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## Brain Tumor Pathology: Current Diagnostic Hotspots and Pitfalls

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both chapters do an excellent job of maintaining a clinical focus, and both include helpful examples of fMRI paradigms, as well as sections devoted to technical challenges. These are substantially more detailed for the auditory than the visual system, and the auditory chapter includes a review of relevant anatomy that the visual chapter lacks.

Chapter 15 addresses the peculiarities of pediatric fMRI and features a highly practical discussion of such issues as subject movement and sedation, as well as the developmental, neurologic, hemodynamic, and behavioral differences from adults that are most relevant to fMRI. A brief chapter 16 devoted to fMRI of clinical pain might have been excluded, given the paucity of literature in this area and the limited clinical relevance currently; its inclusion speaks to the editors' laudable effort to provide as complete an overview as possible. Pharmacologic applications are addressed in chapter 17, which includes only a brief discussion of the mechanisms by which drugs may alter the BOLD signal intensity, including at the level of neurovascular coupling and/or strictly neural or strictly vascular levels. The chapter also includes excessive off-topic coverage of several other imaging modalities; in its place I would like to have seen a discussion of specific agents and their effect on the BOLD signal intensity (especially the ubiquitous caffeine, which receives no mention despite its well-known neural and vascular effects).

The bulk of chapter 18, covering cognitive neuroscience applications, belongs more properly in part 1, because it addresses such fundamental issues as the hemodynamic response, paradigm design, temporal/spatial resolution, statistics, and so forth. This material, though important and well written, is largely redundant with other portions of part 1. The final chapter, written by the editors and titled "Clinical Overview and Future fMRI Applications," is a superfluous and scattershot overview of the previous 12 chapters (part 3), peppered with samples of the authors' own work that seem random and out of place. The appendix offers an introduction to the relatively obscure application of independent component analysis to the processing of fMRI data; this is a puzzling choice for an appendix topic, more suited to an overview of fMRI statistical procedures than a book on basic principles and clinical applications.

It is difficult to identify an audience to whom the book can be recommended wholeheartedly. Young fMRI researchers would certainly benefit from a careful reading of the introductory material, after which they would probably use whatever chapter(s) pertain to their area of study as an entrée to the relevant journal articles; experienced researchers may be better served going straight to the original articles. The more clinically oriented reader to whom the book is ostensibly targeted can find much useful information within its pages but may grow frustrated sifting through the more research-oriented topics, sorting out redundantly covered material, and finding much of the discussion poorly matched to his or her level of previous knowledge. On the other hand, today's research is tomorrow's clinical practice, and anyone seeking a fairly comprehensive overview of fMRI principles and applications in a wide variety of settings may find this amply illustrated and referenced book just the ticket.

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## BOOK REVIEW

### Brain Tumor Pathology: Current Diagnostic Hotspots and Pitfalls

D. Schiffer, ed. New York: Springer; 2006, 272 pages, 151 illustrations, \$129.00.

This monograph by an accomplished neuropathologist is centered largely on contemporary difficulties encountered in the histopathologic diagnosis of brain tumors. Particularly useful are his approaches to oligodendrogliomas and their anaplastic variants; distinctions among mixed astro-oligodendrogliomas, pleomorphic xanthoastrocytoma (PXA), and juvenile pilocytic astrocytoma; ependymoma and its anaplastic variant; differentiation of ganglioglioma from oligodendroglioma, dysembryoplastic neuroepithelial tumor, cortical dysplasias, PXA, and juvenile pilocytic astrocytoma; and pitfalls in overinterpreting anaplastic features in the latter tumor.

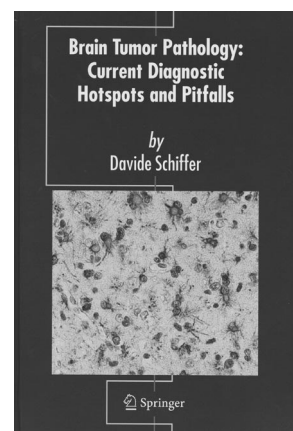
The author also covers newly identified neoplasms: liponeurocytoma, rosette-forming glioneuronal tumor, and chordoid glioma, as well as neoplasms of uncertain nosology, derivation, and growth (astroblastoma, capillary hemangioblastoma, gliomatosis cerebri, and chordoid glioma of the third ventricle).

Other than meningiomas, nonneuroectodermal tumors (ie, schwannomas and chordomas, among others) are not discussed. Chapters on tumor cell migration and invasion, apoptosis, the ubiquitin proteasome system, and angiogenesis round out this volume.

Advantage is taken of the evolving field of molecular genetics, intracellular signaling mechanisms, and conventional immunohistochemical methods to arrive at a histopathologic diagnosis. The details provided using these methods are a major emphasis of this book and are of exceptional value.

All of the microphotographs are in black and white; most of these are satisfactory. For the uninitiated, however, some of the photographs might be challenging, because there are no arrows depicting items mentioned in the legends. The latter occasionally suffers from terseness, as at times it is unclear what is being illustrated. The addition of normal controls, especially with immunohistochemical photographs, would have been helpful. The photomicrographs are occasionally complemented by MR images and CT scans.

This readable monograph is highly recommended to surgical pathologists. It is likely to be of lesser value and interest to the neuroradiologist. For neuroradiologists interested in histopathology, especially with imaging correlations, other texts might be more suitable. On the other hand, discussions on glioneurogenesis, molecular genetics, growth factors, stem cells, and intracellular signaling mechanisms involved in the



neoplastic process, along with extensive bibliographic annotations, should be of great interest and value to students of neuro-oncology.

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## BOOK REVIEW

### Proceedings of the Medtronic Forum for Neuroscience and Neuro-Technology

B. van Hilten and B. Nuttin, eds. New York: Springer; 2007, 85 pages, 13 illustrations, \$24.95.

The authors of the *Proceedings of the Medtronic Forum for Neuroscience and Neuro-Technology* were undoubtedly aware that desks across the medical and research world are cluttered with journals and books containing important knowledge that will never be read due to lack of time. Their solution was to write a concise and informative review of the science and future therapeutic developments of neurostimulation. It is unusual to find such an important and complex topic summarized so thoroughly in a short monograph.

Interventional neuroscience may become a revolution in the treatment of disorders such as chronic pain, dystonia, cluster headaches, epilepsy, and psychiatric disease that have been recalcitrant to traditional therapies. Medical therapy, when successful, affects many parts of the nervous system, often yielding undesirable effects. When focal areas have been identified as targets for ablative surgery, treatment is often effective, but adverse effects may occur and are permanent.

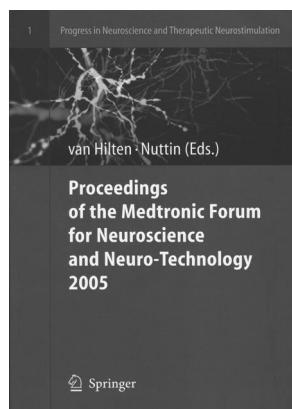
Neurostimulation treats focal areas effectively and is reversible by removing the stimulator or simply switching it off. These features also allow more rigorous study of their therapeutic potential and the placebo effect.

The book is divided into 3 parts. Part 1 covers developments in complex regional pain syndrome, neuropathic pain, and dystonia. The chap-

ters thoroughly and concisely review the diagnosis, treatment, and pathophysiology of these disorders and begin making a case for medical devices as potential treatments. Clinicians who are not experts in the field will find these chapters useful for quick guidance in diagnosis and available therapeutic options. Part 2 covers some of the basic research and future directions of interventional neuroscience. Theoretical mechanisms of how stimulation may affect neural networks are fascinating and stimulate readers to apply this technology to their own clinical problems. The authors illustrate how these techniques may treat conditions anywhere in the body through connections with the nervous system. Part 3 reviews the results of neurostimulation that have already been applied to clinical problems, and impressive results in the treatment of chronic pain, epilepsy, obsessive-compulsive behavior, and other neuropsychiatric disorders are discussed.

The greatest value in this monograph is the reader's ability to get an understanding of this new and exciting field in a short sitting, as each chapter lasts an average of 3 pages. It was not written to be an exhausting review, but the references will direct readers to more complete discussions. The authors are considered experts in the field, and their references are complete and timely. I recommend this book to clinicians in neurology, neurosurgery, and psychiatry, as well as to basic neuroscientists whose interests extend to clinical applications of functional neuroscience. Diagnostic imaging plays a small role in the diagnosis and, subsequently, in the discussion of these disorders. However, neuroradiologists interested in the forefront of interventional neuroradiology will find these topics important as a glimpse into future practice. Those interested in using these potential techniques to better understand functional neuroanatomy may find this book a good step in quickly reviewing the field.

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## BOOKS RECEIVED

*Inflammation in the Pathogenesis of Chronic Diseases: The COX-2 Controversy*, Series: Subcellular Biochemistry, Vol. 42. R.E. Harris, ed. New York: Springer; 2007, 323 pages, \$199.00.

*Nursing Care of the Pediatric Neurosurgery Patient*. C.C. Cartwright and D.C. Wallace, eds. New York: Springer; 2007, 284 pages, 119 illustrations, \$99.00.

*The Clinical Neurophysiology Primer*. A.S. Blum and S.B. Rutkove, eds. Totowa, NJ: Humana Press; 2007, 500 pages, \$99.50.