

MAMMOGRAPHY AND ITS ROLE IN EARLY DETECTION OF BREAST CANCER

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Imaging is essential for accurate diagnosis of breast disease and early detection of breast cancer. Mammography and Ultrasound are the first line investigations for the imaging of breasts.

A mammogram is an x-ray picture of the breast. It is used to find breast tumors and cancer in women who either have no signs or symptoms of a disease or have a lump or other signs of breast cancer.

Mammography is the only screening modality which has been proven to reduce mortality from breast cancer through early detection.

Different types of mammograms

- **Screening mammograms** are done for women who have no symptoms of breast cancer.
- **Diagnostic mammograms** are done when a woman has symptoms of breast cancer or a breast lump. This mammogram tends to take longer time than screening mammograms because more pictures of the breast are taken.

Why and when the Test is Performed

1. For screening women aged 50 years and over without any symptoms.
2. For screening women aged 35 years and over who have high risk of developing breast cancer i.e.
 - Women who have a mother, sister or aunt diagnosed with pre-menopausal breast cancer
 - Women aged 35 years and above with lump in breast or other signs of breast cancer.
3. As a Check after surgical removal of breast cancer.
4. Men with lump in breast.
5. Follow-up of a woman who has had an abnormal mammogram.

How the Test is Performed

The patient stands in front of a special x-ray machine. The radiology technician places the breasts (one at a time) between two plastic plates. The plates press the breast to make it flat, this may cause some discomfort. But flatter breasts give better picture. Most often, two pictures are taken of each breast--one from the side and one from above. A screening mammogram takes about 15 minutes from start to finish.

Digital mammography is a newer technique. It allows the x-ray image of the breast to be viewed and manipulated on a computer screen.

How to Prepare for the Test

Here are some general guidelines to follow:

- Take mammogram appointments one week after the periods. Breasts hurt less after the periods.
- If one has a breast implant, be sure to inform the technician as well as the radiologist beforehand.
- Do not use any deodorant, perfume, lotion, or powder under arms or on breasts on the day of examination. These things can make shadows that show up on the mammogram.

Inform the radiology technician and the radiologist if one is pregnant or breastfeeding. Routine screening mammography is not done during pregnancy or while breastfeeding. Breast Ultrasound has a major role in breast imaging during pregnancy and lactation.

What Abnormal Results Mean

Most abnormal findings on a screening mammogram turn out to be benign (non cancerous) or nothing to worry about. New findings or changes must be further evaluated.

The American College of Radiology has developed a grading system called BI-RADS (Breast Imaging Reporting and Data System) for radiologists to use when they report a mammogram. Some of the terms used by the Radiologists include:

- Incomplete – Need additional imaging evaluation (USG,MRI) or comparison with previous examinations
- Negative
- Benign (noncancerous) finding
- Probably benign
- Suspicious abnormality
- Highly suggestive of malignancy or cancer
- Biopsy proven malignancy

Often, the following additional imaging investigations are also needed:

- **Additional mammogram views** -- called magnification views.
- **Breast ultrasound** (for symptomatic women aged less than 30 years and during pregnancy and lactation.)
- **Breast MRI exam**

Comparing a current mammogram to past mammograms helps the radiologist tell whether one had an abnormal finding in the past, and whether it has changed. So always carry the report and films of previous mammographic examinations.

When mammogram or ultrasound results look suspicious, a biopsy is done to test the tissue and see if it is cancerous.

Risks

The level of radiation is low, and with present mammographic equipment, there is little or no radiation related risk to the women over 40 years of age.

Mammogram Problems

As with any medical test, mammograms have limits. These limits include:

- They are only part of a complete breast exam. A clinical breast examination is mandatory.
- "False negatives" (missed cancer) can happen. This means everything may look normal, but cancer is actually present. False negatives don't happen often (approximately 10%). Younger women are more likely to have a false negative mammogram than are older women. This is because the breast tissue is denser, making cancer harder to spot.

Recent Advances

- **Computer Aided Detection-** It is a computer software that highlights the abnormal areas hence help the radiologists pick up cancers more promptly.
- **Digital Breast Tomosynthesis-** Emerging digital imaging technique that helps in better assessment of the abnormal areas.
- **Contrast- Enhanced Digital Mammography-** Helps early cancer detection.

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