

## DIAGNOSTIC CARDIOLOGY

*P. C. Come, Ed.*

*Philadelphia, J.B. Lippincott Company, 1984, 586 pp, \$67.50*

Over the past 15 years, the diagnosis and management of cardiovascular disease in adults and children have dramatically changed, especially in the field of noninvasive imaging. In this book Dr. Come has undertaken the formidable task of discussing "the currently available noninvasive imaging techniques" of the heart. Its purpose is to satisfy a "need for a comprehensive text," but not to be "encyclopedic." Forty-nine expert authors have contributed to this well structured volume in order to achieve this purpose.

The book is divided into four basic sections: roentgenographic imaging, magnetic resonance imaging, nuclear imaging, and echocardiographic imaging. Each section has chapters which are devoted to one aspect of that imaging modality, with each chapter following the general format: historical perspectives, techniques, clinical applications, and conclusions. This easy to follow and useful format shows the influence of the editor, with a well unified structure throughout, despite the number of different contributors.

The section on roentgenography consists of chapters on the chest x-ray, computed tomographic (CT) scanning of the heart and blood vessels, and digital subtraction angiography (DSA). Much of the clinical discussion on CT scanning and DSA consists of the potential future applications of these modalities in keeping with their current status. The brief section on magnetic resonance imaging clearly and understandably introduces the theory and technical considerations of magnetic resonance imaging. In depth discussion of techniques, however, is not possible, and the reader is directed to an excellent reference list. Again, the major clinical discussion focuses on the future applications of this noninvasive test in both anatomic imaging and metabolic investigation.

Of course, the nuclear imaging section is most pertinent to physicians involved in nuclear medicine. Consisting of basic radiation physics and instrumentation, blood-pool scintigraphy, myocardial perfusion assessment, infarct-avid myocardial scintigraphy, and pediatric nuclear cardiology, this section comprises ~20% of the text. The first chapter on physics and instrumentation provides a brief overview of the principles and techniques of nuclear imaging. This one chapter cannot possibly provide the depth found in standard textbooks on this subject, but does manage to introduce the student of nuclear imaging to the important principles involved in this field.

The chapter on blood-pool imaging uses the theme of "cardiac performance" as its basis. First-pass techniques, gated techniques, and most parameters of cardiac function available from nuclear cardiology are described in adequate detail for the student and clinician. Assessment of myocardial perfusion is also thoroughly covered in the next chapter. A well needed discussion on thallium kinetics is followed by technical and clinical considerations, including limitations, of this technique. There is no mention, however, of tomographic

thallium imaging, and positron emission tomography receives only one column of discussion.

Infarct-avid myocardial scintigraphy is succinctly presented in the following chapter. The chapter on pediatric nuclear cardiology adds information on cardiac shunting and the clinical indications for cardiac function and myocardial perfusion studies in children.

The majority of this book (70%) is devoted to echocardiographic examination of the heart, with the first chapters covering, in detail, basic physical principles and instrumentation. Subsequent chapters describe the findings of both M-mode and two-dimensional (2-D) techniques for a given anatomic entity. This division into clinical areas is useful, but the pattern does not include Doppler examination, which is placed in its own chapter at the end. To have the Doppler findings placed next to the M-mode and 2-D findings, of, say, aortic stenosis, would complete the structure of this text.

The obvious limitations of this text, as with any text, is the rapidly changing character of noninvasive imaging. By the time of publication, minor advances have already occurred, and major changes can be expected. This does not negate, however, this excellent recording of current techniques. The inclusion of tomographic thallium imaging and further expansion of positron imaging and Doppler examination would make this volume more complete.

This textbook will be most useful for the student of cardiovascular medicine, and the cardiovascular clinician who wishes to refer to topics which are not in his area of primary interest. Nuclear medicine physicians have more detailed resources available in their field, but large radiology or nuclear medicine departments involved in training may find this text a useful addition to their library.

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## DIFFERENTIAL DIAGNOSIS IN NUCLEAR MEDICINE.

*E. B. Silberstein, J.G. McAfee.*

*New York, McGraw-Hill Book Company, cloth, 1984, pp 318, \$37.25.*

This multi-authored text is based on the Gamut format originating with Dr. William LeRoy Thompson (at AFIP) and popularized by Dr. Benjamin Felson in his book as well as featured in the *Journal of American Medical Association's (JAMA)* "Gamuts in Radiology" section. The book is written entirely as comprehensive lists in a very detailed and formal outline format that includes a wide scope of differential diagnosis grouped in 11 parts, or systems (such as Part VIII "Hematology," or Part XI "Skeletal System") and divided into 55 chapters (such as "Schilling Test" or "Non-Osseous Uptake"). Eleven physicians contributed to the text. There are no scans or other pictorial features included.

Each chapter consists of a scan finding or heading that is further divided into common, uncommon, and rare subheadings followed by lists of diseases; or a malady is described in the subheading that is further divided into more specific diseases. Where appropriate, the subheading is divided according to functional findings (such as, L. Ejection fraction-effect of interventions on exercised-induced changes), or specific anatomical abnormalities of uptake (such as, D. Doughnut pattern). The detail in these lists can be very helpful in the day-to-day interpretation of examinations for all practitioners.

An unusual and interesting feature is the one or more references that are appended to every condition listed. Only rarely does a disease or condition fail to have a recent pertinent reference and in some instances may contain 16 references (i.e., X. The radioactive iodine uptake test). Over 2,500 references are included in this volume and are stated by the authors to be as recent as mid 1983. In many instances an author's more recent pertinent article on the subject in question may be cited, as opposed to citing the original article, so long as the original article is referenced in the more recent publication. As an example, Dr. J. Conway's article on the effectiveness of radionuclide cystography in detecting vesicoureteral reflux, published in 1976, is cited instead of the original article published in 1972. The citations appear to be pertinent to the day-to-day interpretation of difficult examinations and speed the ease with which the literature can be searched in order to solve acute practical problems. The references are generally located after a major chapter (such as, Chapter 16, "Thyroid") or after a group of chapters (such as, Part I "Cardiovascular System"). Thus, this volume is also of great value as an indexed bibliography for a literature search. It is this excellent format of the comprehensive lists of diseases followed by the numerous references that will be of great value to anyone in nuclear medicine. The authors state that they avoided referring to any review articles that did not provide an original source. In most cases the references can be rapidly located, as the sources are readily found in most medical libraries. This is not always true, but those references which were located in obscure or difficult to find journals appear to be minimal in number. As an example, reference is made to a German article (in the original language) but two other more easily found references are also included.

My major criticism of the book has to do with the book itself. My volume inserts eight pages of the central nervous system references after the first three (of 11) pages of the thyroid references. Also, there are several instances of a major heading beginning at the very bottom of a page with the remainder of the gamut continued on the next page. Only a thin line separates each chapter and no use of icons, or just simply consistent locations on a page, are employed to aid the visual search for a chapter heading. This appears to be an economy move on the part of the publisher, and serves to make the listed condition more difficult to locate. Also, the quality of the paper used in the book is poorer than that found in most journals or reference books and is about equal to that of paper found in spiral-bound manuals.

The reader should be aware that this book is best both for the daily practitioner wishing to jog his memory for the possibilities of a scan finding as well as for the researcher wanting either a more complete differential diagnosis than

offered in any single article or well selected references that can serve as the foundation for further study. This volume should be included in the library of every student or researcher of nuclear medicine as well as located in the interpretation area of the practitioner. This volume will be a useful addition to the libraries of all nuclear radiologist and nuclear medicine physicians, as well as any student in those fields. Researchers will find many areas of interest, enough to warrant purchasing the volume. The completeness of this book is outstanding. I have not yet recalled a finding that is not included herein. The modest price makes it a worthwhile purchase for all radiology libraries.

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### ATLAS OF NUCLEAR MEDICINE ARTIFACTS AND VARIANTS

U. Yun Ryo, C. Bekerman, S. M. Pinsky, Chicago Year Book Medical Publishers, Inc., 1985, 220 pp, \$59.50

This book is the third in the series that began with *Atlas of Normal Variants* by Dr. Theodore Keats and *Atlas of Computed Tomography Variants* by Dr. Kuhns. This one adds "artifacts" to the title, reflecting the importance of artifacts in nuclear medicine and the part they play in mimicking disease. The authors also stress that in nuclear medicine the variants are not only anatomical, but also physiological.

The atlas contains 11 chapters, starting with "Technical Artifacts." Chapters 2 through 10 are related to systems and organs, namely, about the (a) brain; (b) thyroid; (c) lungs; (d) heart; (e) liver and spleen; (f) hepatobiliary system; (g) kidneys and abdomen; (h) vascular system; and (i) skeletal system. The eleventh chapter discusses gallium-67 scans. The book is indeed an atlas with acceptable size images followed by expanded captions. The quality of the images is generally good, with only an occasional exception. The layout of the book is generally good and I found the atlas very valuable. Some of the examples of the artifacts and variants are the run-of-the-mill type that a nuclear physician comes across every day, but appreciates as references in print; some other examples are exotic and will always be valued by many in the nuclear medicine practice. I was particularly impressed when the authors used drawings and phantom results to explain some of the artifacts; I only wish that they had included more of these. Their explanation of the mechanism of spatial distortion of the pinhole image and the problem of using markers with a pinhole collimator is an example of the authors' good use of line drawings for explanation. Similarly, the "hot stripe" in the liver scan from small angle scattering of photons by the breast is well demonstrated by a phantom study.

The examples in this atlas of artifacts and normal variants reflect the experience in nuclear medicine to date. For example, the chapter on the liver and spleen is excellent, with several examples of variations of normal anatomy and varied artifacts collected over years of experience with this imaging modality, including single photon emission computed tomography scanning of the liver and spleen. The chapter on the lung follows closely in quality, with extensive examples of the