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Atlas of PET/CT with SPECT/CT, with DVD

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BOOK REVIEW

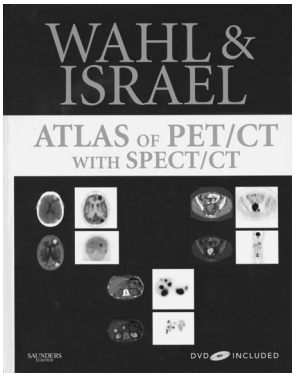
Atlas of PET/CT with SPECT/CT, with DVD

R.L. Wahl and O. Israel, eds. Amsterdam, the Netherlands: Mosby Elsevier; 2008, 287 pages, 1000 illustrations, $199.00.

The advent of the combined imaging techniques of positron-emission tomography (PET)/CT and single-photon emission CT (SPECT)/CT has added much needed anatomic correlation to the functional information provided by traditional nuclear medicine studies. Given the relative newness of hybrid imaging, there are only a few published atlases and on-line resources that comprehensively cover these studies. Wahl and Israel's *Atlas of PET/CT with SPECT/CT* is one of the latest entries and is reviewed here.

The *Atlas* contains 287 pages with more than 300 cases. This number of cases adequately covers the gamut of scenarios that are likely to be encountered in the day-to-day reading of hybrid nuclear medicine studies. In addition to the varied pathology, the inclusion of numerous potential pitfalls and benign findings is especially useful. Reflecting the current clinical environment, the cases are more heavily weighted toward PET/CT studies, particularly with the use of fluorodeoxyglucose as the imaging agent, though there are a few cases presented that use other positron-emitting agents as well.

The book is organized into 8 separate sections on the basis of body part, and each section is then further subdivided into organ systems and local regions. The first section describes technical considerations of PET/CT and SPECT/CT. This concise section is packed full of useful information, which takes the reader all the way from prepurchase research of equipment to end interpretation by the radiologist. Issues regarding the actual equipment, such as camera design, service and maintenance, quality control, sensitivity, and calibration, are brought to light. Aspects of the actual scanning are also described, including patient preparation, injection timing, the use of contrast (both oral and intravenous), and acquisition protocols. Finally, workstation, software packages, and other topics important to the end interpreter are briefly discussed. This introductory section is invaluable to institutions embarking on the purchase of a hybrid imaging system. In keeping with its mission as an atlas, the book does not delve deeply into possible solutions for these topics, but it does provide insight into most of the issues, which would be of interest.



The next 7 sections cover PET/CT of the brain, head and neck, chest, abdomen, pelvis, and extremities. Each case is presented with a bold title, which enables rapid identification of the subject matter, as well as a brief clinical history. These items make blinding oneself to the answer somewhat difficult because histologic results are sometimes provided within the clinical history. Nonetheless, if a reader is diligent about avoiding the titles and histories, self-testing is possible. Typically, 2 cases are presented on a single page, each of which has an axial CT image, a PET image, the corresponding fused image in color, and the PET maximum-intensity-projection image. Small image size is an unfortunate consequence of this format, occasionally making diminutive lesions difficult to appreciate. This is remedied, to a large extent, by the inclusion of the DVD, as discussed later in this review. Beneath each image, a discussion of pertinent findings is provided. A highlighted box containing the main teaching points and a summary of each case is a nice touch. Skimming through the images and highlighted teaching points alone makes for a rapid communication of a substantial quantity of valuable information.

The last section, encompassing approximately 30 pages, reviews SPECT/CT cases. A variety of radiopharmaceuticals are portrayed, including ^{111}In-pentetreotide, ^{131}I, ^{123}I-MIBG, ^{67}Ga, ^{111}In-ProstaScint, ^{99m}Tc-MIBI, ^{99m}Tc-MDP, and ^{111}In-white blood cell studies. Although this section is somewhat brief, inclusion of regions of physiologic uptake and pitfalls inherent in these studies is potentially useful.

The DVD that is provided contains some of the more interesting cases from the *Atlas*. It is quite functional and easy to navigate, using a Macromedia Flash Player–based interface to view each case in a format similar to its printed counterpart. From this interface, it is possible to launch an entire case, which allows section-by-section review. This adds a welcome touch of realism, which the limited static single images of the book are unable to convey. This review takes place in a nearly full-function viewer, in which the user can scroll through the cases and do basic image processing. An especially handy feature of this viewer is the ability to print and save screenshots from the cases. This DVD is an excellent addition to the *Atlas*. The solitary downside of the DVD is that it is unfortunately limited to only 33 cases, undoubtedly due to space limitations of the disk.

In summary, the book provides a good balance of a substantial number of cases with brief but descriptive and informative text, which makes for a quick read. This *Atlas* is especially useful for resident physicians, who may not encounter a large caseload of hybrid imaging during training, and would provide an excellent resource for board purposes. Additionally, it can serve as a quick cross-referencing source for interpreters of other imaging techniques. Neuroradiologists would be interested specifically in the first third of the book, but there is not much in the way of spinal imaging. In the journey through the rapidly evolving and expanding world of hybrid nuclear medicine imaging, a good atlas is a must for all nuclear medicine physicians and radiologists. Wahl and Israel's *Atlas of PET/CT with SPECT/CT* successfully fulfills this role.

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