

Breast and endocrine surgery

Breast cancer [240](#)
Surgical treatment of breast cancer [242](#)
Breast cancer screening [244](#)
Benign breast disease [246](#)
Acute breast pain [248](#)
Goitre [250](#)
Thyrotoxicosis [252](#)
Thyroid tumours—types and features [254](#)
Thyroid tumours—diagnosis and treatment [256](#)
Post-thyroid surgery emergencies [258](#)
Primary hyperparathyroidism [260](#)
Multiple endocrine neoplasia [262](#)
Cushing's syndrome [264](#)
Conn's syndrome [266](#)
Pheochromocytoma [268](#)

Breast cancer

Key facts

- Total of 35 000 new cases per year; 1 in 9 lifetime risk for women.
- Commonest in Western Europe; least common in Japan and Africa.
- Incidence increases with age.
- One per cent occurs in men.
- Five per cent related to identifiable genetic abnormality (BRAC1, BRAC2, ataxia–telangectasia genes.)
- Sixty per cent present as symptomatic disease; 40% during screening.

Pathological features

Eighty per cent ductal adenocarcinoma; 20% lobular, mucinous tubular or medullary adenocarcinoma. Most carcinomas believed to originate as *in situ* carcinoma before becoming invasive; 70% express oestrogen or progesterone receptors.

Clinical features

Breast lump

- Commonest presenting symptom.
- Usually painless (unless inflammatory carcinoma).
- Hard and gritty feeling.
- May be immobile (held within breast tissue), tethered (attached to surrounding breast tissue or skin), or fixed (attached to chest wall).
- Ill-defined; irregular with poorly defined edges.

Nipple abnormalities

- Nipple may be the prime site of disease (Bowen's disease), presenting as an eczema-like change.
- Nipples may be affected by an underlying cancer:
 - Destroyed.
 - Inverted.
 - Deviated.
 - Associated bloody discharge.

Skin changes

- Carcinoma beneath skin causes dimpling, puckering, or colour changes.
- Late presentation may be with skin ulceration or fungation of the carcinoma through the skin.
- Lymphoedema of the skin (*peau d'orange*) suggests local lymph node involvement or *locally advanced cancer*.
- Extensive inflammatory changes of the skin are associated with inflammatory carcinoma (aggressive form).

Systemic features

- Systemic features include weight loss, anorexia, bone pain, jaundice, malignant pleural, pericardial effusions, and anaemia.

Diagnosis and investigation

Diagnostic tests

- All breast lumps or suspected carcinomas are investigated with triple assessment.
- Clinical examination (as above).
- Radiological assessment:
 - *Mammography usual*, particularly over age 35y.
 - *Ultrasound scan* used to assess the presence of involved lymph nodes; sometimes used under age 35 because increased tissue density reduces sensitivity and specificity of mammography.
 - *MRJ* used in lobular carcinoma to assess the extent of the disease, multifocality, and the opposite breast.
- *Younger women with dense breast tissue*. For screening purpose in patients with strong family history.


Tissue diagnosis

- Core biopsy or fine needle aspiration cytology (FNAC) of the breast lesion \pm axillary nodes.
- Core biopsy also finds oestrogen receptor status, differentiates between invasive carcinomas and *in situ* carcinoma (ductal carcinoma *in situ*, DCIS).

Staging investigations

Systemic staging is usually reserved for patients following surgical treatment with a tumour who are at risk of systemic disease.

- Staging CT scan (chest, abdomen, and pelvis).
- Liver ultrasound.
- Chest X-ray.
- Bone scan.
- LFTs, serum calcium.
- Specific investigations for organ-specific suspected metastases.

Treatment Surgical treatment is described on  p. 242.

Medical treatment

In non-metastatic disease, medical therapy is adjuvant to reduce the risk of systemic relapse, usually after primary surgery. It is occasionally used as a treatment of choice of elderly or those unfit/inappropriate for surgery.

- *Endocrine therapy*.
 - Used in (o)estrogen receptor (ER) +ve patients.
 - Anti-oestrogens like tamoxifen or aromatase inhibitors (letrozole).
 - Post-menopausal patients—letrozole (caution osteoporosis).
 - Premenopausal patients—tamoxifen.
 - Herceptin—given in Her-2 receptor +ve patients.
- *Chemotherapy* (e.g. anthracyclines, cyclophosphamide, 5-FU, methotrexate). Offered to patients with high risk features (+ve nodes, poor grade, young patients).

In metastatic disease, medical therapy is palliative to increase survival time and includes:

- *Endocrine therapy*. As above.
- *Chemotherapy* (e.g. anthracyclines, taxanes, herceptin).
- *Radiotherapy*. To reduce pain of bony metastases or symptoms from cerebral or liver disease.


Surgical treatment of breast cancer

Surgery is the mainstay of non-metastatic disease. Options for treatment of the primary tumour are as follows.

Wide local excision

- To ensure clear margins.
- Commonest procedure.
- Breast-conserving, provided breast is adequate size and tumour location appropriate (not central/retro-areolar).
- Usually combined with local radiotherapy to residual breast to reduce risk of local recurrence.

Simple mastectomy

- Best local treatment and cosmetic result for large tumours (especially in small breast), central location, late presentation with complications such as ulceration.
- Also used for multifocal tumours or where there is evidence of widespread *in situ* changes.
- Adjuvant breast radiotherapy is very rarely necessary.
- Performed with reconstruction at the same time or later stage including:
 - Latissimus dorsi flap;
 - TRAM flap;
 - Prosthesis (see  p. 618).

Surgical management of regional lymph nodes

Axillary node sampling

- Minimum of four nodes should be retrieved.
- Avoids complete disruption to axillary lymph drainage, reducing risk of lymphoedema.
- Is inadequate for treatment of the axilla. If nodes are +ve, they require adjuvant radiotherapy to axilla or *axillary node clearance*.

Axillary node clearance

- Optimizes diagnosis and treatment of axilla.
- Increases risk of lymphoedema greatly.

Sentinel node biopsy

- One or two nodes primarily draining tumour identified by radioactive tracer or dye injected around tumour and node(s).
- Identify positive nodes, then require a full axillary clearance.
- Avoids major axillary surgery where not necessary.

Surgery for metastatic disease

Surgery in metastatic disease is limited to procedures for symptomatic control of local disease (e.g. mastectomy to remove fungating tumour).

Ductal carcinoma *in situ* (DCIS)

- Precancerous condition.
- Ten to fifty per cent develop invasive ductal cancers.

- Mammograms show microcalcification.
- Pathologically graded to low grade, intermediate grade, and high grade.
- DCIS is treated with wide local excision with clear margin.
- Mastectomy needed in larger breast lesions or multifocal disease.
- High grade DCIS treated by post-operative radiotherapy after wide local excision.
- Axillary surgery is not needed as there is no potential for lymph node metastasis.

Breast cancer screening

Aims

- To identify asymptomatic (hopefully early) invasive breast cancer.
- To identify asymptomatic carcinoma *in situ*.
- Features looked for on screening mammography include: spiculated calcification; microcalcification.

What is offered?

- Since 1988, population-based screening has been offered.
- Arranged regionally with centrally activated postal invitation.
- Starts age 50 and continues to age 70 (*cover peak ages of incidence of new diagnoses and excludes low risk younger women—'prevents psychological morbidity of screening the well'; plans to extend screening age group from 47–74y.*)
- Two view (lateral and oblique) mammography of both breasts.
- Suspicious or malignant-looking lesions invited for clinical assessment by standard triple assessment.

Results

- Seventy per cent of women offered it will accept screening (lowest take-up in socio-economic groups and those difficult to contact, e.g. rapidly changing addresses or no fixed address).
- Ten per cent of invasive carcinoma is not radiologically detectable (false negative rate).
- Risk of a false positive screening is approximately 25% over 10y of screening.
- For every 1000 women screened over 10y, around 200 are recalled because of an abnormal result.
 - Sixty (6%) will have at least one biopsy.
 - Fifteen (1.5%) will have invasive cancer.
 - Five (0.5%) will have DCIS.
- Absolute reduction in cancer deaths due to screening over 10y are:
 - 0.5 per 1000 at age 40.
 - 2 per 1000 at age 50.
 - 3 per 1000 at age 60.
 - 2 per 1000 at age 70.
- Studies suggest up to a 30% reduction in mortality from screen-detected early breast cancer.