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**Neuroradiology Third Series, Test and Syllabus, Vol. 51**

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movies are discussed, and intersections of such stories with Jewish folklore are presented. The point is made that Jewish ethics allows a permissive attitude for scientific innovations, as long as risks are kept to an acceptable level.

The next chapter discusses Islamic viewpoints on the ethics of new technologies in neurosurgery. A substantial part of this chapter is devoted to 6 interviews with Islamic theologians. These interviews discuss such principles as free will and personal responsibility.

The final chapter on ethics covers Buddhism and Shintoism in neurosurgical practice in Japan. This chapter includes discussion of brain death and organ transplantation from brain dead patients and its relative infrequency in Japan. The influence of Buddhism and Shintoism on such practices is discussed.

Inclusion of chapters on the ethics of current medical technology is a somewhat unusual finding in such a compendium. This certainly can be taken as a worthwhile reminder to the reader that there are ethical questions to be considered in the development and application of new medical practices.

The review chapter on the current status of medical technology is mostly just a listing of various modern medical technologies, including both those in current application and those that are investigational. There is some discussion of the economics of innovation in medical technology, with a specific discussion of the economy of Germany.

The chapter on fiber tracking by using diffusion tensor imaging will be of interest to neuroradiologists. The authors present a method to assess uncertainty in fiber reconstructions on the basis of variational complex gaussian noise. The chapter concludes that this approach allows investigation of the uncertainty of fiber tracking by using diffusion tensor imaging. The chapter includes a detailed technical discussion of the algorithm.

The next 3 chapters discuss robotics in neurosurgery. The first chapter begins with devices that are currently available in clinical practice, including a robotized surgical microscope and the CyberKnife stereotactic radiosurgical instrument (Accuray, Sunnyvale, Calif). Next discussed is a robotized arm used for stereotactic surgical procedures for deep brain stimulation. The next chapter describes an investigational robot system for skull opening and closure. The third chapter describes a robotic micromanipulator system for minimally invasive neurosurgery. Use of this system for procedures currently performed with neuroendoscopy, such as third ventriculostomy, is described. Cadaver experiments are described, and an investigational use of the device in a patient for partial removal of a recurrent meningioma is discussed. Another experiment with this device was performed by using remote control of the device with the robot placed 40 km away from the controller. Successful use of the system in this fashion to perform telesurgery on an experimental rat brain preparation is presented. Obviously, the proper role of these experimental devices remains to be determined, but the neuroradiologist is likely to be at least somewhat interested in these descriptions.

The final 4 chapters discuss intraoperative MR imaging by using different MR imaging field strengths. The first of these chapters describes use of a 0.3T system in Japan for

removal of gliomas. The technical setup is well described and illustrated. Interesting results include the data that show that more radical resections were achieved during the later experience with this system compared with earlier experience. The more aggressive resections, however, were accompanied by significantly higher short-term neurologic deterioration, though long-term neurologic outcome was said to be similar between the earlier patients and the later patients. The next chapter describes the vertical double-doughnut intraoperative MR imaging unit at the Brigham and Women's Hospital in Boston. The mechanics of performing surgery in this 0.5T unit are described for stereotactic biopsy, craniotomy, transsphenoidal resection, and other procedures. Imaging findings are discussed. This chapter is clearly written and is a useful overview of the details of performing surgery in an MR imaging scanner. The next chapter describes intraoperative high-field MR imaging with the 1.5T system at Erlangen, Germany. Experience with craniotomy for gliomas and transsphenoidal resection of pituitary tumors is described. As with the other systems, the incorporation of stereotactic neuronavigation systems and functional data is described. The conclusion in this chapter is that use of the high-field system allows improved resections with lower morbidity. The final chapter is a relatively brief description of the preliminary results of intraoperative MR imaging with a 3T system. That system requires transfer of the patient from the operating room to an immediately adjacent imaging room. All of these chapters on intraoperative MR imaging will be of interest to the neuroradiologist. Interpretation of intraoperative MR images requires some specific experience, and these chapters offer such insights.

This book is a collection of papers by different authors, so style is variable, and many of the papers have rather stilted English, which can make reading tedious. Overall, illustration is relatively limited, but in some chapters, particularly the 4 covering intraoperative MR imaging, the illustrations are quite useful. These 4 chapters will probably be the most interesting to the neuroradiologist, because they do provide not only a broad overview of the variety of systems and techniques but also some concrete information on interpreting the intraoperative images.

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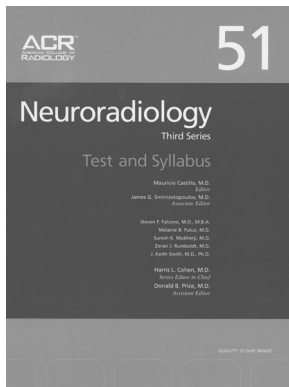
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## BOOK REVIEW

### Neuroradiology Third Series, Test and Syllabus, Vol. 51

*M. Castillo and J.G. Smirniotopoulos, eds. Reston, Va: ACR Publications; 2006, \$180.00 member, \$250 nonmember, \$98.00 member-in-training.*

**T**he time-honored American College of Radiology (ACR) *Test and Syllabus* now has its newest neuroradiology book edited by Drs. Mauricio Castillo and James Smirniotopoulos, with 5 additional contributors: Drs. Falcone, Rumboldt, Fukui, Smith, and Mukherji. While this syllabus is aimed at



residents studying for the American Board of Radiology (ABR) examination and perhaps fellows/attending studying for a Certificate of Added Qualification/Maintenance of Certification in neuroradiology, it can serve as a brief self-test for anyone doing a substantial amount of clinical neuroradiology. The subject matter is, of course, divided into brain, spine, and head/neck with an appropriate

smattering of cases with different etiologies. There are 20 separate case categories, with each of these containing 6 or 7 additional cases to establish differential points.

As is often the situation in such syllabi, some ambiguity is present in a number of the questions—for instance knowing exactly what is meant by “rare,” “infrequent,” or “occasional”; what percentage each of those words connotes has always been a problem. A typical example is where one part of a question states that a given entity is “rare” and the reader is asked to indicate true or false. Also when there is a discussion about the disease, the text will say that the entity is “not uncommon.” (Is that the same as common?) These are types of questions/answers that should be carefully scrutinized and reworded in all these ACR syllabi before publication.

The publisher and copy editor of this syllabus should have paid more attention to avoiding scrambled/incoherent sentences such as, “Most posterior circulation aneurysms originate from the termination (apex or dome) of the is considered to be supratentorial.” –[sic].

Those and other misgivings notwithstanding, this collection of cases will be instructive to the resident preparing for the ABR examinations, though I have to presume that everything covered in this book will have been dealt with in a strong residency program. It does, however, nicely bring together the main teaching points for all the entities shown.

For the most part, the images are well chosen (one does wonder, however, what the purpose is of showing isolated tentorial enhancement secondary to venous engorgement due to cavernous sinus invasion by a pituitary edema, when the actual pituitary lesion is not shown) and generally properly described (again, however, one wonders at the description of an “intrasellar Rathke’s cleft cyst” when an arrowhead points to a hypointense area within the skull base). One could also question why, in showing cavernous sinus thrombosis, just post-contrast CT and MR imaging are included—the case begs to have the noncontrast studies more fully show the abnormality. A few manuscript editing problems are present, but none of these issues take away from the strong brain teaching cases shown. In fact, additional and complementary images (such as unusual locations for signal-intensity abnormalities in the point-resolved spectroscopic sequence) provide solid and interesting adjuncts to the more typical cases. Also the numerous tables that accompany many of the cases, such as distribution of intracranial aneurysms, the signal intensity of blood in various stages on MR imaging, etiologies of venous/sinus thrombosis grading of aneurysms, and the numeric classifica-

tion system for neck nodes, all add to the teaching value of the cases. In many of the case presentations, salient and important clinical information accompanies the images. Thus for instance, in the case demonstrations of cerebral aneurysms, there is an excellent discussion of modern treatment options.

Case selection is balanced in terms of clinical importance and difficulty. In reading through all selections, one encounters cases that not only are expected on an ABR examination but also are typical of those seen in a busy neuroradiology practice. This, along with the accompanying discussions and follow-up questions, makes this syllabus valuable.

This book should be added to every department library, and for others who enjoy this type of format, it provides a strong self-assessment in neuroradiology.

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## BOOKS BRIEFLY NOTED

### Ultrasound: A Practical Approach to Clinical Problems, 2nd ed.

E.I. Bluth, C.B. Benson, P.W. Ralls, M.J. Siegel, eds. New York: Thieme; 2007, 752 pages, 1303 illustrations, \$199.95.

In a beautifully illustrated and highly readable text, Drs. Bluth, Benson, Ralls, and Siegel have edited and contributed to this 752-page multiauthored text, *Ultrasound: A Practical Approach to Clinical Problems*. Although most of the book deals with non-neuroradiology subjects (abdomen, male genital system, female pelvis, obstetrics, pediatrics, vascular sonography, sonography-guided therapy), there are areas within chapters that contain items of neurosonography interest, such as the fetal head, intracranial hemorrhage, and ischemia in the premature infant; spinal anomalies in the neonate; carotid artery evaluation; palpable neck masses; and monitoring cranial and spinal surgery.

This book is highly illustrated, with proportionately less written material than one sees in a similar-sized text. That is entirely appropriate because it is the authors’ intent for their book to be a practical guide and to answer specific issues that arise during patient evaluation. Although this is not a book that is recommended to neuroradiologists, it should find its way to the shelves of a radiology department.

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### Otolaryngology: A Surgical Notebook

K.J. Lee and E.H. Toh, eds. New York: Thieme; 2007, 336 pages, 79 illustrations, \$59.95.

For those whose radiology practices involve a considerable amount of head and neck imaging, a readily accessible and convenient source of basic surgical otolaryngology information is desirable. In an easily portable (fits in one’s lab coat) paperback publication, Drs. Lee and Toh have addressed such a need with their 336-page book, *Otolaryngology: A Surgical Notebook*. The book is composed of 43 brief chapters, many, but not all, containing line drawings of the surgical techniques involved.