

# Breast cancer: breast imaging



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The breast history and examination (see March edition, *Medical Forum*) helps build a picture of the possible pathology, hormonal status of the breast tissue, and what to expect to see on breast imaging. Slim, nulliparous young women will have small, firm, very glandular and dense breast tissue, while overweight menopausal, parous women, not on HRT, will have large, soft, fatty, translucent breast tissue. Routine breast imaging includes bilateral mammogram and breast ultrasound. The national recommendation in the first instance is bilateral mammogram in women  $\geq 40$  years and bilateral breast ultrasound in women  $< 40$  years (1).

## Mammogram vs ultrasound?

Mammogram is not recommended for women  $< 40$  years due to the risks from radiation exposure and the dense breast tissue, which masks the detection of lesions (which have a similar whiter image). However, when a suspicious lesion is found on breast ultrasound at any age, bilateral mammogram is also performed. (Pregnancy and lactation require specialist discussion.)

Breast ultrasound, an important adjunct, helps determine if a shadow seen on mammogram is cystic or solid, and if a solid mass looks benign or malignant. Ultrasound can often distinguish between normal fibroglandular breast tissue and the presence of an abnormality when only 'white out' from dense breast tissue is seen on mammogram.

Imaging services that provide the patient with a hard copy (films) of their breast images and a copy of the imaging report, allow the patient to discuss their results with their GP and expedite management with a specialist.

## Proceeding to biopsy

While breast imaging is done best by radiology services with dedicated breast radiologists, it is also helpful if they can offer biopsy services as well. Ultrasound-guided fine needle aspiration (FNA) is useful for cystic lesions and image-guided core biopsies yield the most information about solid lesions and calcifications.

Areas of fine 'speckled' calcifications, as opposed to coarse calcifications, are suspicious of ductal carcinoma in situ (DCIS) and cannot usually be seen on ultrasound. (These calcifications can be masked on mammogram by dense breast tissue). Calcification without a mass lesion is usually tested via a mammogram guided, stereotactic core biopsy. Adequate sampling has occurred if x-rays of the core biopsies and the final histopathology report confirm the presence of calcification.

## Interpreting the imaging report

Look for a description of the breast tissue, fatty translucent (0-25% glandular), moderately dense (50-75% glandular) and very dense (75-100% glandular). The more hormonally stimulated the breast, the more glandular the tissue, and the more likely abnormal lesions can be masked.

When previous imaging is available, comparative comments should be made within the report.

It is helpful when the report includes information about axillae, negative or positive.

An imaging summary at the end of the report in list form is invaluable. This should include the side, site (clock face), distance from the nipple, size, mammographic and ultrasound

appearances, and the classification (the 1 to 5 Tabar score). If there is more than one lesion they should have separate summaries.

## Imaging Report - Tabar Score

- 1 Normal looking breast tissue or no significant abnormality,
- 2 A benign looking lesion (ie. cyst, fibroadenoma, hamartoma)
- 3 Indeterminate,
- 4 Suspicious of malignancy,
- 5 Malignant.

## Acting on the imaging report

All solid lesions and suspicious calcifications should be biopsied, including a Tabar 2 lesion.

Any Tabar 3 lesion should be considered for removal, whatever the biopsy result. Core biopsy helps to plan the appropriate operation. If the biopsy is positive for malignancy, the patient will proceed straight to a cancer operation while a negative core biopsy is followed by surgical excision and the lesion sent for full histological analysis.

Radial scars and dilated duct papillomas as described on imaging, (usually Tabar 3) and papillomatous tissue as reported on core biopsies need excision because in 10% of cases they are associated with malignancy.

## Fitting the pieces together

Palpable lesions not seen on breast imaging or non palpable lesions found incidentally when another lesion is surgically removed are described as 'occult'. When an occult breast cancer is treated by breast conservation there is a chance that further disease will go undetected elsewhere in the breast and future surveillance 'policing' of the breast is more difficult.

Remember the Triple Test:

- how does it feel clinically;
- how does it look on imaging;
- how does it look under the microscope?

When deciding on the final management pathway of a lesion all three must agree. If the lesion feels benign and looks benign on cellular analysis but the imaging looks suspicious or concerning (Tabar 3 - 5) then the lesion should be removed. If the lesion is non-palpable then the imaging and cellular analysis alone must agree otherwise the lesion should be removed.

## Other considerations

Rarely, breast cancer does occur in women in their late teens and early 20s. Hence, even if a lesion seems like a fibroadenoma on palpation and imaging it must be proven on cellular analysis to be a fibroadenoma (with

good sampling and review by an experienced breast pathologist). There is a 0.03% rate of malignancy in fibroadenomas that will usually look slightly atypical on imaging and/or have atypical cells on FNA.

Breast MRI is useful and informative in breast assessment. However, in WA breast MRI is provided by only one radiology group in the private sector and is only available to selected public patients at SCGH and RPH. It is expensive and very sensitive but has low specificity. Many patients cannot tolerate being enclosed in a box while lying on their stomach with their breasts dependent. Tissue diagnosis requires specialised MRI equipment or skilled targeted ultrasound and competence in reading results requires extra training. The Medicare rebate, introduced in February 2009, only covers breast MRI on women  $< 50$  years fulfil high risk criteria .

Finally, *asymptomatic* women in the 50-69 target age group for breast screening, will be asked to attend BreastScreen WA for a free mammogram only every two years. Women aged 40-49 years or  $> 70$  years can request a free screening mammogram. Asymptomatic women who have had breast cancer and/or have a strong family history of breast cancer can get yearly mammograms.

## Take Home Points

- Senior menopausal women, with fatty breasts, not on HRT – most new lesions will be malignant and will be seen on mammogram
- Hormonally stimulated dense breast tissue carries a higher risk of missed lesions. Dense glandular breast tissue can mask underlying cancers ('white out' on mammogram; prominent fibroglandular tissue on ultrasound).
- Lesions showing atypical cells on core biopsy or FNA should all be removed due to a small association with malignancy.
- Beware of pathology reports that describe the cellular analysis of distinct lesions as indeterminate, insufficient or as normal breast tissue. This can mean that the lesion was not actually sampled and repeat biopsy and/or specialist opinion is warranted.

Reference 1. Early Detection of Breast Cancer - NBOCC position statement. December 2009 (National Breast and Ovarian Cancer Centre in Australia) ■