Preface

Due to its rapid development in recent years, hematopathology has become a very complex discipline. The current development is mainly in two aspects: the new classification of lymphomas and leukemias, and new techniques.

The Revised European – American Classification of Lymphoid Neoplasms (REAL classification) and the World Health Organization (WHO) classification of hematologic neoplasms require not only morphologic criteria but also immunophenotyping and molecular genetics for the diagnosis of hematologic tumors. Immunophenotyping is performed by either flow cytometry or immunohistochemistry. There are many new monoclonal antibodies and new equipment in recent years that make immunophenotyping more and more accurate and helpful. There are even more new techniques invented in recent years in the field of molecular genetics. In cytogenetics, the conventional karyotype has been supplemented and partly replaced by the fluorescence in situ hybridization (FISH) technique. The current development of gene expression profiling is even more powerful in terms of subtyping the hematologic tumors, which may help to guide the treatment and predict the prognosis. In molecular biology, the tedious Southern blotting technique has been largely replaced by the polymerase chain reaction (PCR). The recent developments in reverse-transcriptase PCR and quantitative PCR make these techniques even more versatile.

Because of these new developments, hematopathology has become too complex to be handled by a general pathologist. Many hospitals have to hire a newly trained hematopathologist to oversee peripheral blood, bone marrow, and lymph node examinations. These young hematopathologists are geared to the new techniques, but most of them are still inexperienced in morphology. No matter how well-trained a hematopathologist is, they still need to see enough cases so that they can recognize the morphology and use the new techniques to substantiate the diagnosis. In other words, morphology is still the basis for the diagnosis of lymphomas and leukemias.

Therefore, a good color atlas is the most helpful tool for these young hematopathologists and for surgical pathologists who may encounter a few cases of hematologic tumors from time to time. In a busy daily practice, it is difficult to refer to a comprehensive hematologic textbook all the time. There are a few hematologic color atlases on the market to show the morphology of normal blood cells and hematologic tumor cells. These books are helpful but not enough, because tumor cell morphology is variable from case to case and different kinds of tumor cells may look alike and need to be differentiated by other parameters.

The best way to learn morphology is through the format of clinical case study. This format is also consistent with the daily practice of hematopathologists and with the pattern in all the specialty board examinations. Therefore, it is a good learning tool for pathology residents and hematology fellows as well as medical students.

This book presents 85 clinical cases with clinical history and morphology of the original specimens. This is followed by further studies with pictures to show the test results. The reader is expected to make a preliminary diagnosis on the basis of the material provided before turning to the answer. At the end, a concise discussion and a correct diagnosis are rendered. The list of references is not exhaustive, but it provides the most recent information, current up to 2008. In fact, the entire book is based on the 2008 WHO classification.

The major emphasis is the provision of more than 500 color photos of peripheral blood smears, bone marrow aspirates, core biopsies, lymph node biopsies, and biopsies of other solid organs that are involved with lymphomas and leukemias. Pictures of other diagnostic parameters, such as flow cytometric histograms, immunohistochemical stains, cytogenetic karyotypes, fluorescence in situ hybridization, and polymerase chain reaction, are also included.

A comprehensive approach with consideration of clinical, morphologic, immunophenotypic and molecular genetic aspects is the best way to achieve a correct diagnosis. After reading this book, the reader will learn to make a diagnosis not only based on the morphology alone but also in conjunction with other parameters.

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