COMPARATIVE AND SURGICAL ANATOMY

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The breast in adult females overlies the pectoral region, extend ing from the second rib above to the sixth rib or inframammary crease below . Medially it extends to the lateral border of the sternum and laterally it reaches the anterior axillary line or the mid-axillary line. In adult males the breast tissue is rudimen tary and about 2 /uni00A0 cm in diameter; it lies deep to the areola and extends up to the areolar edge. The anatomy of the breast is illustrated in Figure 58.1 and 58.1 . The axillary tail of the breast is palpable in some w and can be seen in the premenstrual period or during lactation. A well-developed axillary tail is sometimes mistaken for a mass of enlarged lymph nodes, a breast mass or a lipoma. The breast parenchyma consists of ductolobular and supportive tissue. The terminal ductule together with the lobule constitute the t erminal d uctal l obular u nit, which is referred to by the acronym TDLU. The TDLU is the most active part of the breast tissue and responds to a number of hormones: - namely , oestrogen, progesterone, prolactin and growth hor - mone. There are five to nine major lactiferous (milk) ducts carrying milk from the lobes. Approximately 10–100 lobules empty via ductules into a lactiferous duct. Each lactiferous duct - is lined with a spiral arrangement of contractile myoepithelial cells. Most diseases of the breast arise from the TDLU. About 50% of the ductolobular tissue is located in the upper outer omen quadrant and about 20% in the central region. Hence, during breast examination particular attention must be paid to the upper outer quadrant, r etroareolar region and the nipple– areola complex. The supportive tissue of the breast comprises fibrous tissue in the form of suspensory ligaments of Cooper, adipose

Clavicle Second rib Pectoralis major muscle Intercostal muscle Intercostal vessels and nerves Lung Retromammary fat Sixth rib Figure 58.1 Cross-sectional anatomy of the breast. Types and management of mastitis • Modern management of breast cancer • Pectoral fascia Premammary fascia Suspensory ligament of Cooper Ampulla Nipple and areola Lactiferous duct Mammary lobules Subcutaneous fat

of Cooper are attached to the undersurface of the dermis superficially and to the pectoral fascia deeply . The areola and nipple contain involuntary muscle arranged in concentric rings as well as radially in the subcu taneous tissue. The circular muscle fibres constitute Sappey’s muscle (causes erection of the nipple), whereas longitudinal fibres form the Myerholtz muscle (causes retraction of the nipple). The areolar epithelium contains n umerous sweat glands and sebaceous glands; the latter enlarge during preg nancy and serve to lubricate the nipple during lactation (Mont gomery’s tubercles). The nipple is covered by thick skin with corrugations. Near its apex lie the orifices of the lactiferous ducts. The lymphatics of the breast drain predominantly into the axillary and internal mammary lymph nodes. The axillary nodes receive appro ximately 85% of the lymph from the

breast and are arranged in the following g roups: /uni25CF lateral nodes along the lower border of the axillary vein lying lateral to the thoracodorsal vascular pedicle; /uni25CF anterior or pectoral nodes between the lateral borders of pectoralis major and pectoralis minor and the lateral tho racic vessels; these are the sentinel lymph nodes in most patients; /uni25CF posterior along the subscapular and thoracodorsal vessels just anterior to the latissimus dorsi muscle; /uni25CF a central or medial group of nodes embedded in fat in the centre of the axilla; /uni25CF interpectoral or Rotter's nodes – a few nodes lying between the pectoralis major and minor muscles; /uni25CF apical nodes that lie above and medial to the pectoralis minor tendon and lateral to the first rib; the apical nodes receive the e ff erent lymphatic channels from all the axillary nodes. The apical nodes are in continuity with the supraclavicular nodes and drain into the subclavian lymph trunk, which enters Sir Astley Paston Cooper , 1768–1841, surgeon, Guy's Hospital, London, UK, described these ligaments in 1845. Marie Philibert Constant Sappey , 1810–1896, French anatomist who published his comprehensive atlas in 1874. William Fetherston Montgomery , 1797–1859, obstetrician, Dublin, Ireland, described these tubercles in 1837. Josef Rotter , 1857–1924, German surgeon, described these nodes in the early nineteenth century . Surgically the axillary lymph nodes are classified into three levels: /uni25CF level I , below and lateral to the lateral border of the - pectoralis minor muscle (the majority); /uni25CF level II , in front of and behind the pectoralis minor muscle (including Rotter's nodes); /uni25CF level III , above and medial to the medial border of pectoralis minor. - - The internal mammary nodes lie along the internal mam - mary vessels deep to the plane of the costal cartilages and just superficial to the parietal pleura. These drain the medial half of the breast.

Triple assessment Imaging Pathology Clinical History Ultrasonography Core biopsy Examination Mammography Con /f_i dent diagnosis in 99.9% of cases Figure 58.2 Triple assessment.

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