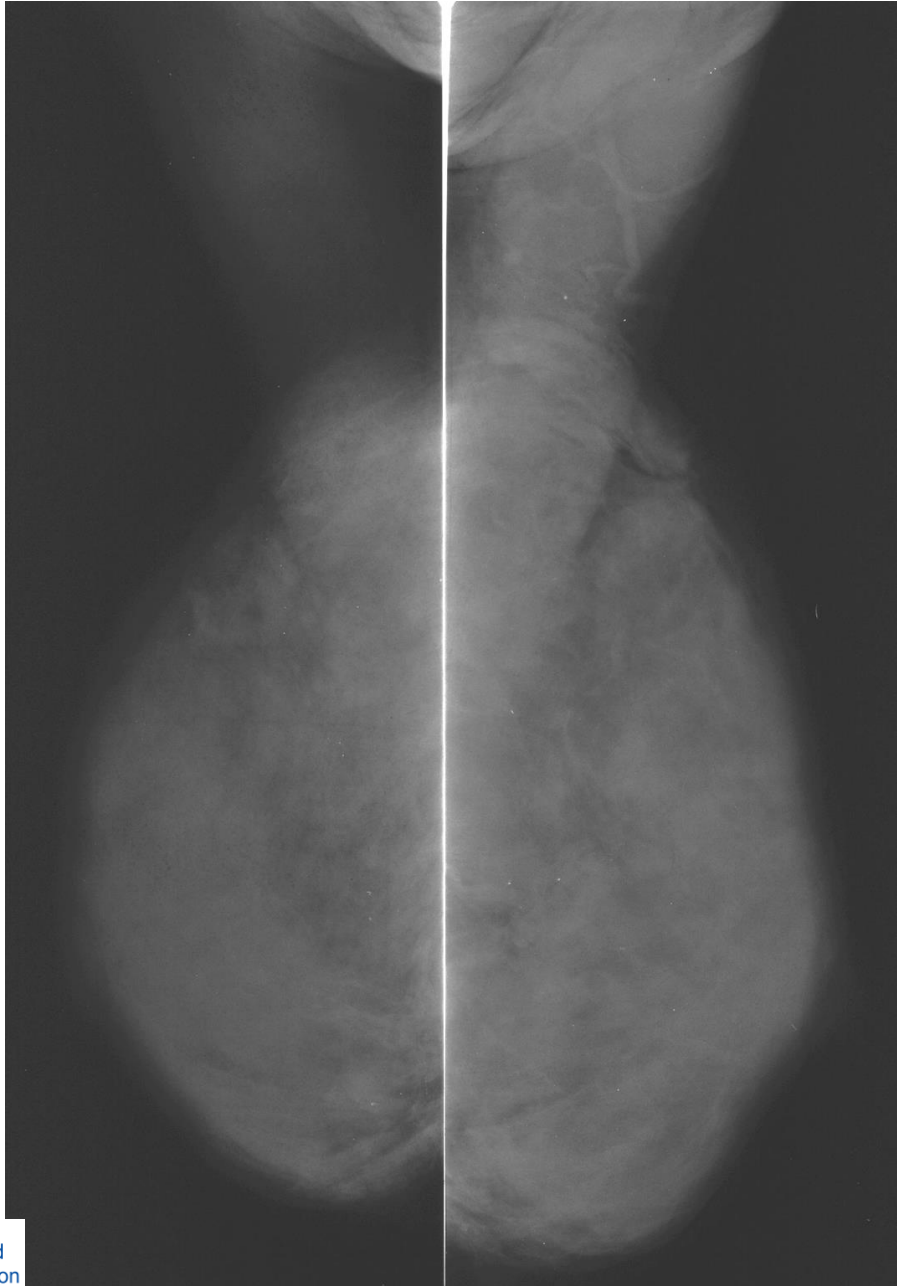
Starting the examination

- Select size of breast support table and compression paddle
- Clean the support table and compression paddle
- Select chamber position
- Place cassette in cassette holder
- Ensure correct identifications of the woman are in place
- Position the breast
- Remove any overlying artefacts e.g. spectacles, shoulders and skin folds
- Apply the compression slowly and carefully until the breast is firmly held
- Make the exposure
- Release the compression immediately



Size of breast support table and compression paddle. Chamber position.





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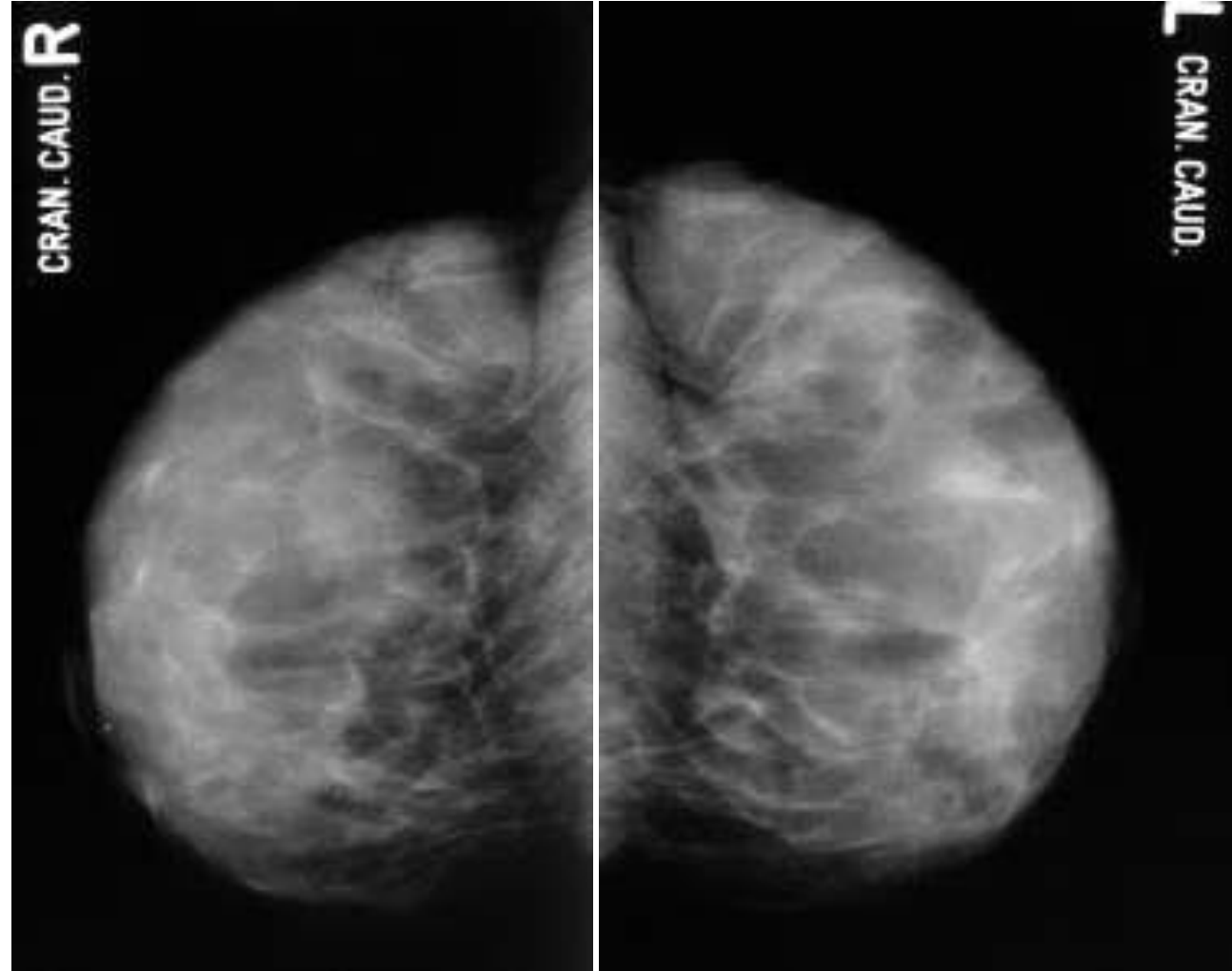
Positioning

- Breast positioning is an art.
- Incorrect positioning is the most common problem.
- Skills required to perform optimal mammographic positioning are high.
- Sufficient time to carry out the investigation order to produce optimal images.



Positioning. CC view

- The medial border of the breast is shown
- As much as possible of the lateral aspect of the breast is shown
- If possible, the pectoral muscle shadow is shown on the posterior edge of the breast
- The nipple should be in profile
- Symmetrical images

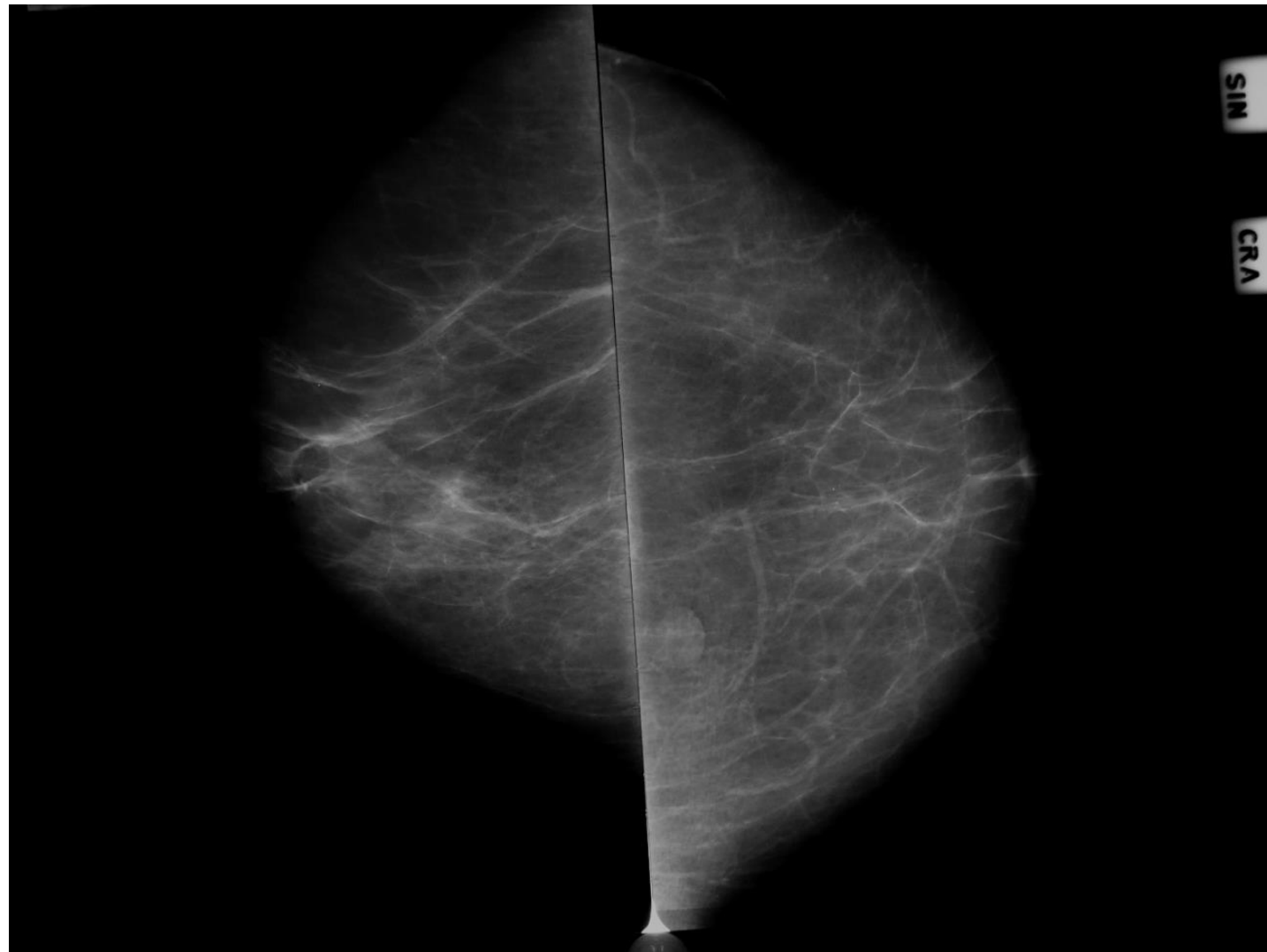
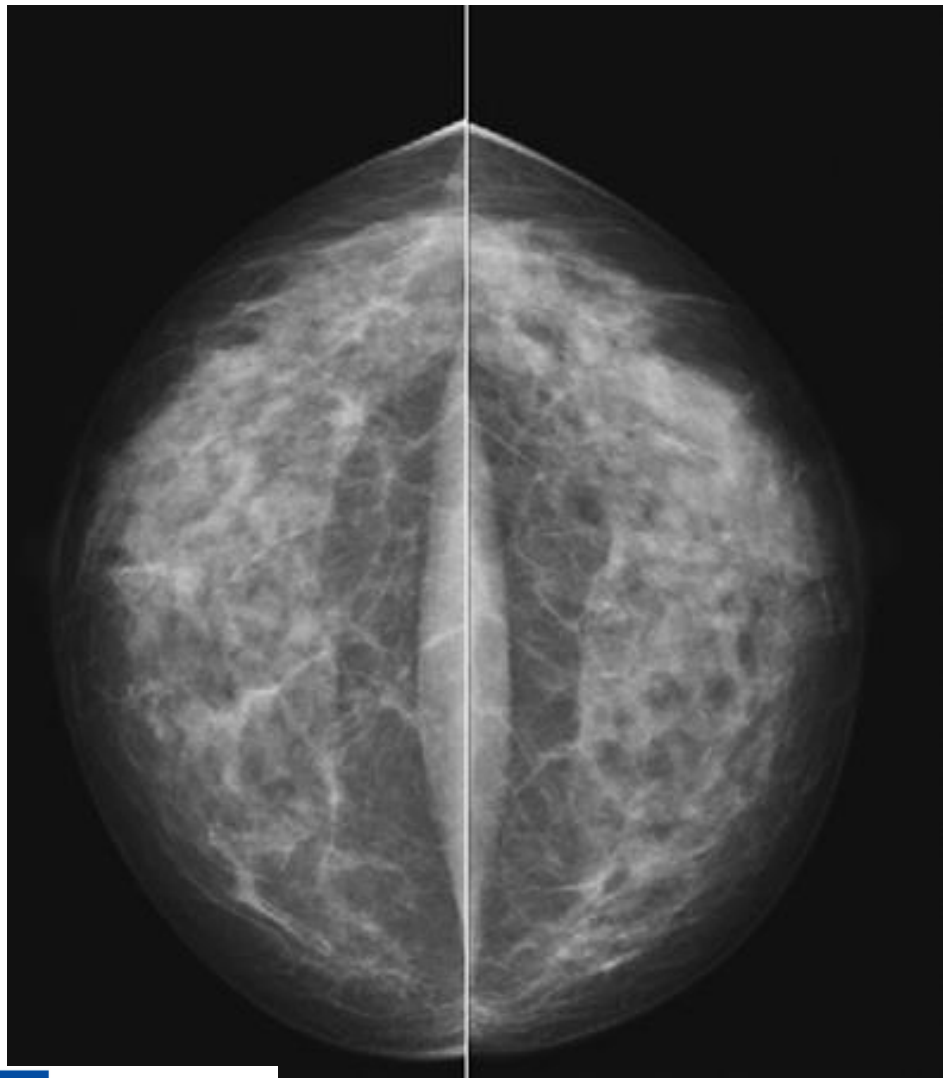


Positioning. CC view

- The film support table in the correct height for the woman

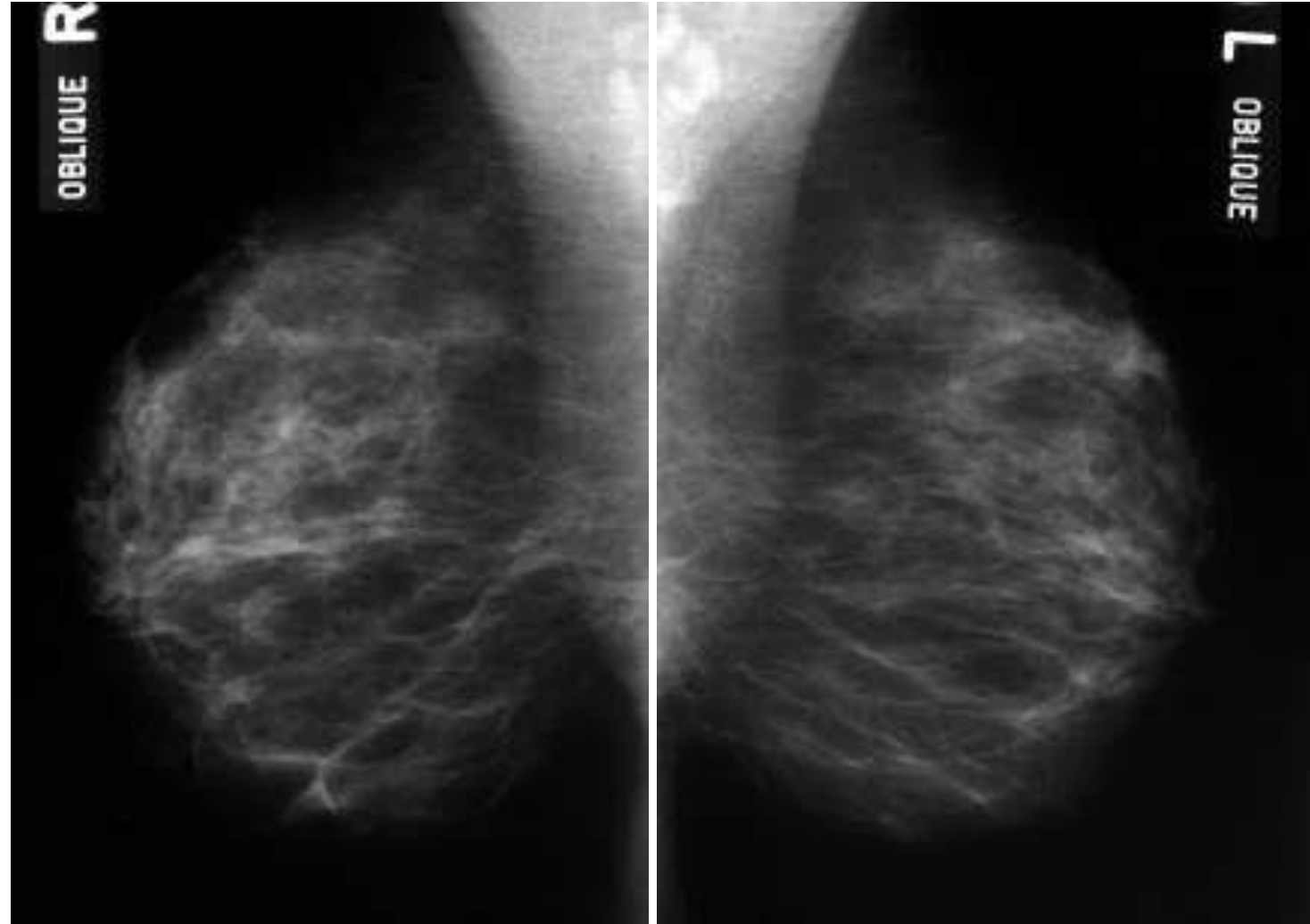


Positioning. CC view

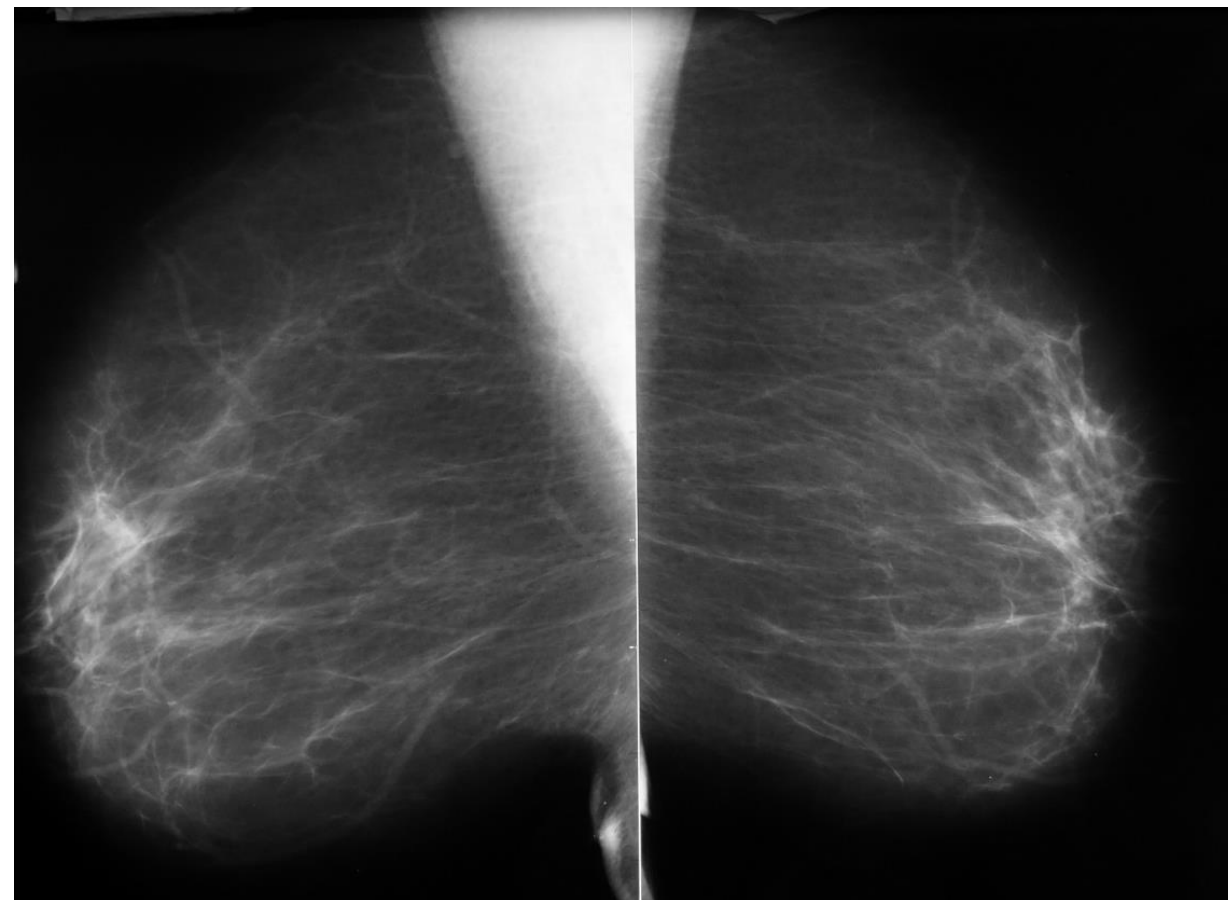
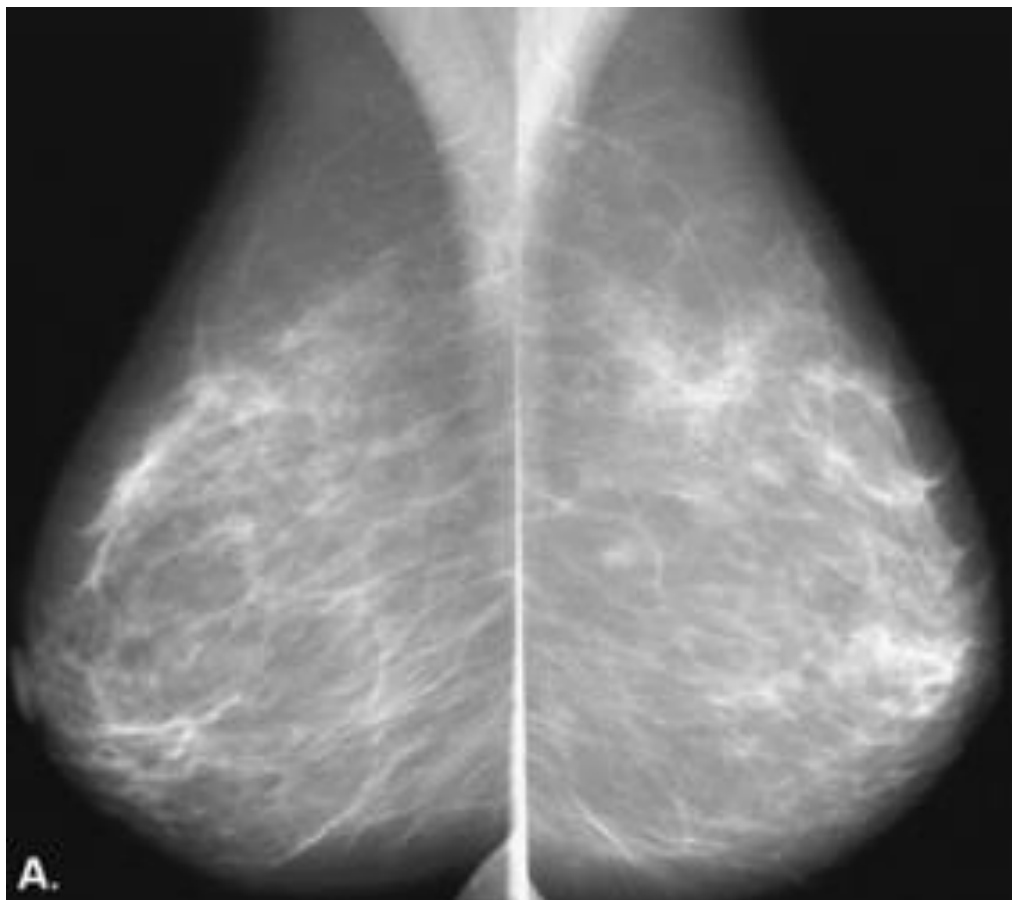


Positioning. MLO view

- All the breast tissue clearly shown
- Pectoral muscle to nipple level
- Symmetrical images
- Nipple in profile
- Inframammary angle clearly demonstrated

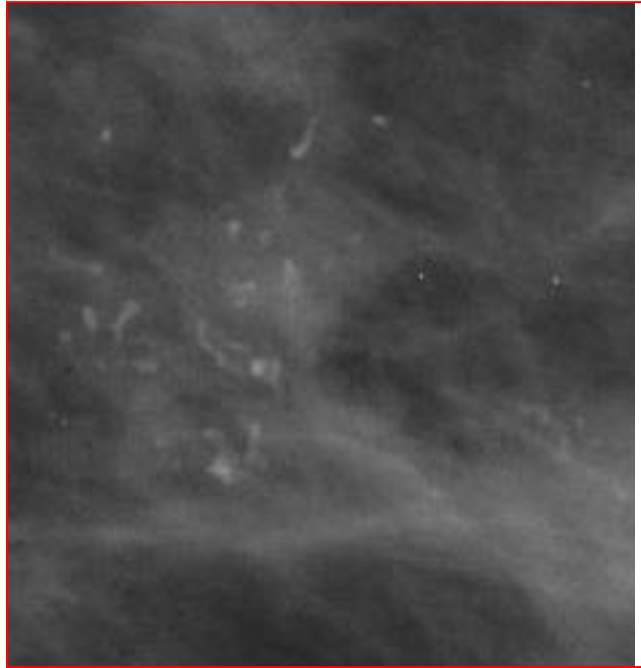


Positioning. MLO view

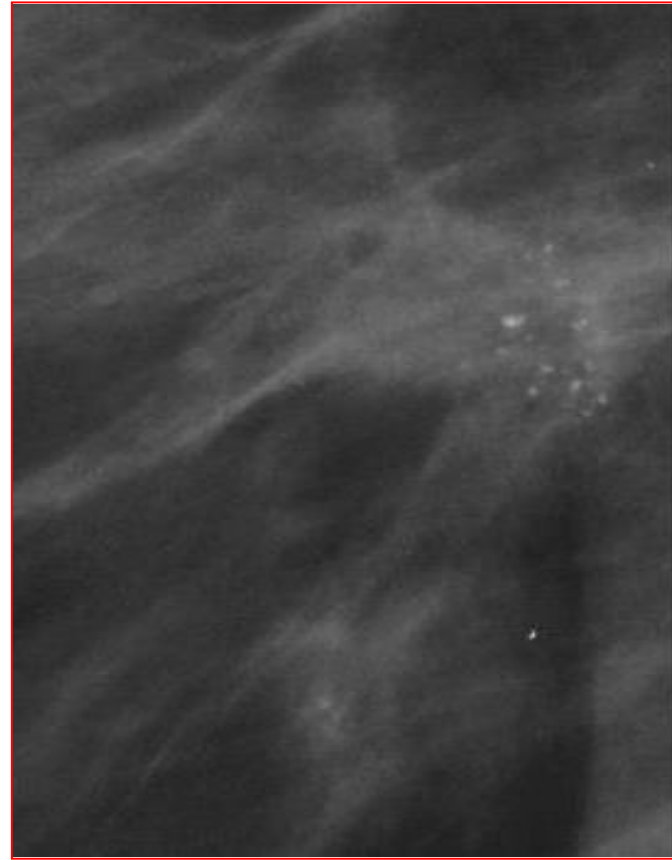
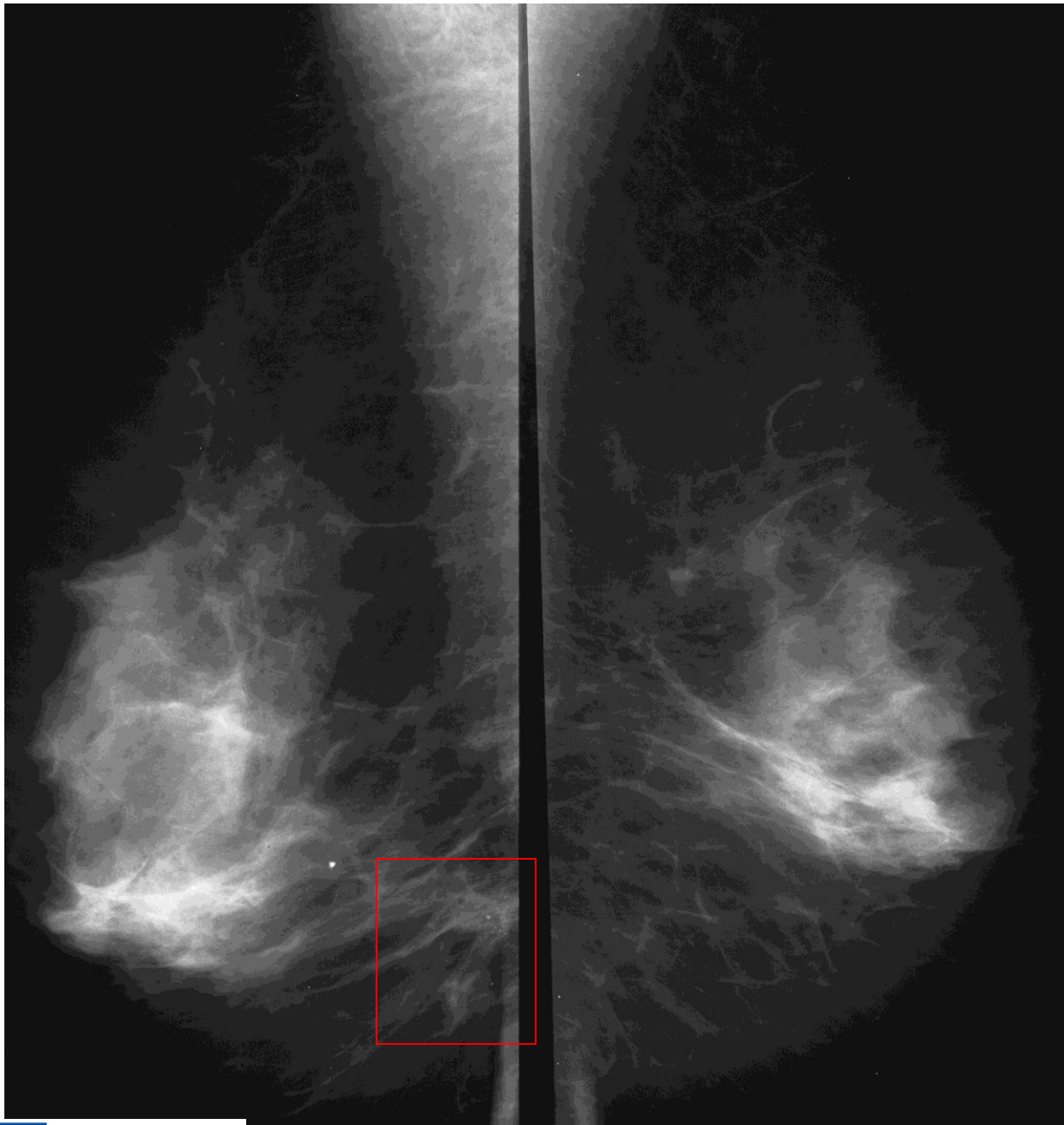


Positioning. MLO view





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Positioning. MLO view

Key aspects to achieve a high quality MLO view :

- height of the breast support table,
- the angle being used,
- the lift, spread and compression of the breast
- and the comfort of the woman..



Positioning. MLO view

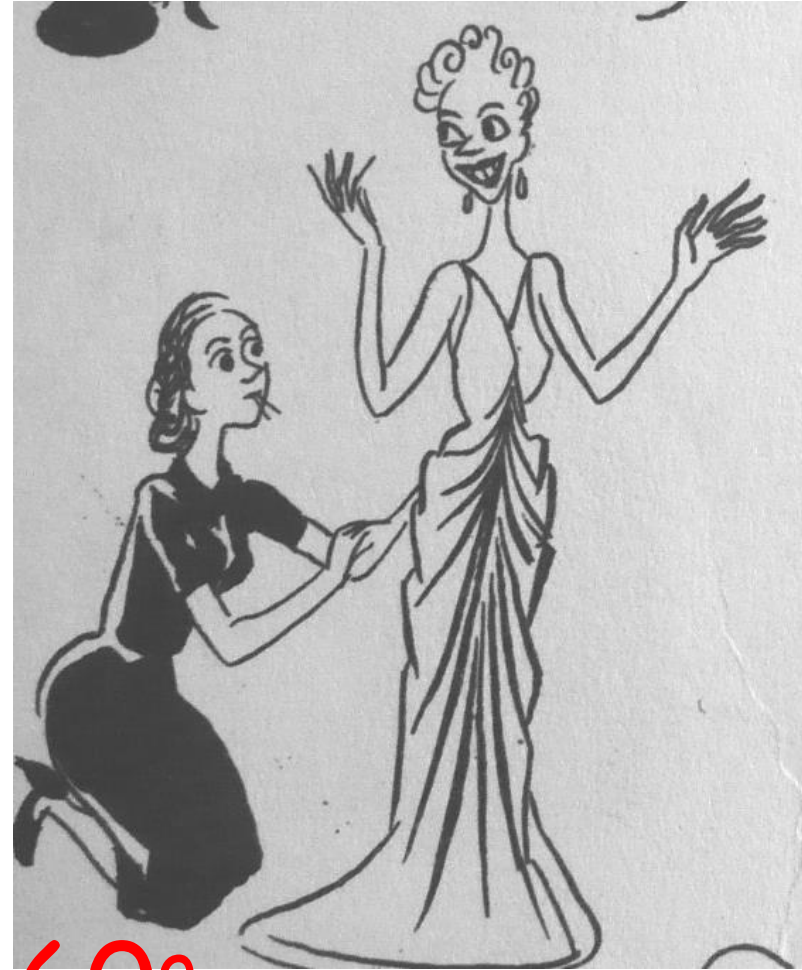
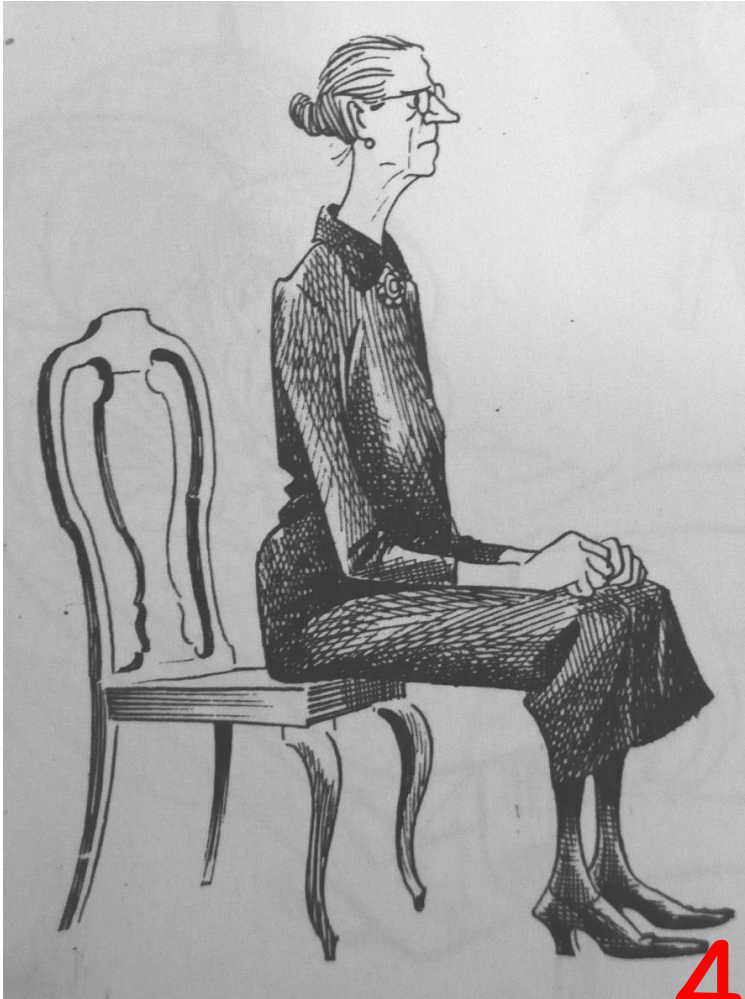
30°

45°

60°



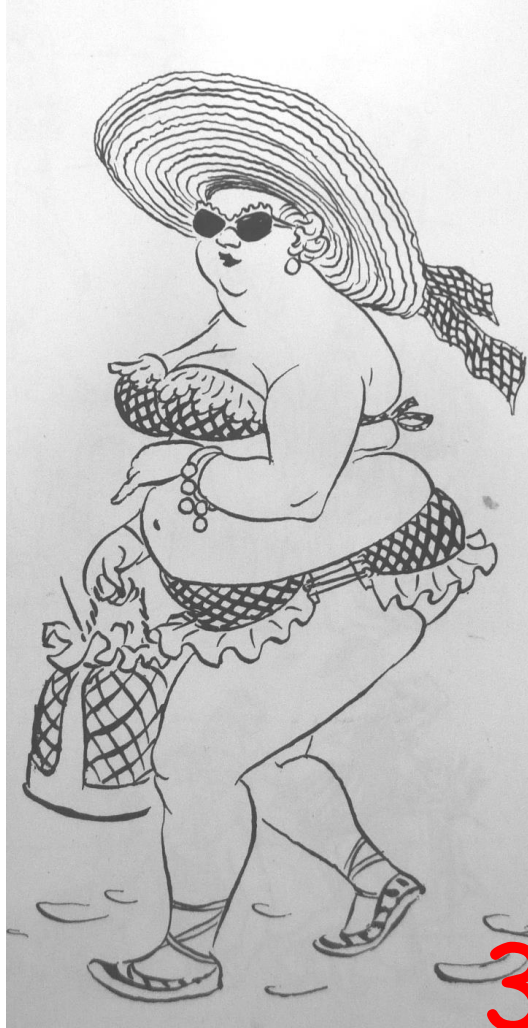
Positioning. MLO view



45-60°



Positioning. MLO view



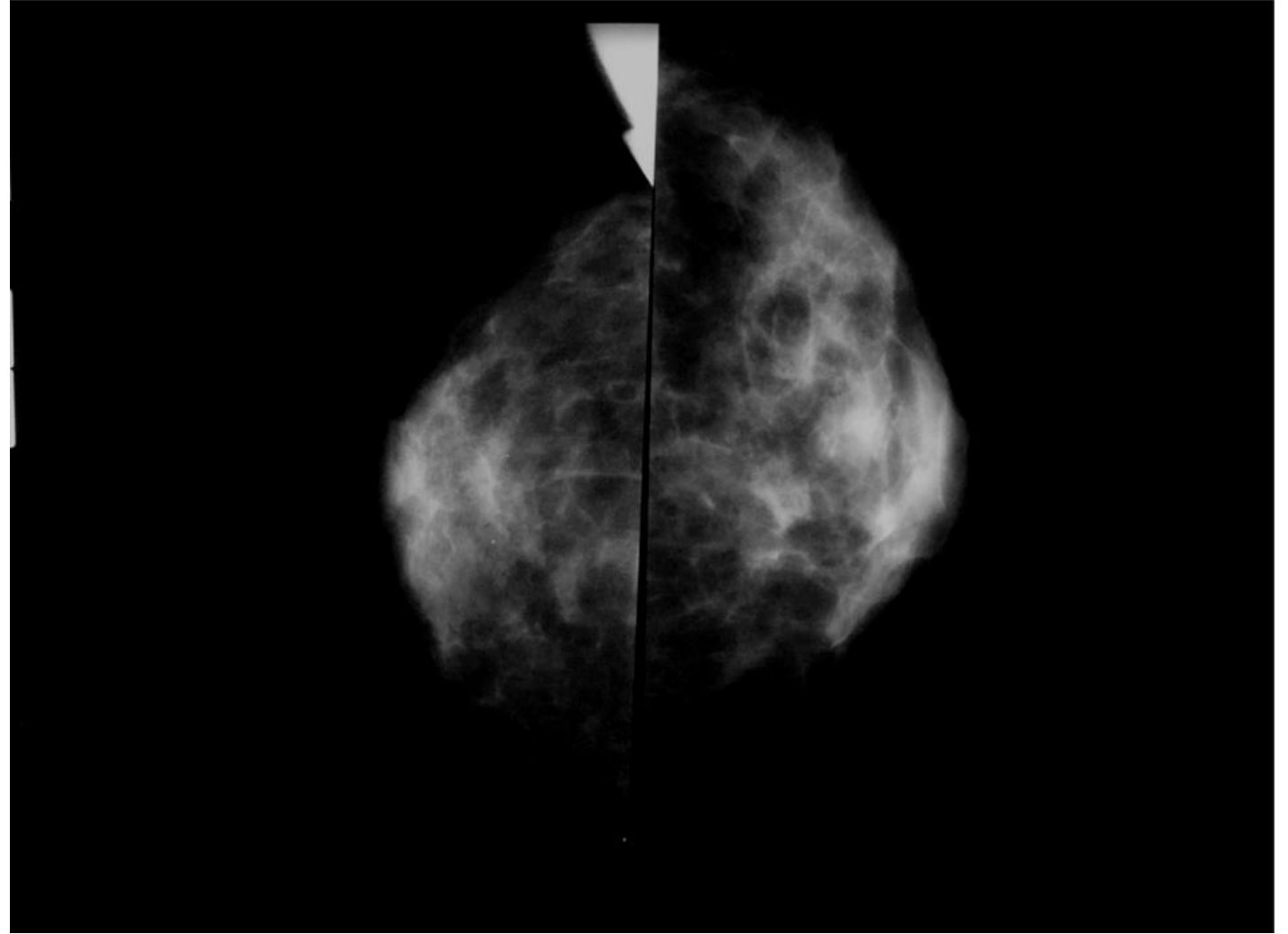
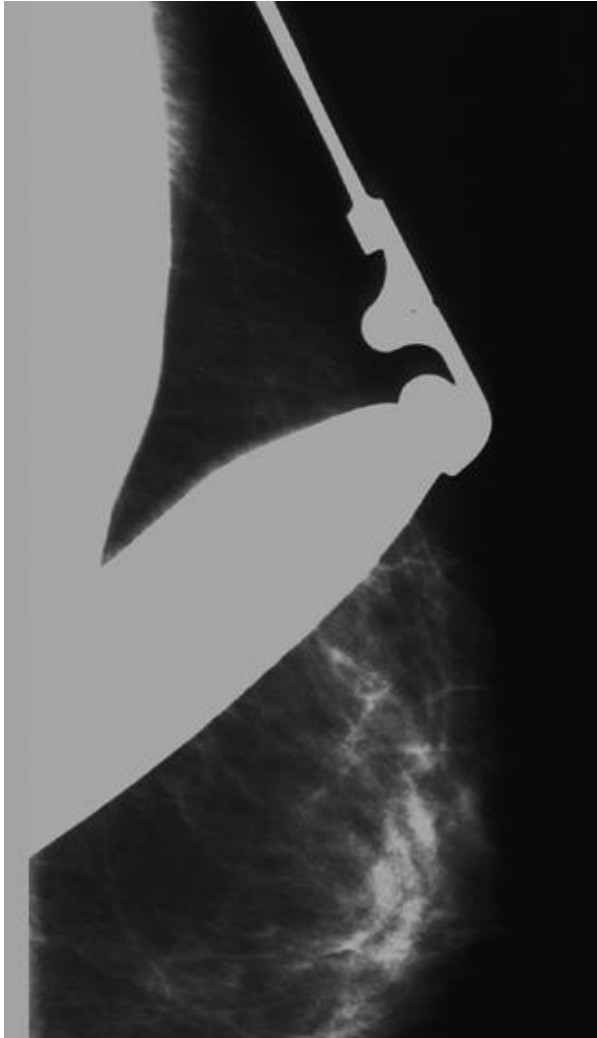
30-45°



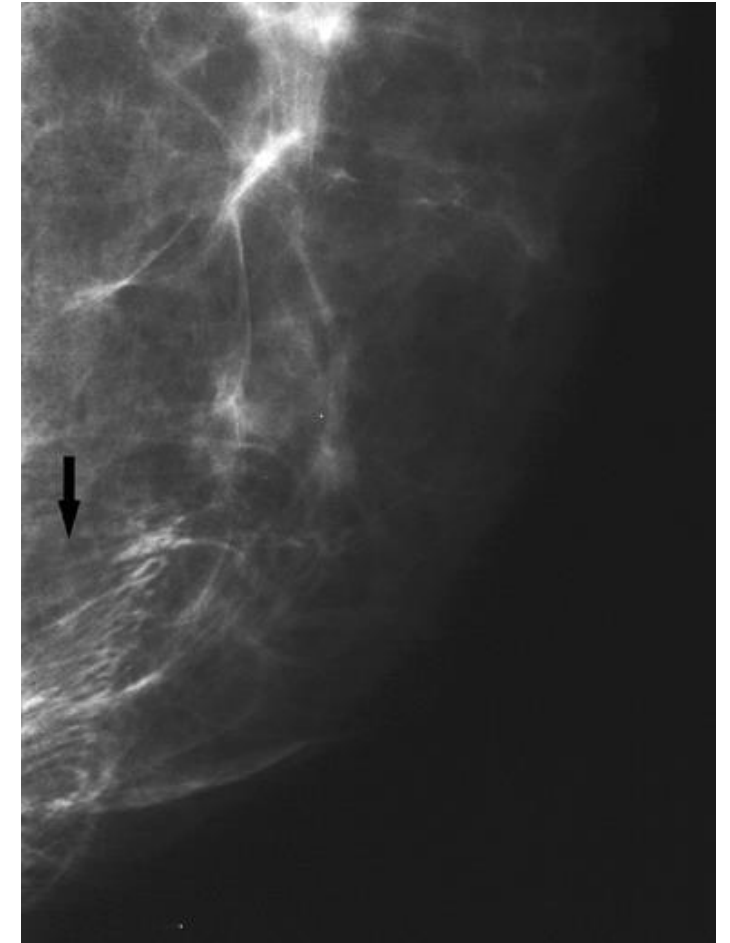
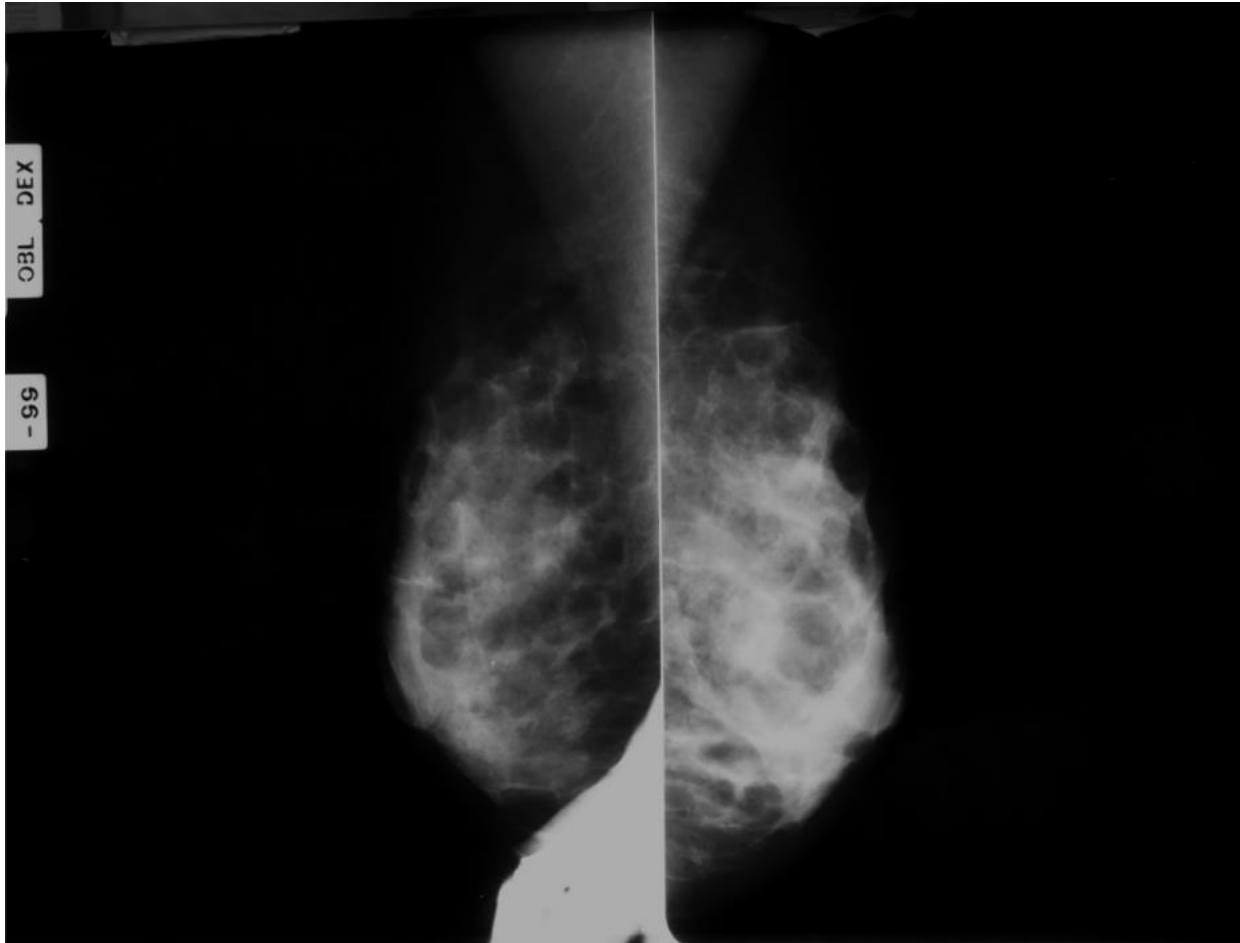
Positioning. MLO view



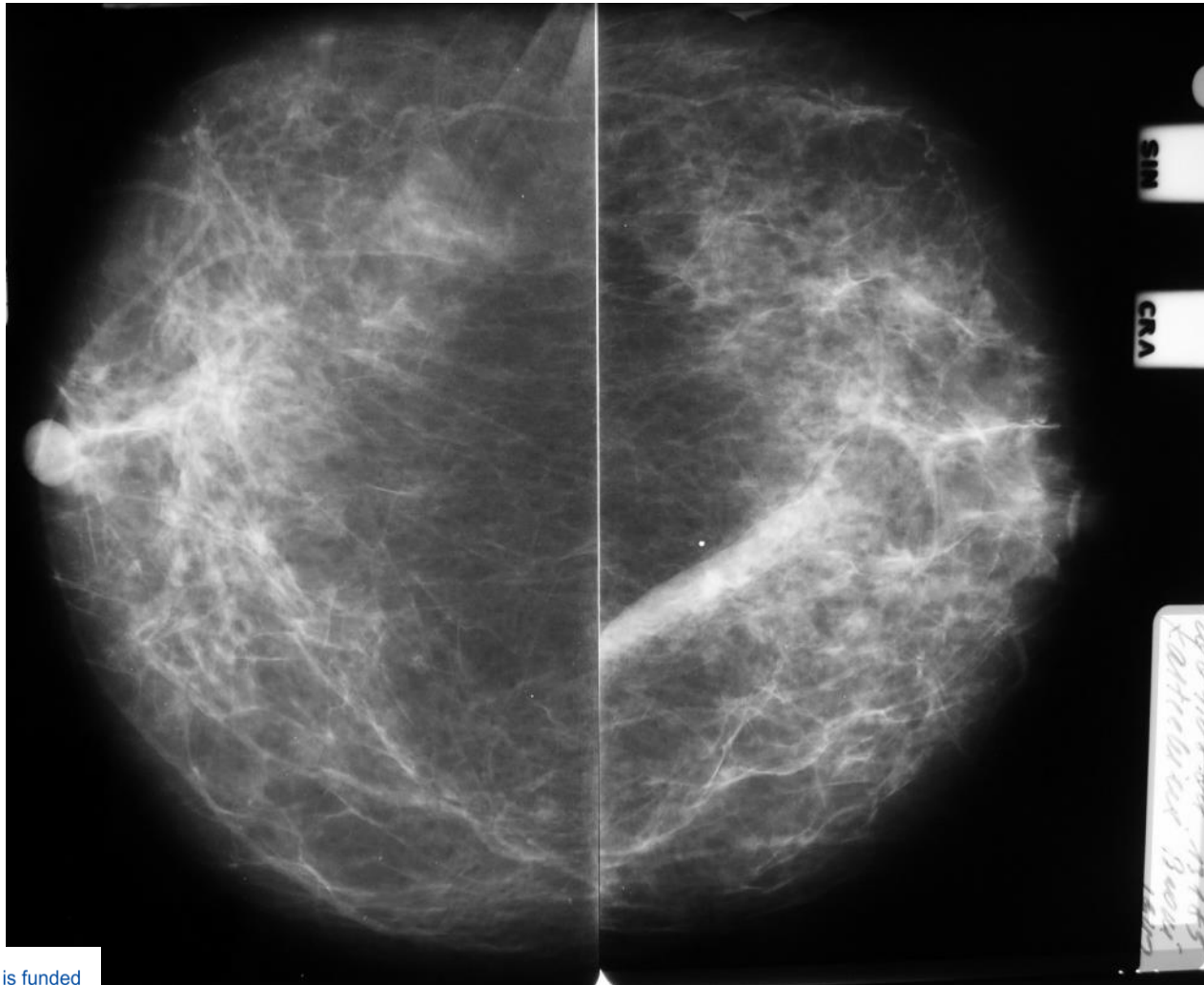
Overlying artefacts e.g. spectacles, shoulders



Overlying artefacts e.g. hand, hair

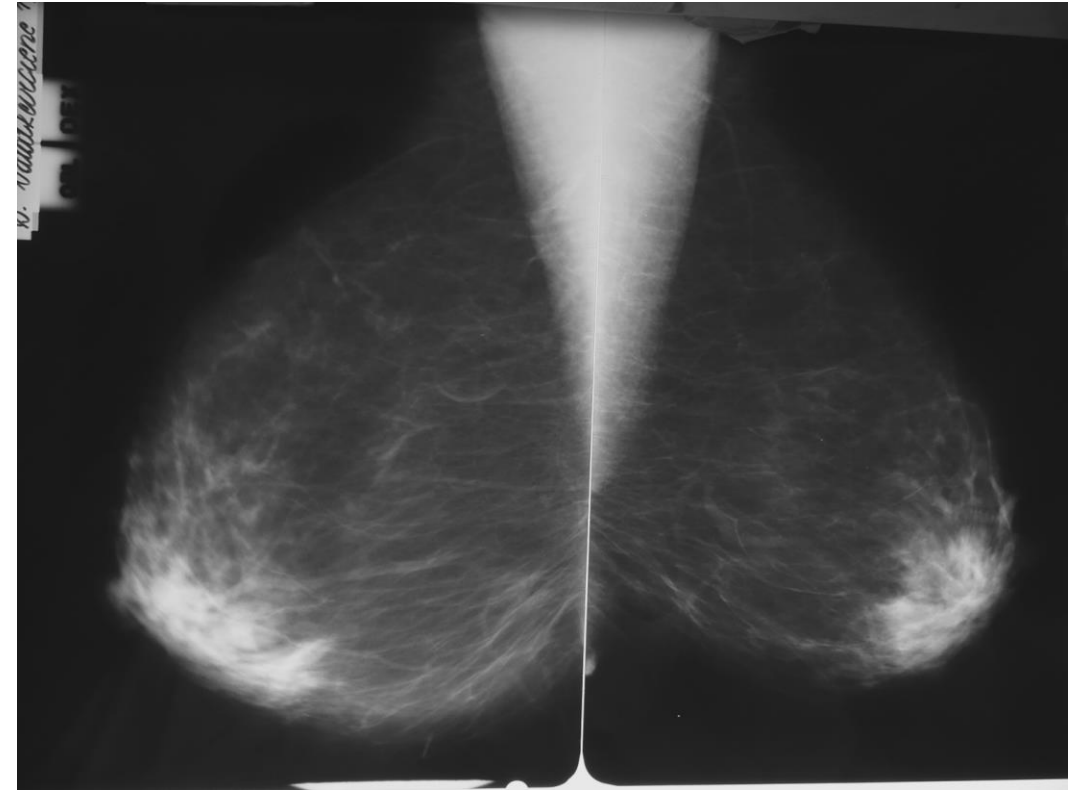


Overlying artefacts e.g. skin folds



Compression

- Less scattered radiation - better the contrast of the images
- Reduction the overlapping of tissue shadows - better visualisation of the breast tissue
- Lower radiation dose
- Probability of blurring due to movement is reduced

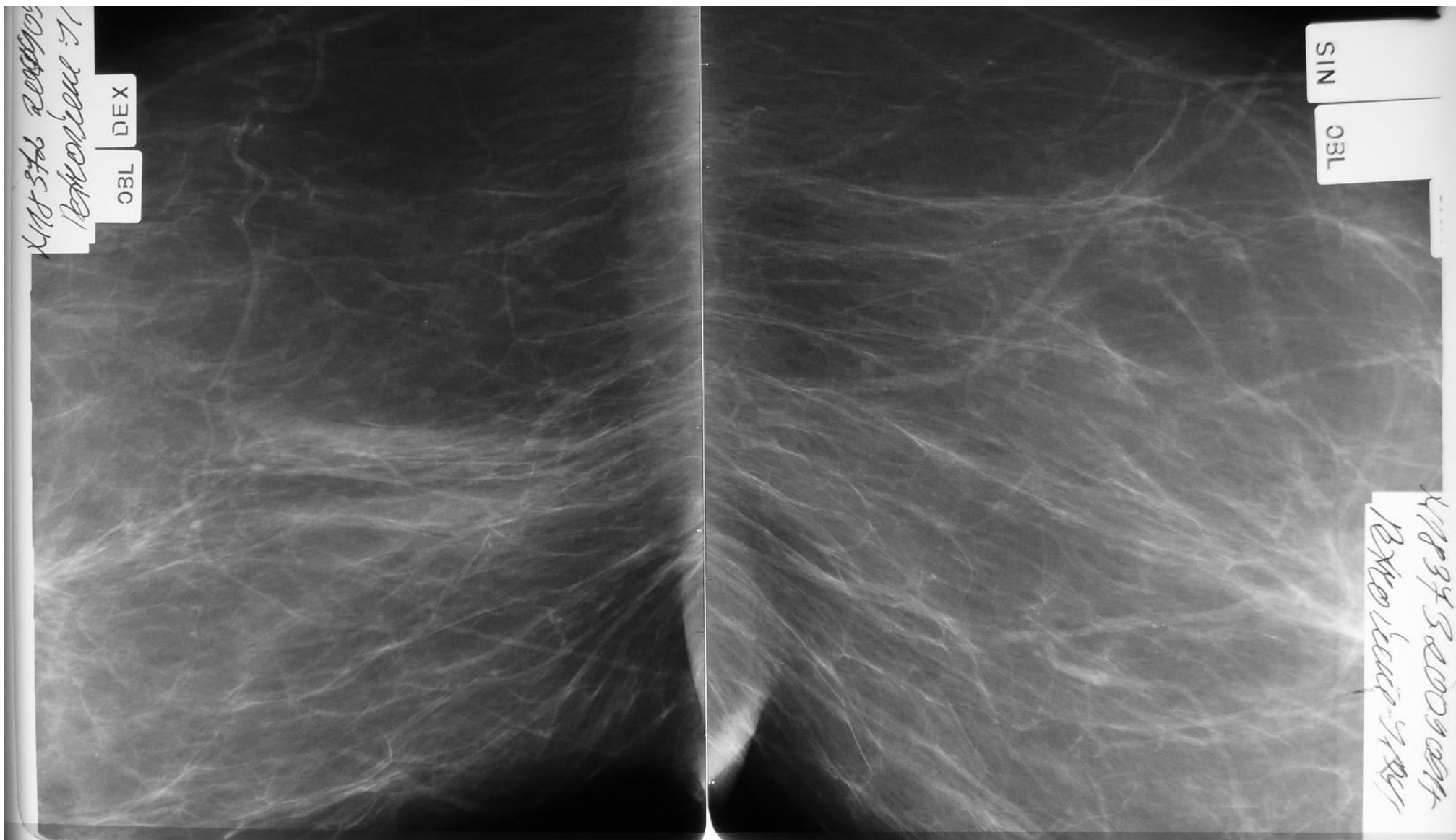


100N 200N 300N ?

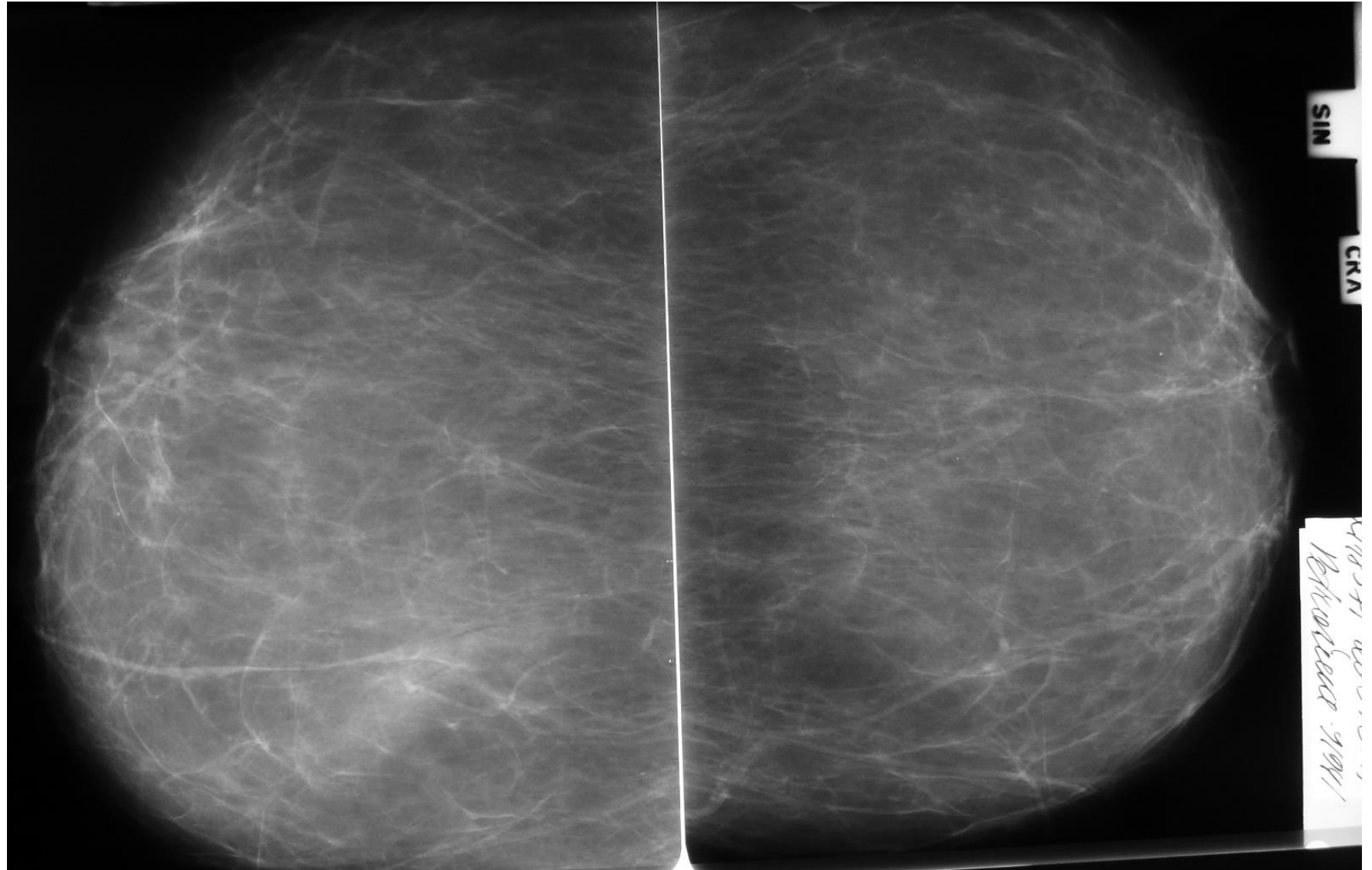
(10 kg 20 kg 30 kg) ?



King-size breasts: MLO – deep prepectoral tissue visualisation



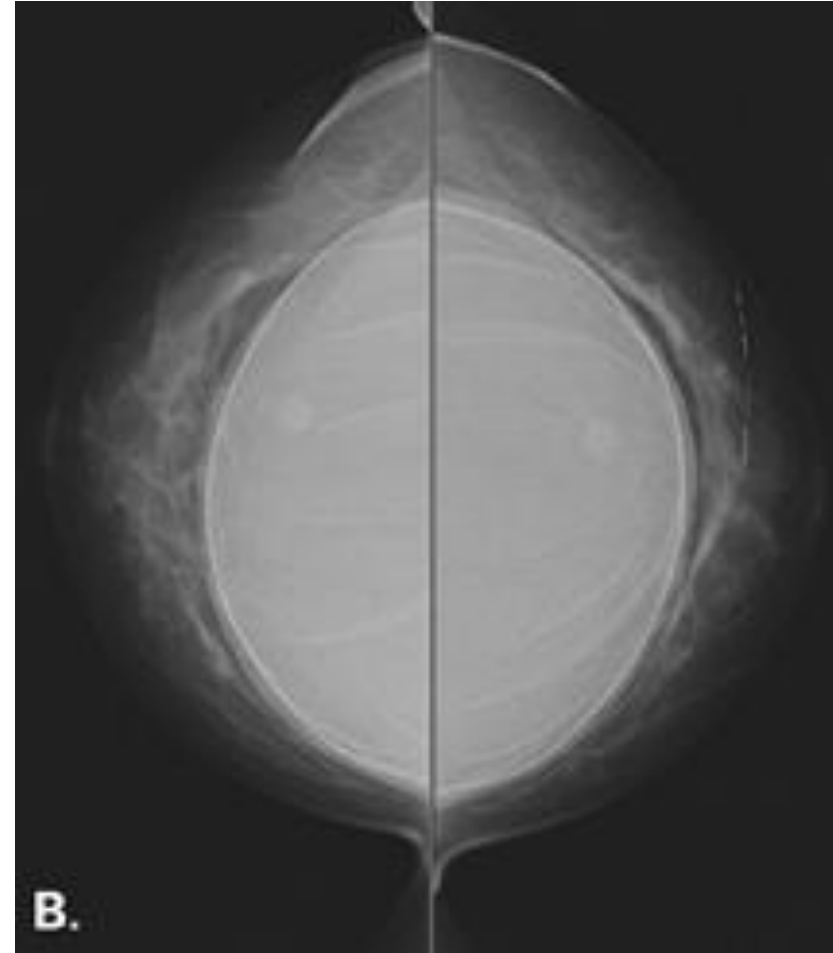
King-size breasts: CC – nipple visualisation



Augmented breasts – implants included



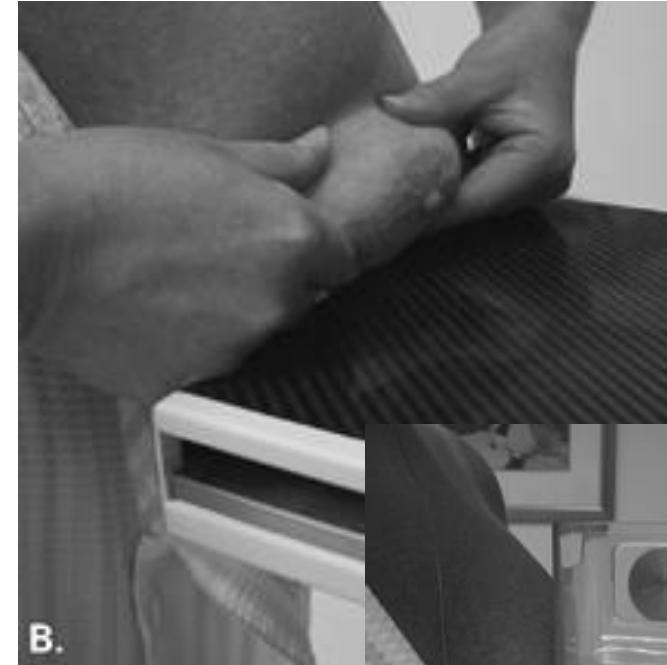
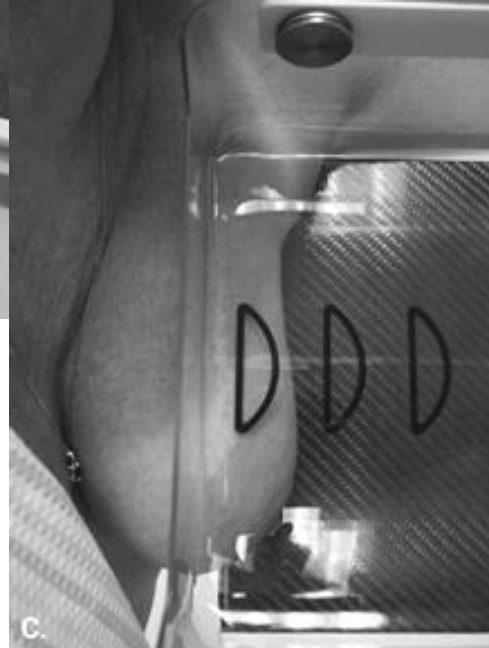
Augmented breasts – implants included



Augmented breasts – implants excluded



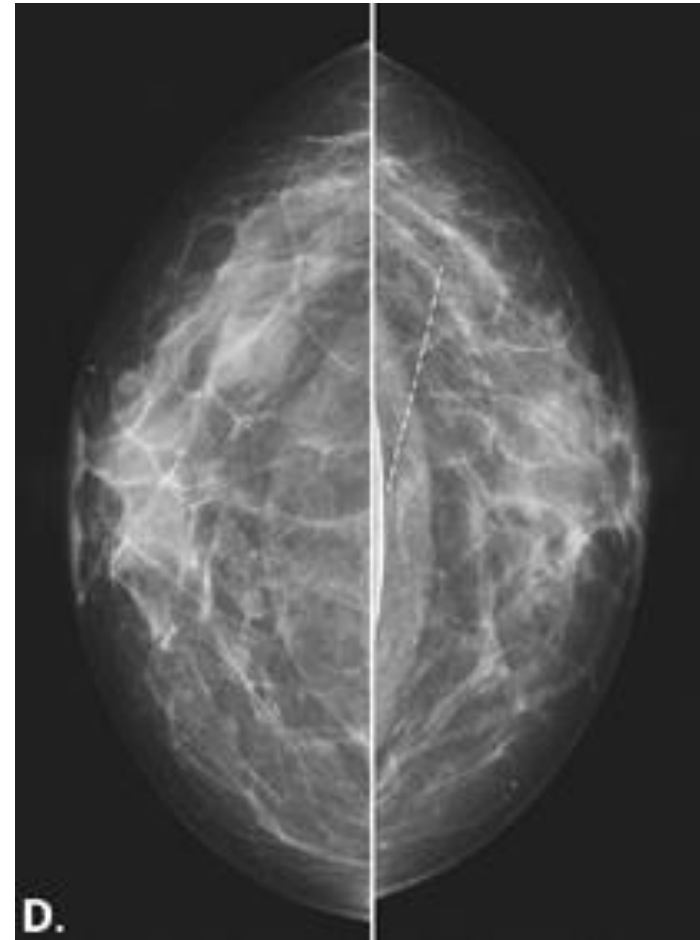
MLO



CC



Augmented breasts – implants excluded



Social skills



- Communication between the radiographer and the woman is one of the most important aspects of the examination.
- Radiographers play a key role in optimising the woman's experience, satisfaction and continued acceptance and uptake of the service.
- The radiographer must be friendly, caring and generate confidence in the woman.
- In a pleasant, calm and informative atmosphere the woman is more likely to relax.



Radiologist ensures :

- High level of image quality
 - a satisfactory quality assurance system
 - sufficient quality control mechanisms
- Sufficient radiological performance levels
 - effectively advancing the time of diagnosis of cancers
 - and lowering the rate of advanced cancers
- Minimised the adverse effects of screening



Radiologist. Image quality

- All necessary physical-technical and professional quality control processes are continuously carried out
- Assess before reporting on the mammogram if the proper positioning techniques were used by the radiographer
- Be familiar with the important aspects of exposure and processing techniques (which play a vital role in final image quality in analogue setting)
- Ultimately, must be resolute in refusing to accept mammograms not meeting sufficient criteria for adequate diagnosis.



Viewing conditions

- Reading environment
 - undisturbed
 - control of background room light
 - no unnecessary light glaring from the film viewer
- Previous mammograms at the time of screen reading :
 - increasing cancer detection by the ability to perceive changes in appearance between examinations,
 - reducing unnecessary recall to assessment for long standing benign lesions
- Double reading increases sensitivity of the screening test by 5-15%



Full Field Digital Mammography (FFDM) with Soft Copy Reading

For the soft-copy reading in a screening programme are mandatory :

- optimal reading environments,
 - high resolution monitors,
 - user-friendly image display
-
- Feedback of results at all stages is an important learning and quality enhancing process and mechanisms should be in place to achieve this



Reduction of adverse effects

- Unnecessary recalls
 - are costly,
 - cause psychological discomfort to the woman,
 - may result in unnecessary biopsies.
- Recalled cases should be reviewed and the positive predictive value for malignancy determined for each category of mammographic abnormality
- Delay
 - in communicating results,
 - performing assessment or surgery -
is likely to cause distress and anxiety.

