



# Investigating a woman with a breast lump

In this series, we present authoritative advice on the investigation of a common clinical problem, specially commissioned for family doctors and written by members of the Royal Australasian College of Physicians.

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Breast cancer is a topic that is highly publicised to the general public. Media coverage of celebrities diagnosed with breast cancer generates anxiety among large sections of the female population. Although there is no evidence that regular self-examination of the breasts improves survival, women are still encouraged to perform it regularly (in addition to regular screening).<sup>1</sup> There will be a number of women for whom self-detection of a breast lump is the only reason for presenting to their GPs. This is particularly true in the case of younger women for whom mammography is not a useful screening tool.

A woman presenting with a breast lump is often a worried patient. She generally has no experience in breast examination other than on herself, so it may be difficult for her to distinguish between normal breast tissue and a genuine lump.

The task of the GP is to determine if there is a

true mass, ascertain the patient's risk factors for breast cancer, organise the appropriate imaging and, if necessary, obtain a tissue diagnosis. There is a balance to be struck during the initial consultation in order to make the patient feel that her problem has been taken seriously while attempting to reassure her.

This article aims to guide the GP through the basic principles of the 'triple test' approach to diagnosis. It outlines the important points in the history and clinical examination that should be highlighted in any referral of a patient to a breast specialist and discusses the rationale behind requesting different types of imaging and tissue sampling.

## The triple test

Some common causes of a palpable breast lump are listed in Table 1. The triple test is a procedure used for the evaluation of a patient with

## IN SUMMARY

- History should include an assessment of the patient's risk factors for breast cancer, which may raise the index of suspicion for the GP, radiologist and/or breast specialist.
- Breast examinations can be embarrassing and awkward, so the patient should be given clear instructions and some privacy.
- As much information as possible should be provided on imaging request forms.
- If a distinct lump is present, ultrasound is the investigation of choice – in addition to mammography for older women or as an alternative to mammography for younger women.
- Core biopsy provides more information than fine-needle aspiration cytology for solid lesions but may not be suitable for all lesions or all patients.
- When in doubt, the patient should be referred to a breast specialist.



a palpable breast lump. It uses the following three components:

- history and clinical examination
- imaging – mammography and/or ultrasound
- nonexcision biopsy – fine-needle aspiration cytology (FNAC) and/or core biopsy

The aims of the triple test are to:

- maximise the diagnostic accuracy in patients with breast disease
- maximise the preoperative diagnosis of cancer
- minimise the proportion of excision biopsies for diagnostic purposes
- minimise the proportion of benign excision biopsies for diagnostic purposes.<sup>2</sup>

A triple test that is negative on all three components indicates that the patient is unlikely to have breast cancer.

### Table 1. Common causes of a palpable breast lump

- Prominent fibroglandular tissue (normal breast tissue)
- Cysts
- Fibroadenomas
- Abscesses
- Lipomas
- Fat necrosis
- Breast cancer

### History and clinical examination

A detailed patient history should be taken, including the details listed in Table 2.

Undressing for a breast examination can be an uncomfortable and embarrassing time for some patients and consideration should be given to this. My own approach is to use a curtain to allow patients to undress and dress in privacy. I give very specific instructions during the examination (sit up on the side of the bed, then lie down with the arms up above the head, etc.) to avoid awkwardness. For large-breasted women, GPs can use the non-examining hand to immobilise the breast and a pillow under the shoulder can be useful.<sup>3</sup> Warm hands are also preferable for the examination.

Often the most difficult part of a clinical examination of a patient with a breast lump is when she believes she has felt a lump but you cannot feel it. Ask the patient to show you where the lump is and, if you both agree that it cannot be found, invite the patient to return again to see you at a different point in her menstrual cycle if she is premenopausal.

Once I have found the lump, I occasionally mark it on the skin with a pen. This is helpful for the sonographer if you are sending the patient to have imaging performed on the same day. It is especially useful when the lump is difficult to palpate or is within a generally nodular area of the breast. As the location of the lump relative to the skin varies according to the position of the arm, mark the area with the patient's arm raised above her head, which is the standard position of examination that most breast sonographers use. Ask the patient to confirm that this is indeed the lump she is concerned about. It is also a good idea to document your findings on the patient's record using a diagram – it is easy to confuse 'left' and 'right' when writing but more difficult to do so on a drawing.

continued

**Table 2. Relevant history details of a woman with a breast lump**

<p><b>Personal history</b></p> <ul style="list-style-type: none"> <li>• Age</li> <li>• Previous breast or ovarian cancer</li> <li>• Previous breast needle biopsies</li> <li>• Previous breast surgery, including excision biopsies, reduction mammoplasty and augmentation</li> <li>• Previous imaging and screening history</li> <li>• Other past medical and surgical history</li> </ul>	<p><b>Hormone history</b></p> <ul style="list-style-type: none"> <li>• Age at menarche</li> <li>• Menopausal status</li> <li>• Gravidity, parity and age at first full-term pregnancy</li> <li>• Breastfeeding</li> <li>• Use of hormone replacement therapy or the oral contraceptive pill</li> <li>• Use of <i>in vitro</i> fertilisation</li> </ul>
<p><b>Presenting symptoms</b></p> <ul style="list-style-type: none"> <li>• Duration of the lump – when and how it was first noticed</li> <li>• Change in size of the lump</li> <li>• Change in shape of the breast or nipple</li> <li>• Associated symptoms – pain, nipple discharge, etc.</li> <li>• History relevant to presenting symptoms – recent trauma to the breast, currently lactating, etc.</li> </ul>	<p><b>Family history</b></p> <ul style="list-style-type: none"> <li>• Breast and ovarian cancer – document number of affected first-, second- and third-degree relatives, age of onset of cancer, presence of male breast cancer and bilaterality if known</li> <li>• Other cancers</li> <li>• Ashkenazi Jewish heritage</li> </ul>

**Table 3. Clinical examination of a woman with a breast lump**

<p><b>Inspection</b></p> <ul style="list-style-type: none"> <li>• Should take place in good light</li> <li>• Inspect the symmetry of the breasts</li> <li>• On the skin, look for the presence of:             <ul style="list-style-type: none"> <li>– dimpling</li> <li>– tethering</li> <li>– ulceration</li> <li>– peau d'orange</li> <li>– erythema/redness</li> </ul> </li> <li>• Inverted/eczematous nipples</li> </ul>	<p>overlapping vertical strips moving across the chest</p> <ul style="list-style-type: none"> <li>• Compare for symmetry with the contralateral breast</li> <li>• Do not forget the axillary tail, behind the nipple and the lymph nodes</li> </ul>
<p><b>Palpation</b></p> <ul style="list-style-type: none"> <li>• Use flat of the fingers</li> <li>• Work in an organised fashion             <ul style="list-style-type: none"> <li>– radial spoke method: wedges of tissue examined starting at the periphery and working in towards the nipple in a radial pattern</li> <li>– concentric circle method: examining in expanding or contracting concentric circles</li> <li>– vertical strip method: examining in</li> </ul> </li> </ul>	<p><b>Documentation</b></p> <ul style="list-style-type: none"> <li>• Location             <ul style="list-style-type: none"> <li>– side</li> <li>– position on a clock face</li> <li>– distance from the nipple</li> </ul> </li> <li>• Size</li> <li>• Mobility</li> <li>• Texture</li> <li>• Deep fixation</li> <li>• Presence and extent of lymph node involvement</li> </ul> <p><b>Patient input</b></p> <ul style="list-style-type: none"> <li>• Ask the patient to point out lumps that you have difficulty feeling</li> </ul>

The procedure to follow in a clinical examination of a patient with a breast lump is summarised in Table 3.

**Imaging**

Breast imaging is a crucial component of the triple test. Ordering the correct investigation(s) and communicating effectively with the radiologist are necessary to ensure an accurate diagnosis is made in a timely fashion.

Mammography and ultrasound are the two most frequently used modalities for imaging in a woman with a breast lump. Mammography is the primary modality used for imaging the breasts of women over 35 years of age. The use of ultrasound as the investigation of first choice is acceptable for women under the age of 35 years. This younger group tend to have dense breast tissue that makes mammographic interpretation more difficult. Ultrasound may be used as the only imaging modality for younger women (and lactating women) but is often used in conjunction with mammography, especially for women over the age of 35 years. For women who present with a discreet breast lump, an ultrasound is almost always the modality of choice, with or without mammography.

Table 4 outlines the diagnostic imaging options available for patients of different age groups and discusses options for women who present with any clinical findings, not just a breast lump.<sup>4</sup>

The use of magnetic resonance imaging (MRI) of the breast has gained popularity recently. At present, there is no Medicare rebate available for MRI investigation of patients with symptoms of breast cancer; however, it is available for surveillance of high-risk patients. MRI has a significant false-positive rate and often results in further invasive investigations, so it is preferable for a breast specialist to request MRI.

All relevant patient information should

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**Table 4. Choice of breast imaging modalities\***

**All age groups**

- Mammography should be performed if the clinical or sonographic findings are suspicious or malignant

**Under age 25 years**

- Ultrasound is recommended as the first imaging modality
- Mammography is only justified if the clinical or sonographic findings are suspicious or malignant

**Under age 35 years**

- Ultrasound is recommended as the first imaging modality
- Mammography is an acceptable initial investigation if the woman is in the upper range of this age group
- Mammography may be used in addition to ultrasound if:
  - the clinical or sonographic findings are suspicious or malignant
  - the ultrasound findings are indeterminate
  - the ultrasound findings are not consistent with the clinical findings
  - there is a strong family history of breast cancer

**Over age 35 years**

- Mammography is recommended as the first imaging modality
- Ultrasound is an acceptable initial investigation if:
  - the lump is clinically consistent with a simple cyst and there is a history of cysts and a normal (noncancerous) mammogram in the past year. In this case, if ultrasound is not readily available, such as in isolated regions, then aspiration may be performed without imaging
- Ultrasound may be used in addition to mammography:
  - if there is a clinical abnormality and the mammogram is normal
  - if the mammogram is inconsistent with the clinical finding
  - to guide a needle or core biopsy

**In pregnancy or lactation**

- Ultrasound is the most useful modality
- Mammography should be used if the clinical or sonographic findings are suspicious or malignant

\* Adapted from the National Breast and Ovarian Cancer Centre's *Breast Imaging: a Guide for Practice*.<sup>4</sup>

risk of haematoma. FNAC is suitable for small lesions where there is concern that a core biopsy may remove too much tissue for the lesion to be located at a later date. The difficulty with FNAC is that it yields indeterminate or insufficient results more often than a core biopsy, and the patient may therefore require a further procedure.

Core biopsy on the other hand will often require the patient to have a local anaesthetic, results will take longer to obtain and there is sometimes more discomfort after the procedure than after a FNAC. However, unlike FNAC, core biopsy frequently enables invasive cancer to be distinguished from ductal carcinoma *in situ* and has a higher sensitivity and specificity. Some argue that core biopsy is a less painful procedure because of the use of a local anaesthetic.<sup>5</sup> As a rule, if a woman has a palpable breast lump, it should be large enough to obtain a core biopsy without compromising a subsequent radiological or surgical procedure.

It is important that adequate clinical examination as well as imaging be performed prior to any biopsy taking place. After a biopsy, the presence of a haematoma can confuse the examination findings and I have found on occasion that a lump I thought was palpable after a core biopsy is no longer present at the time of surgery when the haematoma resolves.

If a GP feels confident organising the biopsy, there is no reason for him or her not to do so. Often this is the most expedient method of obtaining a diagnosis for the patient. However, if the GP has not organised tissue sampling, most breast surgeons would be happy to do so because they may have a particular preference for a biopsy type or for specific imaging or pathology centres.

**When to refer**

Most GPs will usually refer patients with breast lumps to a surgeon of their choice. It is preferable to choose a surgeon who

be provided on the imaging request form, and the GP should make it clear which modality, ultrasound or mammography, is preferred. However, it may be appropriate to allow the radiologist to tailor the imaging modality to individual circumstances. Depending on your index of suspicion, it may be worthwhile requesting that the radiologist proceed to obtain a tissue diagnosis on the same visit if there is an indication for this. Naturally, this should be discussed with the patient first so she is aware of what procedures she may face in addition to imaging. If there is uncertainty, consider contacting the radiologist in advance to

request an opinion.

It is important to stress that only asymptomatic patients should have their imaging performed as part of the screening program run by BreastScreen Australia.

**Biopsy**

There is often confusion about which of the two biopsy techniques to use when investigating a woman with a breast lesion. However, FNAC and core biopsy are complementary procedures (Table 5).

The benefits of FNAC include a shorter procedure time, quick results (possibly even on the same day) and a decreased

## Table 5. Core biopsy versus fine-needle aspiration cytology

### Core biopsy is favoured if:

- invasive cancer is suspected
- there is a large mass palpable
- the patient would not tolerate more than one procedure
- microcalcifications are present
- the patient is not fit for surgery or the tumour is inoperable (hormone receptor assays/tumour markers may be required)
- fine-needle aspiration cytology fails to deliver a diagnosis

### Fine-needle aspiration cytology is favoured if:

- there is a cystic lesion
- a small mass is palpable
- the patient is on anticoagulant medication
- a rapid result is needed

has a subspecialty interest in breast disease. Breast physicians are becoming popular options for referral of patients with benign disease, for follow up of previous breast cancer and for surveillance of high-risk patients.

Most patients with benign disease will not require referral unless there are unusual features on the imaging or the patient desires it. However, if you feel the clinical findings are not explained by imaging or biopsy, or if the patient needs additional reassurance, it is best to refer her on. Breast cancer can be a very sneaky disease, particularly in the case of lobular carcinomas of the breast.

### Conclusion

Finding a breast lump can be a worrying time for both the patient and her GP. It is important to be thorough in the history taking and examination while conveying a reassuring attitude. Practice

## Consultant's comment

GPs play an essential role in the early detection of breast cancers. As trusted medical experts, GPs provide a safe and supportive environment for initial consultations, information about BreastScreen services and any necessary follow up.

Although screening mammography is currently the best way of diagnosing breast cancer early, it is not a perfect tool. For this reason, women are advised that if they notice a breast change they should see their doctor for a full investigation, even if their previous mammogram was reported as normal.

Women with breast symptoms or signs that persist should be referred in the normal way for specialist opinion, rather than presenting to the BreastScreen program. This is because women with breast changes may require a range of diagnostic procedures regardless of the result of the mammography.

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makes perfect and experienced GPs will often be able to distinguish between normal tissue and a true lump on examination. If uncertain, it is often better to err on the side of caution and obtain imaging. Find a radiology practice you trust and ask for advice if there is doubt about the best biopsy modality. **MT**

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COMPETING INTERESTS: None.

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