ParkwayHealth™ Radiology

Mammography

What is a Mammography?

Mammography is a specific type of imaging that uses a low-dose x-ray system for the examination of breasts. A mammography exam, called a mammogram, is used as a screening tool to detect early breast cancer in women experiencing no symptoms and to detect and diagnose breast disease in women experiencing symptoms such as a lump, pain or nipple discharge.

Why is mammography important?

Mammography plays a central part in early detection of breast cancers because it can show changes in the breast up to two years before a patient or physician can feel them. Breast Cancer is the most common cancer among women in Singapore . 1 in 20 women has a chance of developing breast cancer in their lifetime.

The BreastScreen Singapore program recommends screening mammography for women aged 40 and above. Research has shown that annual mammograms lead to early detection of breast cancers, when they are most curable and breast-conservation therapies are available.

While mammography is the best screening tool for breast cancer available today, mammograms do not detect all breast cancers. Also, a small portion of mammograms indicate cancer is present when it is not (called a false-positive result).

Different types of Mammography

Film Screen Mammography

Film screen mammography involves minimal radiation exposure. A skilled technologist positions and compresses the breast between two plates. Then a highly specialized x-ray equipment takes two pictures of each breast from two directions. Mildly uncomfortable for most women, mammography can be painful for some. But compression of the breast is necessary to flatten and reduce the thickness of the breast. The X-ray beam should penetrate as few layers of overlapping tissues as possible.

Full Field Digital Mammography

A Full Field Digital Mammography (FFDM) and Computer Radiography Mammography (CR) use digital technology and x-rays to capture an image of the breast over a computer than on traditional film as in the case of analog mammography.

Like standard mammography, FFDM uses x-rays to produce images of the breast. The information is digital and the radiologist can alter the orientation, magnification, brightness and contrast of digital image of the breast.

How should I prepare for a mammogram?

- Do not schedule your mammogram for the week before your period if your breasts are usually tender during this time. The best time for a mammogram is one week following your period.
- Always inform your doctor or radiographer if there is any possibility that you are pregnant.
- Wear a comfortable 2-piece outfit.
- Do not use deodorant, perfume, powder or ointment on the underarms or breasts.
- Please bring along all your previous mammogram films so that it can be compared with your current.
- For an accurate diagnosis, you will be asked to fill in a questionnaire before the start of your mammogram. Please ask the radiographer if you unsure of how to answer any of the questions.

How is a mammogram performed?

The mammogram is performed by a specially trained female radiographer.

- In the procedure room, you will be asked to stand at the x-ray machine.
- The radiographer will position your breast in the mammography unit. Your breast will be placed on a special platform and compressed with a paddle (often made of clear Plexiglas or other plastic). You will feel pressure on the breast as it is squeezed by the compressor. Some women with sensitive breasts may experience discomfort. If this is the case, schedule the procedure when your breasts are least tender.
- The technologist will stand behind a glass shield during the x-ray exposure. You will be asked to change positions slightly between images. The routine views are a top-to-bottom view and an oblique side view. The process will be repeated for the other breast.

How often should I have a screening mammogram?

The Health Promotion Board of the Ministry of Health, Singapore, recommends that women aged 40-49 years have regular mammograms every year, and women above 50 years of age, every two years.

Women who are a higher risk of developing breast cancer should see a doctor for advice. You may need to go for screening earlier and more frequently.

Breast compression is necessary in order to:

- Even out the breast thickness so that all of the tissue can be visualized.
- Spread out the tissue so that small abnormalities won't be obscured by overlying breast tissue.
- Allow the use of a lower x-ray dose since a thinner amount of breast tissue is being imaged.
- Hold the breast still in order to eliminate blurring of the image caused by motion.
- Reduce x-ray scatter to increase sharpness of picture.

The examination process should take about half an hour. When the mammography is completed you will be asked to wait until the radiographer examines the images to determine if more are needed.

What are the benefits vs. risks?

- The effective radiation dose from a mammogram is about 0.7 mSv, which is about the same as the average person receives from background radiation in three months. Digital mammography uses relatively lower radiation compared to conventional analog mammogram. The average effective radiation dose from a digital mammogram is about 0.5mSv.
- Women should always inform their doctor or radiographer if there is any possibility that they are pregnant.
- False Positive Mammograms. Five percent to 15 percent of screening mammograms require more testing such as additional mammograms or ultrasound. Most of these tests turn out to be normal.

What are the benefits of FFDM vs Film Screen Mammography?

- With a digital acquisition, it is possible to manipulate the images and reduce the number of extra images required, although the initial set of four images will still be necessary.
- Digital mammography uses relatively lower radiation compared to conventional analog mammogram. The average effective radiation dose from a digital mammogram is about 0.5mSv.

Limitation of Mammogram

While mammography is the best screening tool for breast cancer available today, mammograms do not detect all breast cancers. Also, a small portion of mammograms indicate cancer is present when it is not (called a false-positive result).

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