ATLAS OF POSITRON EMISSION TOMOGRAPHY OF THE BRAIN.

This book is intended to instruct nuclear physicians ready to use nuclear imaging with positron emitters. This is an important objective since one senses that there will be an increasing number of nuclear medicine specialists in PET imaging in the next few years. The book is fairly comprehensive as an atlas and there are many excellent pictures. The average figure is accompanied by concise clinicopathological and computed tomographic scan data (with a smaller number of nuclear magnetic resonance images). There are many physiological concepts that are discussed in relation to the figures. Many laboratories in several sites around the world contributed figures. Virtually every topic of positron emission tomography (PET) applications to the study of central nervous system disorders is covered in the atlas. The quality of the paper utilized and printing results are very good. Each figure is presented with legends in German and English. The English legends are for the most part easily read. Since PET techniques were different in the different laboratories, the figures are not of even quality. For instance, the figures recorded in the authors’ laboratory present noisy PET data. A problem is that the figures do not often have arrows to indicate small structures such as the striatum, Broca’s region, cerebellum, to name a few. The vertical direction of the color scales is either from lowest to highest numerical values or from the highest to the lowest ones. This may be confusing to readers.

The text is necessarily short but largely adequate. The tracer kinetic discussion of the recorded data is dealt in detail, and limitations of tracer kinetic models considered. The Atlas covers PET oxygen metabolism studies, brain blood flow studies, radiolabeled deoxyglucose investigations which are very thoroughly presented, protein synthesis investigations, and some examples of neuroreceptor imaging.

Two chapters deal with PET studies of brain pH and with newer PET tumor markers. There are four chapters on the methodology for PET imaging covering instrumentation, radiopharmaceuticals, and tracer kinetics. References for each chapter are adequate.

This atlas will be of interest to nuclear physicians wishing to pursue PET scanning as a new modality; this book is recommended to them. The price appears reasonable given the quality of the illustrations.

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PROGRESS IN MEDICAL RADIATION PHYSICS,
VOLUME 2.
C.G. Orton. New York, Plenum Press, 1985, 254 pp, $45.00

This volume in the Progress in Medical Radiation Physics series contains in-depth (22-111 pp) review articles on conformation external beam therapy, measurement in vivo of human body composition, medical applications of fluorescence radiations in elemental analysis, and basic imaging properties of radiographic systems. The articles are very well written by internationally known authorities, and I found them interesting and well-illustrated. However, none of them has any connection with clinical nuclear medicine. Nuclear medicine physicians and technologists are not likely to find much of interest to them, but physicists interested in keeping in touch with other sub-specialty physics topics would appreciate this book. Unless a person intended to work in one of the topical areas covered, the price makes this more of a central library volume rather than for one’s own bookshelf.

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MANUAL OF CLINICAL MAGNETIC RESONANCE IMAGING.

This small (5” x 8” x 124 pp) paperback is the epitome of a concise communication. Seldom is so much information so effectively presented in so few words. The authors emphasize that this is not a textbook on magnetic resonance imaging (MRI) but a guide to conducting the examination. They believe these guidelines are applicable to most commercially available systems.

The book is divided into two major sections. The first, consisting of three chapters, deals with the physics and principles of magnetic resonance imaging. These three chapters are an excellent summary of the basic principles and the major artifacts encountered in MRI. The discussion of physics and image formation are accurate and clearly presented. The figures, which are all line drawings, and the captions are clear and informative. The figure captions are complete enough that one could almost use the figures and captions alone as an even more condensed, yet readable, description of the topic.

My biggest criticism of the first two chapters is that there are no images. Particularly for the discussion of pulse sequences, flow, and spectroscopic imaging, images would have been helpful. The third chapter describes and illustrates imaging artifacts, including motion, metal implants, chemical shift misregistration, static electricity, wrap around, and low intensity ghosts.

The second half of the book presents guidelines for conducting the examination. Chapter four speaks to some practical considerations of patient safety and patient preparation. Chapter five describes the imaging protocols with specific comments on selecting the zero reference frames along three axes, questions related to multisection imaging, and the relationship of the number of sections to the repetition time.

Most of the second half of the manual consists of tables of recommended instrument parameters. There is one for each of 45 types of examinations. For example, there is a table for...
“Cerebral Hemispheres: Suspected Stroke or Neoplasm.” Another is for “Lumbar Spine,” and thus for most of the common applications of MRI in the head and body. In each table, the authors recommend which receiver coil should be used, i.e., head, body, or surface, the patient position, the zero reference location, the imaging plane, the center section, the section thickness, the section gap, pulse parameters, number of sections, zoom factor, and the number of acquisitions or averages. Some of these, such as the number of acquisitions, vary with the field strength and the authors usually recommend values for the 0.3–0.5 T and the 1–1.5 T ranges.

The book ends with a list of selected references separated into 14 topics. Finally, there is an index which like the rest of the book is brief, four pages.

The first part of the book is an excellent condensed explanation of the principles of magnetic resonance imaging. The second half presents guidelines based upon the authors two years of experience with mid- and high-field superconducting systems, addressing 45 different clinical questions. The recommendations on machine set up may not be universally accepted by those with experience in MRI but may serve as a starting point to help one develop their own protocols. This manual should be available at all MRI facilities.

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LYMPHATIC IMAGING. LYMPHOGRAPHY, COMPUTED TOMOGRAPHY AND SCINTIGRAPHY. M.E. Clouse, S. Wallace. Baltimore, Williams & Wilkins, 1985, 526 pp. $87.50

This work is an updated volume in Golden’s Diagnostic Radiology series, replacing “Clinical Lymphography” published in 1977. The handsomely published volume is divided into 16 chapters covering all aspects of lymphatic imaging from the historical development and technique to various clinical applications and complications of the procedures. An expanded chapter on physiology of lymph formation, control and lymph flow is useful in attaining a deeper appreciation of normal and pathologic findings. An up-to-date chapter on percutaneous lymph node biopsy has also been added, reflecting increased utilization of this technique.

In the eight years intervening between publication of the two editions of this book a revolution in diagnostic imaging has occurred, with introduction of the cross-sectional imaging modalities of computed tomography and ultrasound. In a review of the first edition of the book, appearing in this journal in 1978, the reviewers noted the lack of inclusion of these subjects in the original text. This deficiency has been remedied in the present volume with these topics, particularly computed tomography, thoroughly integrated into all aspects of discussion.

Just as conventional lymph node imaging has changed over the last eight years, so too the scintigraphic approach to lymphatic imaging has matured with increasing clinical experience and the development of new applications. The present chapter on radionuclide lymphography, written by K.A. McKusick, deals approximately equally with gallium-67 lymph node imaging and technetium-99m colloid lymphoscintigraphy. The text and bibliography are quite thorough and current, providing a succinct overview of the topic. What is incomprehensible in a chapter of this caliber is the complete lack of illustrations. While the initial volume’s 38 pages dealing with nuclear medicine included 35 illustrations, the present 16 pages devoted to the topic are totally devoid of any images, a sharp contrast to the generally rich illustration elsewhere in the present volume. In a text directed towards practitioners of the imaging specialties, absence of illustrations is a major deficiency.

While the overall composition of this volume is of high quality and the discussion of scintigraphic imaging of the lymphatic system is thorough and current, anyone seeking an understanding of the use of nuclear medicine in evaluation of the lymphatic system may find another text with illustrations a more informative and comprehensive means of introduction to this topic.

Books Received


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