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## Neuroblastoma: Pediatric Oncology

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many as one third of patients initially diagnosed as having ADEM eventually are diagnosed with MS.

A separate section of the book deals with immune-mediated disorders and their affect on white matter. Included are chapters on primary CNS angiitis, systemic lupus erythematosus, noninflammatory diseases of the CNS, which may affect areas of the brain other than white matter such as Beçhet disease, antiphospholipid antibody syndrome, and Sjogern syndrome. The chapters on the normal aging brain and the ever-present white matter abnormalities in cerebrovascular disease (leukoaraiosis) received special attention; these are clearly important issues, because all interpreters of MR constantly wonder whether the amount of white matter disease is in keeping with the patient's age or reflects some subclinical vascular disease. Other subjects covered well include chapters on viral diseases in immunocompetent and immunocompromised patients, white matter changes in neoplastic disease (which incidentally includes examples of multi-voxel magnetic resonance spectroscopy to show metabolic alterations in surrounding white matter, in addition to demonstrating perfusion MR and functional MR). Head trauma and psychiatric disorders round out the book.

In summary, this text brings under one roof the imaging concepts involved in evaluating white matter disease. It successfully integrates clinical and imaging information and can, for that reason, be recommended as a reference text for a departmental library.

## BOOK REVIEW

### Neuroblastoma: Pediatric Oncology

N.-K.V. Cheung and S.L. Cohn, eds. Heidelberg: Springer-Verlag; 2005, 298 pages, 51 illustrations, 48 tables, \$129.

The "medical enigma" of neuroblastoma, a childhood neoplasm arising from neural crest elements and accounting for approximately 7% of all cancers in children younger than 15 years of age, challenges pediatric oncologists to tackle the genetics, biologic behavior, and the diverse (sometimes unpredictable) clinical course of this disorder. Cheung and Cohn have organized the contributions of an extensive list of pre-eminent researchers and clinicians specializing in neuroblastoma into a concise but information-packed text.

The highly detailed table of contents that opens the volume enables the reader needing specific information to locate accurate and detailed text relevant to an area of concern quickly and precisely.

Beginning with the epidemiology, and various screening methods that were used internationally and subsequently abandoned, the first 2 chapters provide a historical and societal framework in which the reader can understand the impact this

disorder—and screening programs—have had on many industrialized nations. Chapters discussing the complex genetics and molecular cytogenetics of neuroblastoma follow. These are well written and make the complicated subject matter easy to understand. Similarly, the next 2 chapters on molecular and developmental biology and cellular heterogeneity are comprehensive and well written. Chapters on the molecular and developmental biology and cellular heterogeneity outline the unusual biologic behavior of these lesions, including a concise review of neural crest cellular lineage and relevant signaling molecules.

Chapter 7 begins the most relevant of the chapters for the practicing neuroradiologist—specifically, clinical presentation—followed by chapters detailing the macroscopic, microscopic, and molecular pathology of neuroblastoma and related tumors, including the various forms of ganglioneuroblastoma and ganglioneuroma.

The anatomic and functional imaging section (chapter 10) reviews the imaging features and current imaging practice for optimal diagnosis and follow-up of neuroblastoma patients. Tables 10.1 and 10.2 detailing the radiation doses, oral and intravenous contrast administration recommendations, and sedation/general anesthesia required for CT scanning should be considered "guidelines" at best, and readers should refer to their institutions, policies, particularly regarding radiation doses, methods of contrast administration, NPO times, and sedation practices. Table 10.3, which highlights the suggested MR imaging techniques for evaluation of these children, is confusing, as is Table 10.4, which describes the scanning principles and scan techniques for technetium-Tc99 m bone scintigraphy. Appropriately, more emphasis is placed on the section regarding metaiodobenzylguanidine scintigraphy, the highly specific scan for the detection of neuroblastoma in the pediatric patient.

The remainder of the text focuses on the treatment of neuroblastoma. The best of these chapters (chapter 11) includes multiple subsections detailing the current chemotherapy and radiation treatment options for low-, intermediate-, and high-risk neuroblastoma, as well as the unusually behaving stage-4S disease. For radiologists who image these children, familiarity with the various treatment regimens and their common complications is crucial. The most commonly used surgical approaches are nicely outlined in a series of schematic drawings, which can also aid radiologists who interpret the postoperative images in these children.

The final chapter, which would be expected to be of particular interest to the practicing or training neuroradiologist, addresses the management of neurologic complications. These include direct spinal canal involvement from retroperitoneal lesions and hematogenous dissemination to the central nervous system. Perhaps the most unusual, though, is the opsoclonus-myoclonus syndromes, also known as Kinsbourne syndrome, a neurobehavioral paraneoplastic syndrome seen in fewer than 4% of all neuroblastoma patients.

Overall this is a well-written, authoritative text on neuroblastoma and related disorders. The reader searching for a specific piece of information should readily find it via the detailed index of content and the plethora of informative tables and figures. Although this would make an excellent addition to the library of an academic neuroradiology or pediatric radiology department, the average practicing radiologist would have very limited need for this highly specialized monograph.

