BOOK REVIEW

Breast Cancer and Its Precursor Lesions: Making Sense and Making It Early

Breast cancer is the most common cause of death in women worldwide. Breast cancer treatment involves surgery, radiotherapy, chemotherapy, and hormonal therapy in different therapeutic regimens. Pathologists play a crucial role in the diagnosis and management of disease enabling other specialists to select the best therapeutic regimen for an individual breast cancer patient. However, it is often difficult to understand and interpret pathology reports and recommendations for surgeons, oncologists and scientists. Knowledge and better understanding of pathologic assessment techniques as well as behaviour of cancerous and precancerous breast diseases may lead to more complex pathology reports and then better diagnosis and management of breast cancer therapy. The book covers the common breast cancer conditions and diseases and is very helpful to non-pathologists like clinicians, surgeons, residents, scientists, and even patients to better understand the pathology reports and diagnosis of breast cancer. The text is divided into seven chapters describing the pathologic conditions of the breast, diseases, and how to read and write pathology reports. All chapters are supplemented by illustrations, tables and sufficient amount of references. All contributors to this book are highly regarded experts in pathology and laboratory medicine.

Chapter 1: Overview by Patricia A. Thomas

The first chapter presents basic data and information on breast cancer incidence, epidemiology and risk factors associated with breast cancer as well as prognostic and predictive factors used in clinical practise (e.g. racial differences). Prognostic and predictive markers are described although microarray systems (MammaPrint, Oncotype DX) identifying genetic markers are not mentioned.

Chapter 2: Common benign conditions of low concern by Fang Fan and Patricia A. Thomas

This chapter is devoted to benign breast conditions. It briefly describes breast structure and the anatomy of glands (lobules and ducts). Benign abnormalities are divided into two categories: a group with no risk for developing breast cancer, such as acute mastitis, subareolar abscess, mammary duct ectasia, fat necrosis or lymphocytic mastopathy/diabetic mastopathy and nonproliferative fibrocystic changes; and a group with increased risk of developing breast cancer. Attached figures demonstrate mentioned benign abnormalities. Finally, it contains interpretation of pathology reports describing the structural abnormalities of breast samples seen by microscope. In reports, type of samples is stated and microcalcifications are identified.

Chapter 3: Benign conditions associated with a risk for the subsequent development of cancer by Patricia A. Thomas

In the third chapter, general breast abnormalities associated with risk of breast cancer development are described and illustrated. Communication and collaboration between pathologists, radiologists and clinicians is necessary for successful evaluation and determination of the importance of pathology findings in prognosis and prediction of breast cancer therapy. The pathology report should be straightforward and it should involve description of microcalcification status, proliferative lesions and atypical hyperplasia of any kind associated with increased risk of breast cancer.

Chapter 4: Precursor lesions and non-invasive cancers by Joan Cangiarella and Fang Fan

Chapter 4 gives a detailed description of the lobular neoplasia diagnosis. Lobular neoplasia includes atypical lobular hyperplasia (ALH) and lobular carcinoma in situ (LCIS). The distinction between ALH and LCIS is based on the extent of epithelial proliferation. It is usually discovered as an incidental microscopic finding in a breast specimen removed for another reason. Lobular neoplasia is associated with increased risk of breast cancer development (7–12 times). There are few guidelines and recommendations for treatment of lobular neoplasia (e.g. careful observation, physical examination and mammogram diagnostic). The extent of the LCIS or ALH should be mentioned in the pathology reports with recommendation for further examination.

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This chapter provides information on ductal carcinoma in situ (DCIS) characterized by proliferation of cancerous cells in ducts or lubules with no invasion through membrane as well as the risk factors, diagnosis and clinical presentation of DCIS. DCIS is associated with increased risk of invasive breast carcinoma development (8–11 times). In the pathology reports, DCIS should be described in detail with architectural pattern of DCIS. The chapter presents all important characteristics and features of DCIS included in pathology reports.

Chapter 5: Breast Cancer by Fang Fan

This chapter is mainly focused on invasive ductal carcinoma, invasive lobular carcinoma and other special types of breast cancer. The risk factors, diagnosis and clinical presentation of mentioned types of breast cancer are summarized and accompanied with illustrations of different grades of invasive ductal and lobular carcinomas as well as typical images of invasive tubular carcinoma, mucinous carcinoma and medullary carcinoma. Genetic mutations like BRCA1 and BRCA2, Li-Fraumeni, and Cowden syndromes are mentioned among the risk factors of breast cancer. Deciphering of the Pathology Report summarizes presentation of all available prognostic factors (histological grade, tumor size, lymph node metastasis, presence of lymphatic invasions, presence of hormone receptors and margin status). Many other factors are suggested to be important for breast cancer prognosis, such as Her-2/neu expression, DNA ploidy, proliferation markers such as Ki-67 or p53. All features of invasive ductal carcinoma and invasive lobular carcinoma (the same features used for ductal carcinomas and the presence of E-cadherin) that should be included in pathology reports are presented in this chapter. In addition, some other special types of breast cancer and their inci-

dence are mentioned here, such as tubular carcinoma, mucinous carcinoma, medullary carcinoma, invasive papillar carcinoma, apocrine carcinoma or metaplastic carcinoma. The pathology diagnosis should clearly identify the type of breast cancer and give detailed description of it.

Chapter 6: Things pathologists must always consider by Joan Cangiarella and Chapter 7: Nuances and details of the pathology report by Fang Fan

The last chapters summarize all features and characteristics which pathologists must always consider. Special attention has to be paid to the rare lesions (fibromatosis, fat necrosis, granulomatous mastitis, radial scar or granular cell tumor). Mammograms of these types of lesions are shown in chapter 6. It also contains general components of any pathology reports and discusses limitations of biopsy techniques used for diagnostic analysis. Chapter 7 includes basic characteristics and general recommendation for the pathology report.

This book summarizes all breast conditions and diseases and describes essential features and characteristics that pathology reports should contain. The best way how to establish the most appropriate diagnosis of breast cancer is using the "triple test" – clinical/radiologic/pathologic correlation. Cooperation between these specialists and experts in laboratory medicine is crucial for the diagnosis and subsequently the most efficient therapeutic management of breast cancer. This book allows non-pathologists to understand and familiarize themselves with pathologic findings and decipher the language of breast pathology.

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