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## Preface

The past 30 years bear witness to a profound evolution in our ability to diagnose pediatric cancers. What were once common diagnostic dilemmas are now routinely categorized with the help of ancillary tests such as immunohistochemistry, fluorescence in situ hybridization, and a myriad of molecular diagnostics tools. We are now moving into an unprecedented new realm wherein personalized medicine will require panels of tests not only for diagnosis but also for customizable therapy guided by somatic mutation analysis. As our ability to diagnose pediatric cancer has steadily grown, our diagnostic specimens have shrunk. Previous surgical approaches often required complete and sometimes radical tumor excision prior to embarking on therapy. Now, however, we initially obtain small biopsies for tumors that are treated with neoadjuvant therapy and subsequently excised. These biopsies may include fine-needle specimens that minimize the cost and morbidity of biopsy. Unlike the images of classical pathology texts, our gross excisions are now often distorted by the results of chemoreductive therapy. This makes gross pathology less useful for diagnosis, while increasing our reliance on imaging studies for evaluation of patient material. Despite the sophistication of genetic advances, the importance of a solid diagnostic foundation based on routine microscopy and diagnostic imaging studies continues to have a prominent place in daily clinical practice.

Many common denominators are shared between diagnostic pathology and diagnostic imaging, despite differences in the tools of each of the trades. Both necessitate a broad fund of knowledge of human diseases, a reliance on morphological skills, attention to intricate details, and a mastery of judicious use of complex techniques to examine tissues and organs. In spite of such interdependence, few textbooks address the important interplay between pathology and diagnostic radiology. It is our hope and intention that this textbook will offer pathologists a basic knowledge of diagnostic imaging and will give diagnostic radiologists a fundamental understanding of the pathology of pediatric cancers. We strongly believe that such knowledge inevitably leads to better patient care, our ultimate common denominator. This book is recommended for pathologists, radiologists, and oncologists who diagnose and treat childhood cancers. It is also intended to serve as a reference for those who wish a more in-depth knowledge of diagnostic imaging, pathology, and genetic approaches to childhood cancers. Because of page limitations, we have purposely avoided reference to benign entities, except within the context of a differential diagnosis. However, some entities that are included may have a “benign” behavior in the majority of patients, but possess the potential for metastasis in some. Our ability to predict metastasis is evolving, and we expect that future studies will yield more reliable ways to determine metastatic potential.

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