

I. GROSS DESCRIPTION

Specimen

- fine needle aspirate/needle core biopsy/localization biopsy/open biopsy/segmental excision/partial mastectomy/mastectomy. Optimal fixation is important in assessing tumour type, grade, lymphovascular invasion and hormone receptor expression.
- axillary nodes: sentinel biopsy/sampling/clearance.
- size (cm) and weight (g).
- symptomatic breast cancer usually presents with a palpable lump, skin tethering, nipple rash (Paget's disease)/retraction or discharge. Asymptomatic in-situ or invasive lesions are detected at two-view mammography (80–90% sensitivity) as either linear branching microcalcifications, a discrete mass or an area of stromal distortion and spiculate density. Mammographic screening is detecting a higher yield of smaller invasive cancers and “earlier” lesions with a greater proportion of in-situ carcinoma than in the symptomatic population.
- localization biopsies should be accompanied by a post-operative specimen X-ray and have attached orientation sutures/clips in place according to a pre-agreed protocol \pm an in-situ guide wire(s). Breast-conserving surgery by wide local excision removes the tumour with a 1-cm rim of normal tissue or a more extensive cylindrical (superficial to deep) excision (segmentectomy/quadrantectomy). Partial mastectomy involves removal of the tumour and surrounding breast with an overlying ellipse of non-nipple bearing skin. Again, orientation sutures are attached allowing differential painting of surgical margins. Mastectomy removes the breast tissue and overlying skin including the nipple with the chest wall left intact. A subcutaneous mastectomy leaves the skin intact for reconstructive procedures but removes the breast tissue and nipple–areolar complex. The axillary fat and contents may be submitted in continuity, or separately as either a sampling or more usually a multipart clearance procedure. Needle core biopsies are usually 19 gauge providing three or four thin cores of tissue measuring up to 1.5–2 cm long. Gentle painting with alcian blue allows visualization at the paraffin block cutting stage and histological levels are examined until any represented mammographic

abnormality is detected. Specimen X-ray calcifications are usually seen histologically in about 80% of cases and about 50% are due to in-situ or invasive disease.

Male breast carcinoma (1% of cases) occurs in older men, presents late and has a poor prognosis. It shows the same range of morphological characteristics as female breast cancer.

Bilateral cancer occurs in younger women and is more often lobular in type. There is also a definite familial risk with breast cancer, some 20% of which can be attributed to BRCA1 and BRCA2 gene abnormalities with associated ovarian, uterine, urinary tract and colon cancers.

Tumour

Site

- right/left/bilateral.
- quadrant: 50% UOQ, 15% UIQ, 10% LOQ, 17% central, 3% diffuse (massive or multifocal). Breast cancer occurs either as a localised lesion, or, multiple invasive foci not connected by associated DCIS and clearly separated by normal breast tissue. The latter probably arise either from a number of abnormal ductulolobular units or as a result of seeding and spread from involved lymphovascular channels. Bilateral and multifocal disease (10–15%) are more frequently seen in lobular than ductal cancer.
- distances (cm) from the nipple and resection limits.

Size

- maximum dimension of invasive lesion (cm).
- maximum dimension of whole tumour (invasive + ductal carcinoma in situ (DCIS)) (cm).
- microscopic measurement updates and takes precedence over gross measurement. This is particularly so for small and poorly defined cancers, e.g. infiltrating lobular, the latter sometimes requiring specimen mapping and blocking to determine its extent.
- in multifocal carcinoma the largest tumour is used to designate the pT category.
- tumour size in a biopsy with positive margins is added to any residual in the mastectomy specimen to determine pT.

Appearance

- scirrhous/fleshy/mucoid/cystic/diffuse thickening.

Ductal carcinoma tends to form a discrete mass lesion whereas lobular carcinoma can be difficult to define clinically, radiologically, cytologically and at the laboratory dissection bench. This has obvious implications for completeness of excision in patients treated with breast-conserving surgery and the pathological assessment of the surgical margins.

Edge

- circumscribed/irregular.