Breast Lumps and Breast Examination

The detection of a lump in the breast causes understandable fear of a cancer diagnosis. Careful examination will increase the chance of correct diagnosis. It is important that referrals are appropriate and that information and discussion accompany this assessment.

Epidemiology

Breast cancer is by far the most common cancer in women. In 2011 there were 50,285 new cases in the UK and, of those, 349 cases were in men. This gives a male:female ratio of 1:144. Within the UK, rates are broadly similar for all countries. Scotland has a slightly higher incidence rate in women and Northern Ireland has a slightly lower rate (and has done for a period of two decades). The lifetime risk of (females) developing breast cancer in the UK is 1 in 8. The European age-standardised incidence rate across the UK in 2011 was 118.4-130.2 per 100,000 women.

Risk factors for malignancy

- Previous history of breast cancer.
- Family history of breast cancer in a first-degree relative. A number of genetic mutations are implicated. The BRCA1, BRCA2 and TP53 mutations carry very high risk but only around 5% of women diagnosed with breast cancer carry a relevant genetic mutation on their chromosomes. Between 6% and 19% of women will have a family history but this may be due to chance, shared environmental or lifestyle risk factors, or increased genetic susceptibility.
- Risk increases with age. In Europe, ≤5% of cases present before age the age of 35, ≤25% before the age of 50.[4] Cancer Research UK statistics in 2009-2011 showed in the UK 80% of cancers were diagnosed in women over the age of 50, and 24% over the age of 75.[1]
- Never having borne a child or first child after the age of 30.
- Not having breast-fed (breast-feeding is protective).
- Early menarche and late menopause.
- Continuous combined HRT increases risk.[5]
- Radiation to chest (even quite small doses).
- Being overweight after the menopause.
- High alcohol intake - may increase risk in a dose-related manner.[6, 7]

Breast-feeding and physical activity may reduce risk. Breast augmentation is not generally associated with increased risk. Type of implant used may be important.[8] There are also concerns that implants may slow detection and therefore adversely affect survival; however, research has been inconclusive.[9]

Presentation

Presenting symptoms of breast cancer:

- Breast lump. Most patients present having felt a lump - usually painless but may be painful in some.
- Nipple change - eg, inversion, change in shape or a scaling rash.
- Nipple discharge.
- Bloodstained discharge from nipple - intraduct carcinoma may present in this way.
- Skin contour changes.
- Axillary lumps - lymph nodes.
- Breast pain/mastalgia. Alone this is an uncommon presentation.
- Symptoms of metastatic disease - bone pains/fractures, symptoms of lung, liver or brain metastases. (Unusual at presentation.)
- Asymptomatic but picked up at routine mammography screen.
History
Organised screening, education programmes and improved consciousness of the female population have substantially changed the type of patients seen nowadays compared with a few decades ago and the neglected tumour is much rarer than it was. Occasionally, patients (usually elderly but not always) will still present with a fungating mass that has obviously been neglected for a long time.

Patients presenting with a lump in the breast will be aware of the possible diagnosis and will be very anxious. This should be taken into account when taking the history and discussing management.

Direct questions should include the following:

- When was the lump first noticed?
- Has it changed in size or in any other way? This includes a nipple becoming inverted.
- Is there any discharge from the nipple?
- Menstrual history. If she is premenopausal, when was her last menstrual period?
- Any changes noted through the menstrual cycle?
- Family history (including breast cancer, other cancers and other conditions).
- Questions relating to the risk factors listed above.

Examination
In line with good practice and GMC guidance, explain to the patient what you intend to do and why. Obtain consent for the examination and document this. Offer a chaperone and document the discussion.

In the past, advice has been to use the examination to teach the patient self-examination. It may seem logical that regular self-examination should be beneficial but there is no evidence it reduces mortality, and may induce anxiety. Most authorities now suggest women should be "breast-aware" and report any change promptly rather than routinely self-examine.

Breast inspection

- Inspect with the patient sitting and then with their hands raised above head.
- A lump may be visible.
- Look for:
  - Variations in breast size and contour.
  - Whether there is an inverted nipple (nipple retraction) and, if so, is it unilateral or bilateral?
  - Any oedema (may be slight).
  - Redness or retraction of the skin.
  - Dimpling of the skin (called peau d'orange and is like orange peel because of oedema of the skin. This has sinister significance as it is caused by lymphatic invasion, and therefore is due to an invasive underlying tumour, or an inflammatory breast cancer).

The next stage is palpation, and a systematic search pattern improves the rate of detection.

Technique for palpation of the breast

There is no proven "best method" to examine the breast. Different people have different techniques and the following description is by no means the only approach.

Ask the patient to lie supine with their hands above their head. Examine from the clavicle medially to the mid-sternum, laterally to the mid-axillary line and to the inferior portion of the breast. Remember the axillary tail of breast tissue. Examine the axilla for palpable lymphadenopathy.

- Examine with the hand flat to avoid pinching up tissue. Use the pads or palmar surfaces of the second, third and fourth fingers held together and moved in small circles.
- Some advise beginning with light pressure and then repeating in the same area using medium and deep pressure before moving to the next section.
- Three search patterns are generally used:
  - Radial spoke method (wedges of tissue examined starting at the periphery and working in towards the nipple in a radial pattern).
  - Concentric circle method, examining in expanding or contracting concentric circles.
  - Vertical strip method, which examines the breast in overlapping vertical strips moving across the chest.

- If you have difficulty finding a discrete lump, ask the patient to demonstrate it for you.
- A discrete mass should be described in terms of location, size, mobility and texture. Mobility includes whether attached to skin or underlying tissue.
- Examine both breasts.
- Support the patient's arm to palpate axillary nodes and then feel for supraclavicular and cervical nodes. Note the presence or absence of palpable regional nodes.
- If there is a history of discharge from the nipple it is often easier to get the patient to demonstrate the discharge (rather than the doctor attempting to do so). If there is no such history, it is inappropriate to attempt to demonstrate a discharge.

It is also worth noting:
Breast examination should be thorough and take about three minutes each side.
It can be taught using silicone models.
The diagram of frequency of malignancy by site in the breast:

If a lump is found, note size, consistency and whether it is attached to skin or underlying tissue.

<table>
<thead>
<tr>
<th>Clinical features of palpable breast masses</th>
<th>Malignant breast masses</th>
<th>Benign breast masses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency: hard</td>
<td>Consistency: firm or rubbery</td>
<td></td>
</tr>
<tr>
<td>Painless (90%)</td>
<td>Often painful (consistent with benign breast conditions)</td>
<td></td>
</tr>
<tr>
<td>Irregular margins</td>
<td>Regular or smooth margins</td>
<td></td>
</tr>
<tr>
<td>Fixation to skin or chest wall</td>
<td>Mobile and not fixed</td>
<td></td>
</tr>
<tr>
<td>Skin dimpling may occur</td>
<td>Skin dimpling unlikely</td>
<td></td>
</tr>
<tr>
<td>Discharge: bloody, unilateral</td>
<td>Discharge: no blood and bilateral discharge. Green or yellow colour</td>
<td></td>
</tr>
<tr>
<td>Nipple retraction may be present</td>
<td>No nipple retraction</td>
<td></td>
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</tbody>
</table>
**Appropriate referral**[14, 15]

The importance of minimising delay is consistently reported by patients in surveys to be very important and is recognised by professional consensus. Short delays are unlikely to affect the clinical course of a breast cancer. Longer delays are usually either due to patient delay or to the GP's failure to refer. Whilst there is evidence that earlier detection is associated with reduced mortality, there is controversial evidence about the effects of delays to treatment[16] GPs are advised by the National Institute for Health and Care Excellence (NICE) to convey optimism about the effectiveness of treatment and survival when referring people with suspected breast cancer. Furthermore, the majority of palpable breast lumps are not breast cancer.

**Urgent referral**

UK-based guidelines, such as the multi-agency-endorsed Association of Breast Surgery Best Practice guidelines and those from NICE, recommend that the following should be referred to a specialist breast clinic and seen within two weeks:

- Women of any age with a discrete, hard lump with fixation, with or without skin tethering.
- Women aged 30 years and older with a discrete lump that persists after their next period or presents after menopause.
- Women aged younger than 30 years who present:
  - With a lump that enlarges.
  - With a lump that is fixed and hard.
  - With a lump and other reasons for concern, such as family history.
- Women of any age with a persistent focal area of lumpiness or focal change in breast texture
- Women or men of any age, with previous breast cancer, who present with a further lump or suspicious symptoms.
- Women with skin distortion or signs of oedema in the skin.
- Women with unilateral eczematous skin or nipple change that does not respond to topical treatment.
- Women with nipple distortion of recent onset.
- Women with spontaneous unilateral bloody nipple discharge.
- Women with persistent unexplained axillary swelling.
- Men aged 50 years and older with a unilateral, firm subareolar mass, with or without nipple distortion, or associated skin changes.

**Routine referral**

The following patients should be referred and seen routinely:

- Women aged younger than 30 years with a lump without sinister features or other concerns.
- Women under 50 years who have nipple discharge that is from multiple ducts or is intermittent and is neither bloodstained nor troublesome
- Women with breast pain and no palpable abnormality, when initial treatment fails and/or with unexplained persistent symptoms.

**Investigations**

It is recommended that investigation prior to referral is not appropriate.[14] Once seen in the breast clinic, investigation usually involves mammography and/or ultrasound, with biopsy if appropriate. For further details of investigation and diagnostic procedures, see separate Breast Cancer article.

**Further reading & references**

1. Breast cancer incidence (invasive) statistics; Cancer Research UK.
2. Breast cancer - managing FH; NICE CKS, December 2013 (UK access only)
3. Familial breast cancer: classification, care and managing breast cancer and related risks in people with a family history of breast cancer; NICE Clinical Guideline (June 2013)
4. Primary breast cancer: ESMO Clinical Practice Guidelines for diagnosis treatment and follow-up; European Society for Medical Oncology (Aug 2013)
10. Good Medical Practice (2013); General Medical Council
12. Breast cancer - suspected; NICE CKS, June 2009 (UK access only)