

Atlas of Clinical Positron Emission Tomography

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This second edition of *Atlas of Clinical Positron Emission Tomography* has undergone some major changes, primarily due to the emergence of PET/CT. This book would be an invaluable reference for physicians, residents, or technologists who want to become more familiar with the science and practice of PET.

The first part of the book explains the basics of PET science. The authors illustrate the fundamentals of radioactive decay, the interaction of charged particles, and the cyclotron. There is also a good discussion of the types of imaging equipment currently available. Tables detailing the differences in scintillators and cameras by manufacturer are featured.

Chapter 1 also explains how the PET/CT hybrid has allowed for greater efficiency in the clinical setting. CT attenuation correction, however, can introduce complications such as breathing artifacts and metal artifacts. This portion of the book outlines these and other possible problems and illustrates each artifact with a case study.

Chapter 2 contains a detailed description of potential variants, pitfalls, and artifacts that can arise in PET and PET/CT. The authors have drawn from their own experiences to demonstrate and explain normal variants, as well as technical and physiologic problems that may arise. Each scenario is accompanied by a clinical case, which allows the reader to visualize these irregularities.

Oncology cases comprise the majority of studies performed in most clinical facilities. The second part of the book begins with an exceptional overview of the oncologic applications of PET/CT. The advantages and limitations of molecular imaging are clarified in concise tables. The authors explain the mechanism of ^{18}F -FDG metabolism and discuss the role of ^{18}F -FDG as a prominent imaging agent today.

Chapters 3–16 cover in detail a variety of oncologic conditions for which PET/CT has shown unique clinical ad-

vantages in the areas of disease staging and treatment response. The topics are arranged by clinical use, and many case studies are used to elucidate the explanations. An interactive DVD is a wonderful addition to this part of the book. Several of the studies are available on the DVD, which outlines the clinical history, findings, and key points of each. The authors have again used their own clinical experiences in this portion of the book. Their discussions show how PET/CT has earned its place as an outstanding imaging modality.

A section detailing the use of PET in pediatric oncology is new to the second edition. The use of PET/CT in children has become more widespread, despite special considerations regarding normal variants and dosimetry.

Part 3 of the book discusses neurology, cardiology, and other emerging applications of PET/CT, such as infection and inflammatory disease. The authors have compiled an excellent set of case studies evaluating Alzheimer's disease, epilepsy, cardiac viability, and hibernating myocardium. They have also introduced the role of PET/CT in the treatment of pneumonia and osteomyelitis. Sarcoidosis, vasculitis, and Crohn's disease are given as examples of inflammatory processes in which PET can play an important role in treatment and evaluation.

This second edition of the *Atlas of Clinical Positron Emission Tomography* is an excellent reference that covers topics ranging from basic PET science to the most current advances in PET/CT. I have used the first edition for several years, and the hands-on information available in this current edition, as well as the interactive DVD, makes this book a valuable addition to the library of anyone involved in PET/CT.

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