Book reviews

Books Received


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Diagnostic Imaging: Head and Neck is the third volume of the Diagnostic Imaging series by Amirsys, Inc. The previously published books in the series have dealt with orthopedics and the brain. A total of 12 volumes is anticipated. This most recent volume, characterized by excellent illustrations and images provides succinct descriptions of the pathological entities and anatomical variations chosen for presentation.

There are four general sections: I) Temporal Bone and Skull Base; II) Orbit, Nose, and Sinuses; III) Suprahyoid and Infrahoid Neck; and IV) Pediatric and Transspatial Lesions. In each section, the disease processes are described with special attention paid to terminology and imaging findings, both computerized tomography and magnetic resonance imaging, with references to required sequences. The book may be of assistance to the clinician interested in having a more informed dialogue with his consultant radiologists. Differential diagnoses, pathology, clinical issues, diagnostic checklists, and selected references are also provided. For a radiology text, it is quite readable. Although some pathological processes are not treated in great detail, the references provide a start for the more interested reader. In my opinion, the only section that contained a significant amount of neurosurgical pathology is Part I.

This addition to the diagnostic imaging library is really geared more for the ear, nose, and throat specialist and radiologist. Although, as mentioned above, the section dealing with the skull base and, particularly, the posterior fossa and area around the temporal bone are worth reviewing, this volume will not be of sufficient interest to most practicing neurosurgeons to justify its purchase. It will hopefully be available in many libraries. Skull base surgeons or those involved in the training of residents may want to have one handy in their department.

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Clinical neuroimaging has evolved from defining structural and anatomical details to providing information on the physiology and function of the brain. These advances have allowed neurologists and neurosurgeons to better diagnose and treat diseases of the central nervous system, thus leading to overall improvement in patient care. Information on

Books for review should be sent to: Journal of Neurosurgery, 1224 West Main Street, Suite 450, Charlottesville, Virginia 22903.
modern clinical magnetic resonance (MR) imaging techniques is scattered and can be difficult to compile—until now. Clinical MR Neuroimaging: Diffusion, Perfusion and Spectroscopy provides an excellent reference for clinicians and researchers for understanding how MR spectroscopy (MRS), diffusion, and perfusion imaging work and how they can be applied to the management of patients with neurological disorders.

The authors begin with the technical details (relevant to a nonphysicist) on how clinical MR imaging works. The fundamentals and pitfalls of single and multivoxel MRS, as well as the signal characteristics of specific amino acid molecules are first described. The authors then discuss the development of MR diffusion weighted imaging (DWI) and diffusion tensor imaging (DTI); parameters to optimize signal strength and the limitations and/or artifacts of these technologies are illustrated. Finally, contrast perfusion and arterial spin–labeling techniques used to track regional blood flow as well as their major limitations are detailed. Key points, clearly highlighted at the beginning of each chapter, allow readers to focus on the importance of each topic.

The authors proceed to discuss the relevant clinical applications of these technologies in the field of cerebrovascular disease, adult neoplasms, infection and inflammation, seizure disorders, psychiatric and neurodegenerative diseases, trauma, and pediatric illnesses. Each of these sections is divided into several chapters that first give a general overview of how clinical MR imaging can be used. This is followed by the specific application of MRS, DTI, and DWI: the authors provide many specific examples of the application of each technology. Most chapters conclude with a case study that allows readers to appreciate the usefulness of the technology. For example, in the section on infection and inflammation, the authors illustrate several points: 1) how the presence of cytostolic amino acid peaks on MRS images can help to differentiate abscesses from tumors, 2) how abscesses and multiple sclerosis plaques can be differentiated on the apparent diffusion coefficient maps, and 3) how perfusion studies correlate with vireological and cognitive indices in patients with the human immunodeficiency virus.

Every chapter in this text is well written, current, thorough yet concise, and provides valuable patient care information. The price is extremely reasonable for the quality of information. I have already been able to use some of the information provided in this book to help with diagnosing brain abscesses in a patient with multiple sclerosis. Overall, I would highly recommend Clinical MR Neuroimaging: Diffusion, Perfusion and Spectroscopy to all neurosurgeons, neurointensivists, neurologists, neuroradiologists, researchers, and any other healthcare personnel involved in the treatment of patients with neuropathological conditions.

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This textbook would serve as a valuable resource for the neurosurgeon or orthopedist interested in learning more about endoscopic spinal surgery; however, a basic understanding of spinal anatomy, pathological entities, biomechanics, and open surgical techniques is required to maximize one’s appreciation of this text. This book is not meant for healthcare professionals or students not already familiar with spinal surgery.

The book begins with chapters on the history of minimally invasive spinal surgery, endoscopic equipment, and anesthetic considerations. The rest of the book is organized according to anatomical features, from surgical techniques involving the occiput down to the sacrum. Along the way, the entire spectrum of minimally invasive spinal surgery techniques is covered, including endoscopic, percutaneous, and robotic technologies.

As such, the authors’ choice of title does not do this book justice. Perhaps a title incorporating the words “minimal access spinal techniques” would have more accurately reflected the contents of this text.

Each technique is further elucidated by an abundance of clear, colorful images. Step-by-step illustrations are also included where appropriate, and indications and contraindications for each procedure are discussed. Reference lists at the end of every chapter allow interested readers to delve deeper into a given topic.

Thus, this text provides an informative summary of minimally invasive spinal techniques. Considering the breadth and quality of its contents, the price of $169.95 is reasonable. Because of the rapid proliferation and growing acceptance of minimal access spinal technologies, the arrival of this text is timely indeed.

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This two-volume set is an exhaustive reference text in which authors discuss cutting-edge imaging technology and its application to the treatment of diseases of the nervous system. The editors have assembled an impressive multidisciplinary team of contributors who are recognized experts in their field, many of whom have written excellent books on their given subjects. The title Imaging of the Nervous System: Diagnostic and Therapeutic Applications accurately describes the content of the book. With approximately 2000 pages, 3122 illustrations, 151 contributors, and a CD-ROM that features all the images from the text as well as numerous case studies related to selected chapters, this is the most complete text on the subject that I have seen. The book includes everything from magnetic resonance (MR) imaging physics to step-by-step instructions on how to perform carotid artery (CA) angioplasty and stenting.

Volume I begins with the principles of neuroimaging including MR imaging physics and multislice computerized tomography (CT) scanning. It goes on to discuss functional MR imaging, perfusion and diffusion MR imaging, MR spectroscopy, positron emission tomography, single-photon emission CT, xenon CT, transcranial Doppler ultrasonography, cervical CA ultrasonography, MR angiography, CT angiography, magnetoencephalography, magnetic source imaging, and even an interesting chapter on tissue viability using sodium MR imaging. The book gives a good foun-
dation in these imaging modalities, and in addition it men-
tions recent developments and potential future applica-
tions—a recurring theme throughout the book. It is impor-
tant to constantly improve and not be complacent with
current technology and applications, and one thing this
book does well is spark interest and enthusiasm in neu-
roimaging technology.

Part II of Volume I includes an exhaustive review of ce-
rebrovascular disease including pathophysiology, imaging,
and therapy. The integrated approach of teaching imaging
and therapy in one text provides an excellent understanding
of the disease process. As a neurointerventionalist, I have
discovered numerous techniques help me during my proce-
dures. Chapter 10 includes an outstanding functional color
atlas of brain vascular territories, which will help correlate
neurological deficits with the imaging findings. There are
excellent discussions on the management of acute ischemic
stroke, unruptured intracranial aneurysms, and CA stenosis,
which include pertinent reviews of the current literature.
The text is very readable and in addition provides numerous
summary boxes throughout each volume that serve as a re-
view of key points.

Volume II discusses nonvascular diseases of the brain, in-
cluding an outstanding comprehensive discussion of epilep-
sy. Unfortunately Chapter 52, in which the authors discuss
neurodegenerative diseases of the brain, contains numerous
mistakes in the picture legends. There are a few other scat-
tered typographical errors in other chapters, but they do not
egregiously impede the meaning. Part IV discusses pedi-
atriic imaging including normal development. Part VI is a
chapter on the peripheral nervous system, which includes
the brachial and lumbosacral plexuses. The rest of Volume
II includes both common and novel image-guided therapy
of the brain and spine, as well as spine imaging. The book
does not cover head and neck neuroimaging.

The CD-ROM is a nice feature. Intuitive and easy to use,
it includes all the images from the text as well as numerous
case studies related to selected chapters; you can even ex-
port the images into a PowerPoint presentation. The actual
text of the book, however, is not on the CD-ROM. Some of
the case studies from Chapter 80 contain incomplete or con-
fusing picture captions, which makes it a little difficult to fol-
lower. My other complaint is that it would have been helpful to
include color pictures on the CD-ROM. All the pictures are
black and white, which is a problem for many types of im-
ages including color Doppler ultrasonography, perfusion MR
imaging, functional MR imaging, and so forth.

Overall, I would say this is an excellent and comprehen-
sive reference text on neuroimaging and neurointervention,
and at $295 including the CD-ROM it is worth every penny.

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