

Definition

The goal of the breast examination is to determine if the breasts are normal or abnormal. If abnormal, any or all of the following may be indicated: surgical consultation, reexamination at a different time of the menstrual cycle, mammograms, and possibly ultrasound.

Technique

Basic requirements for a proper breast examination include the following:

- Patient undressed down to the waist.
- Examining table with access from both sides.
- A mobile bright light with an assistant to focus the light from one area to another as the examination is being conducted.

Adequate breast examination is performed by careful inspection and palpation. This requires a routine planned procedure with several changes in the patient's position and meticulous palpation of the entire extent of the breasts, which commonly cover most of the anterior chest wall. Figure 176.1 shows the steps in a thorough breast examination.

When visual or manual examination discloses something suspicious (Figure 176.2), other maneuvers and reexamination are required. A comparison of the physical findings of one segment of the breast with adjacent breast tissue and the corresponding segment of the opposite breast is often helpful. A borderline area of thickening or subtle suggestion of a skin change can more accurately be assessed in this way.

Basic Science

The glandular tissue of the breast is suspended within the superficial fascia of the anterior chest wall, extending roughly from the second to the sixth or seventh anterior intercostal space and from the edge of the sternum to the midaxillary line. About two-thirds of it rests upon the fascia covering the pectoralis muscle and the rest upon the fascia of the serratus anterior muscle. Toward the axilla, the axillary tail of Spence passes through an opening in the pectoral fascia, the foramen of Langer, into the axilla.

The nonlactating breast weighs about 150 to 200 g but the lactating breast may weigh as much as 400 to 500 g. The glandular tissue is made up of 12 to 20 lobes that are subdivided into lobules composed of acini. Overlapping of lobes ensures that no cleavage planes exist to separate one from another. The lobes are arranged like the spokes of a wheel converging on the nipple and each has a dilated ampulla just before it ends. The breast is fixed to the overlying skin

and the underlying pectoral fascia by fibrous bands known as Cooper's ligaments.

The glandular tissue undergoes changes from birth to old age. At birth, both female and male breasts contain a simple system of large ducts but no lobules. The ducts are lined by flattened epithelium and surrounded by collagenous tissue. With the onset of puberty in the female, rapid growth of ductal epithelium and periductal fibrous stroma increases the size of the breasts which are quite firm. With the onset of maturity true lobules and acinar structures develop. In the male breast lobules never develop, so the male never develops the variety of breast cancer called lobular. In pregnancy there is a marked proliferation (multiplication) of the glandular elements that regress to normal after pregnancy and lactation. At menopause there is continuous involution (regression) of breast structures with resulting loss of glandular elements and atrophy of the breast.

Clinical Significance

Cancer is the most significant finding on breast examination. Tumors are of variable size and irregular shape. The contour may be poorly defined or there may be thickening of breast tissue only. Exceptions are the circumscribed variety (papillary, mucinous, or medullary), which comprise less than 10% of breast cancers. Consistency is usually hard (circumscribed varieties are usually soft). The mass is usually not movable in relation to the surrounding breast tissue but can be moved independent of the skin and chest wall except in more advanced stages of disease. Tenderness is uncommon, and breast cancers are usually solitary.

Benign cysts vary in size. Their shape may be rounded, oval, or discoid, and the contour is well defined. Their consistency is rubbery to firm, though occasional fluctuations are seen. Benign cysts are highly mobile both within the breast tissue and related to the chest wall and skin. Except in the occasional inflamed cyst, tenderness is absent to mild. Cysts are usually multiple.

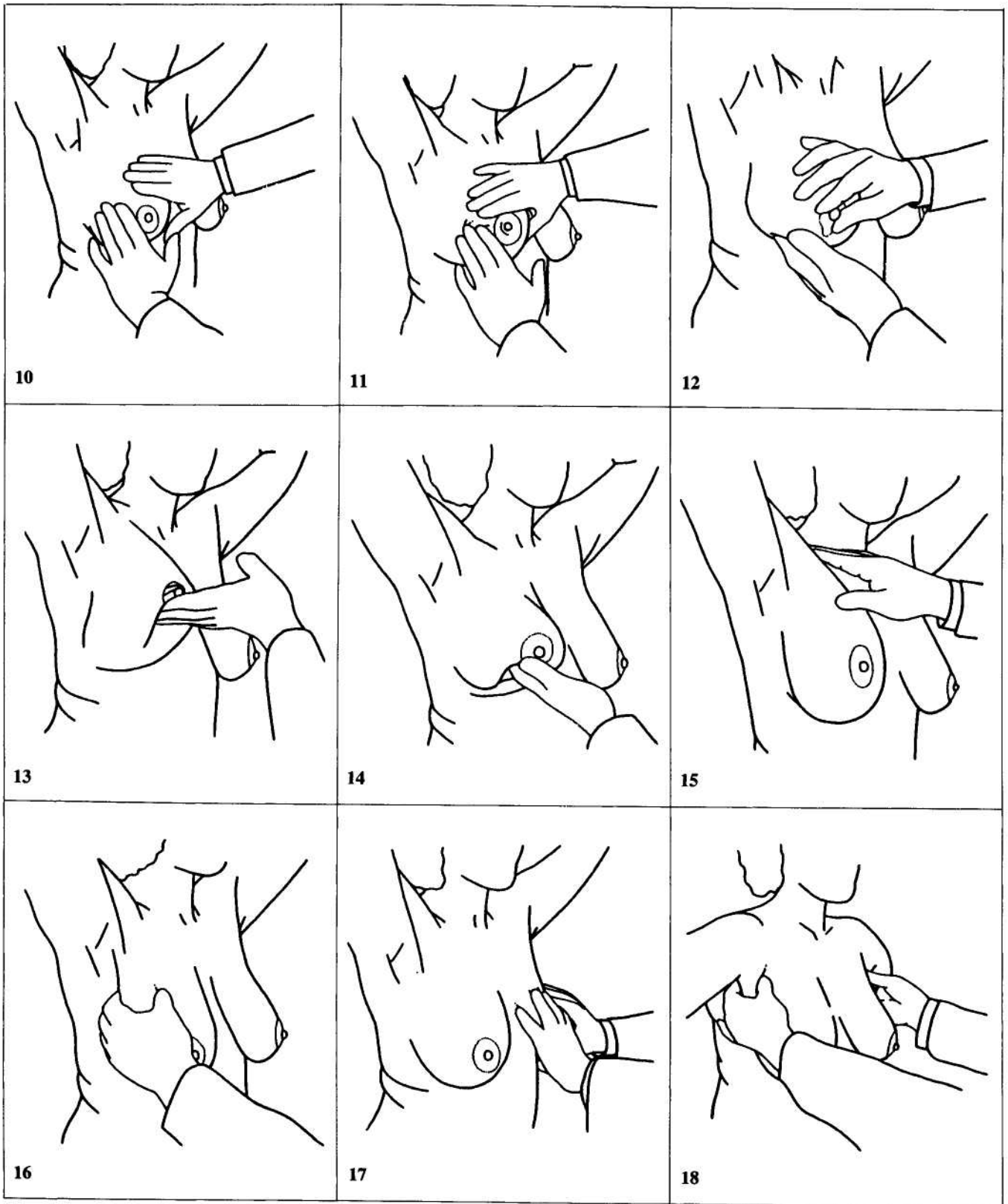
Adenosis, papillomatosis, and fibrous hyperplasia are all benign solid types of cystic disease. The masses vary in size and their contour is smooth or lobulated. They commonly involve the central and upper, outer quadrants, where they range from diffuse firmness (fibrous hyperplasia) to multiple 4 to 5 mm nodules (adenosis). No three-dimensional lesions are found. Contour is poorly defined in hyperplasia, well defined in adenosis. Consistency is firm to hard. These lesions have limited mobility from the surrounding breast tissue but are not attached to the skin or chest wall. Multiple areas of involvement are the norm.

Fibroadenomas also vary in size. They are rounded, oval, and commonly lobulated with a well-defined contour. A notch similar to the hilum of the kidney is a frequent finding. The consistency is usually rubbery but occasionally may be soft. These lesions are highly mobile (hence the name



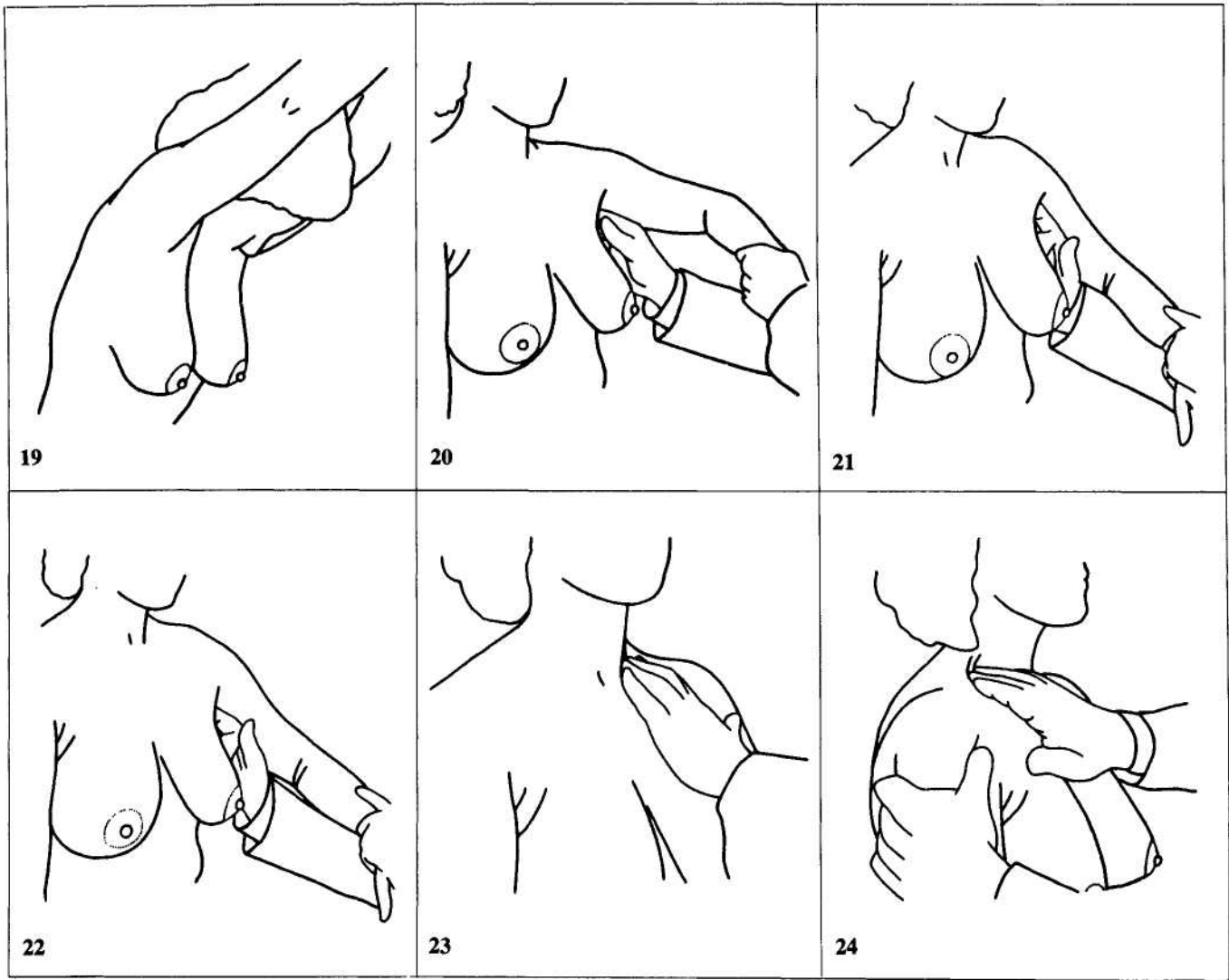
A

Figure 176.1
The breast examination.



B

Figure 176.1 (Continued)



C

Figure 176.1 (Continued)

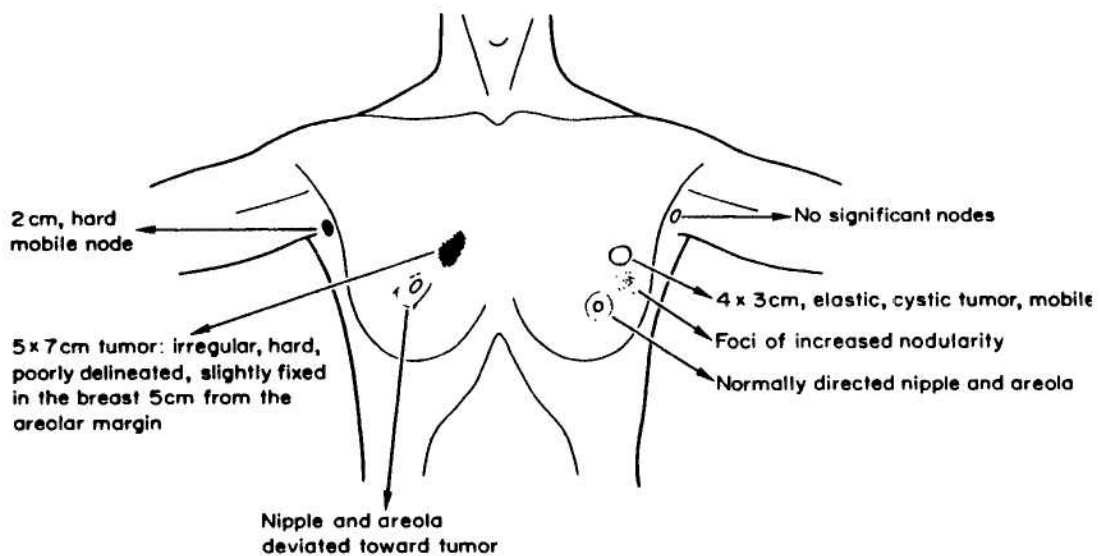


Figure 176.2
Abnormalities that may be discovered on breast examination.

“slipper tumor”). Tenderness is rare. Fibroadenomas are commonly multiple, occurring either simultaneously or sequentially over time.

Nipple discharge may be a sign of *duct ectasia and stasis* or *intraductal papilloma* or *intraductal carcinoma*. A bloody, single-duct, spontaneous discharge with or without a small, soft mass beneath the areola is indicative of an intraductal papilloma. A multiple-duct, nonspontaneous, gray, green, grumous discharge with “bag of worms” soft changes beneath the areola is indicative of duct ectasia and stasis.

Skin changes, usually associated with the presence of a mass, may be subtle or obvious. These include erythema, edema, and dilated subcutaneous veins. *Erythema* is commonly diffuse in acute and chronic inflammatory processes and inflammatory carcinoma of the breast. It is usually localized when associated with a superficial cancer, commonly with skin involvement or trauma, with fat necrosis, or with breast abscess. *Edema* may be due to blockage of subdermal lymphatics by tumor cells or an inflammatory process within the breast or axilla. This edema produces the so-called *peud'orange* skin change seen in locally advanced cancer or inflammatory carcinoma. *Dilated subcutaneous veins*, when associated with an underlying mass or thickening, are highly suggestive of a rapidly growing malignant process (cancer or cystosarcoma phyllodes).

Convex skin changes are usually associated with an underlying mass (lipoma, large fibroadenoma, or cystosarcoma phyllodes). *Retraction phenomena* (concave changes of the skin of the breast) range from a small area of skin flattening in the vicinity of an underlying tumor or area of thickening, to shrinkage of most of the skin of the breast. They usually result from shortening of Cooper's ligaments due to fibrosis. Carcinoma is the most common cause and is usually associated with a distinct mass or very subtle underlying thickening in the breast tissue. Benign causes of such phenomena are inflammation, fat necrosis, biopsy scars, and atrophic changes associated with ptosis of the breast, commonly lat-

eral to the nipple and areola and in the upper, outer quadrants.

Ulceration of the skin of the breast over an underlying mass or area of thickening is usually due to carcinoma. When centrally located with a history of recurrent abscesses, it is due to end-stage duct ectasia and stasis (chronic recurring subareola abscess).

Enlarged (greater than 1 cm), rounded, firm, usually nontender *axillary nodes* in association with a mass or a suspicious thickening of the breast strongly suggest metastatic involvement from a primary tumor in the breast. However, clinical assessment of the axillary node status to identify metastases is at best 70% accurate.

Supraclavicular nodes palpable in the supraclavicular fossa on the side ipsilateral to suspected or proven breast cancer are usually due to metastases.

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