



The Breast

Susan C. Lester

CHAPTER CONTENTS

Disorders of Development 1044
 Milk Line Remnants 1044
 Accessory Axillary Breast Tissue 1045
 Congenital Nipple Inversion 1045
Clinical Presentations of Breast Disease 1045
Inflammatory Disorders 1046
 Acute Mastitis 1046
 Squamous Metaplasia of Lactiferous Ducts 1046
 Duct Ectasia 1046
 Fat Necrosis 1047
 Lymphocytic Mastopathy (Sclerosing Lymphocytic Lobulitis) 1047
 Granulomatous Mastitis 1047
Benign Epithelial Lesions 1048
 Nonproliferative Changes (Fibrocytic Changes) 1048

Proliferative Breast Disease Without Atypia 1048
Gynecomastia 1049
 Proliferative Breast Disease with Atypia 1050
 Clinical Significance of Benign Epithelial Changes 1051
Carcinoma of the Breast 1051
 Incidence and Epidemiology 1052
 Etiology and Pathogenesis 1054
Familial Breast Cancer 1054
Sporadic Breast Cancer 1055
Molecular Mechanisms of Carcinogenesis and Tumor Progression 1055
Types of Breast Carcinoma 1057
 Carcinoma in Situ 1057
Ductal Carcinoma in Situ (DCIS) 1057
Lobular Carcinoma in Situ 1059

Invasive (Infiltrating) Carcinoma 1060
 Special Histologic Types of Invasive Carcinoma 1064
 Male Breast Cancer 1066
 Prognostic and Predictive Factors 1066
Stromal Tumors 1068
 Fibroadenoma 1069
 Phyllodes Tumor 1069
 Lesions of Interlobular Stroma 1070
 Malignant Tumors of Interlobular Stroma 1070
Other Malignant Tumors of the Breast 1070

Three important features distinguish the breast from other organs. First, the major function is the nutritional support of another individual, the infant. Second, the structure of the organ undergoes marked periodic changes during adulthood, particularly during pregnancy, before involuting with age. Finally, breasts are visible and, as a result, have a social, cultural, and personal significance not shared by other organs. All of these features play a role when considering the origins, presentations, and treatment of breast disease.

Understanding diseases of the breast requires a working knowledge of its normal anatomy and cellular constituents, which include two major structures (ducts and lobules), two types of epithelial cells (luminal and myoepithelial), and two types of stroma (interlobular and intralobular). Each element is the source of both benign and malignant lesions (Fig. 23-1). Six to 10 major duct orifices open onto the skin surface at the nipple. The superficial portions are lined by keratinizing squamous cells that abruptly change to the double-layered epithelium (luminal and myoepithelial cells) of the remainder of the duct/lobular system. Successive branching of the large ducts eventually leads to the terminal duct lobular unit. In adult

women, the terminal duct branches into a grapelike cluster of small acini to form a lobule (Figs. 23-1 and 23-2B). In some women, ducts extend into the subcutaneous tissue of the chest wall and into the axilla.

In the prepubertal female breast and in males, the large duct system ends in terminal ducts. Changes in the breast are most dynamic and profound during the reproductive years of females (Fig. 23-2). Just as the endometrium grows and ebbs with each menstrual cycle, so does the breast. In the first half of the menstrual cycle the lobules are relatively quiescent. After ovulation, under the influence of estrogen and rising progesterone levels, cell proliferation increases, as does the number of acini per lobule. The intralobular stroma becomes markedly edematous. Upon menstruation, the fall in hormone levels induces the regression of the lobules and the disappearance of edema.

Only with the onset of pregnancy does the breast become completely mature and functional. Lobules increase progressively in number and size. By the end of the pregnancy the breast is composed almost entirely of lobules separated by relatively scant stroma (Fig. 23-2C). Immediately after parturition, the lobules produce