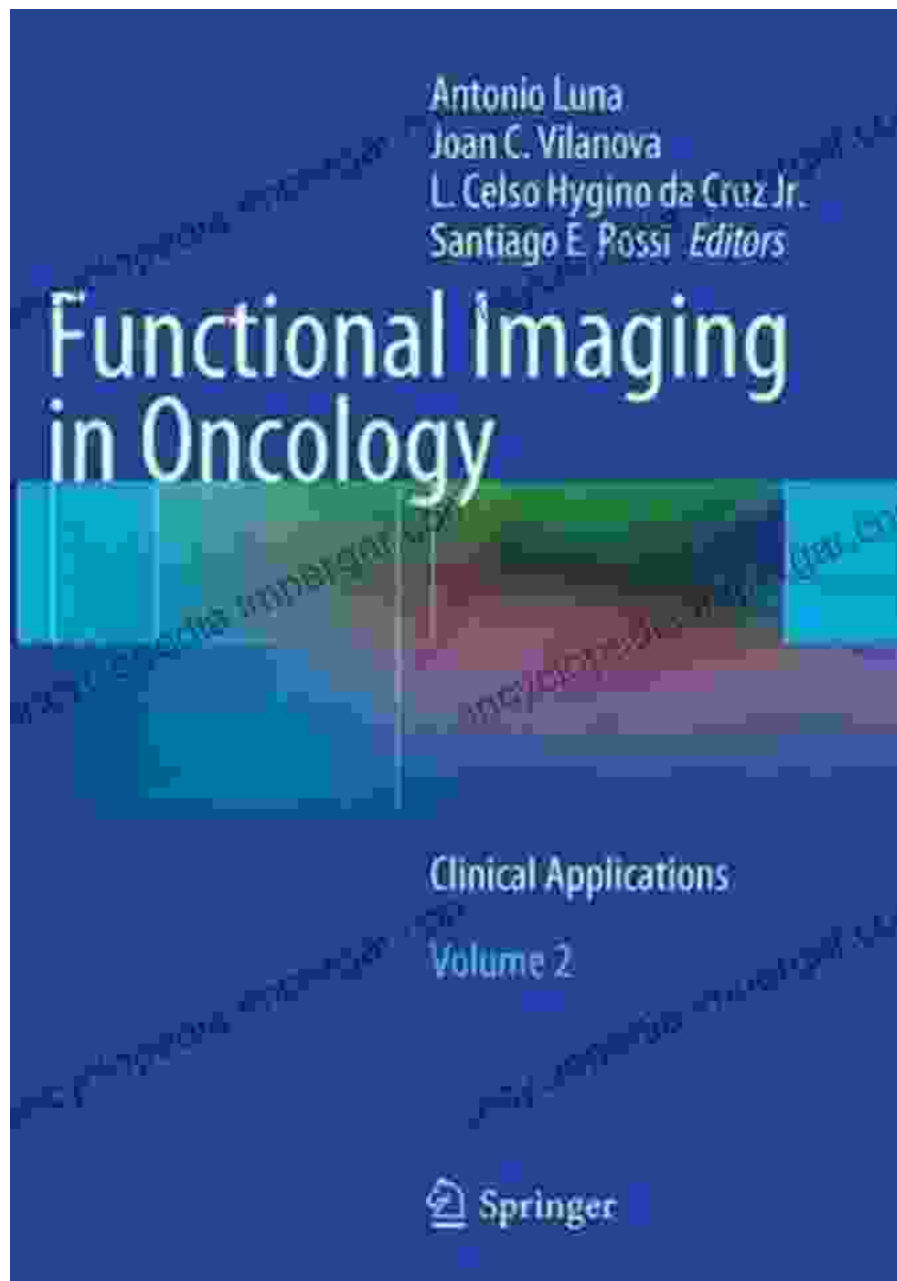
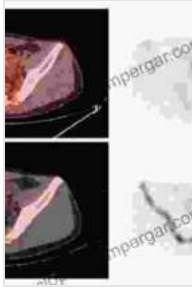


Functional Imaging in Oncology Clinical Applications: A Comprehensive Guide for Precision Cancer Management



Functional Imaging in Oncology: Clinical Applications - Volume 2 by John Vorhaus

★★★★☆ 4.2 out of 5



Language : English
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Enhanced typesetting : Enabled
Print length : 1828 pages
Screen Reader : Supported



: Redefining Cancer Diagnosis and Management

The field of oncology is undergoing a transformative era, driven by the advent of functional imaging techniques. *Functional Imaging in Oncology Clinical Applications Volume* is a groundbreaking resource that equips clinicians with the latest advancements and applications of functional imaging in cancer diagnosis and management. This comprehensive guide provides a deep understanding of the principles, methodologies, and clinical applications of functional imaging modalities, empowering clinicians to make informed decisions and enhance patient outcomes.

Chapter 1: Overview of Functional Imaging in Oncology

- Definition and principles of functional imaging
- Types of functional imaging modalities: PET, SPECT, MRI, and CT
- Advantages and limitations of each modality
- Role of functional imaging in cancer screening, diagnosis, staging, and treatment monitoring

Chapter 2: Positron Emission Tomography (PET)

- Principles of PET and radiotracers

- Clinical applications of PET in various cancer types
- Quantitative PET imaging for treatment response assessment and prognostication
- Emerging applications of PET in immunotherapy

Chapter 3: Single-Photon Emission Computed Tomography (SPECT)

- Principles of SPECT and radiopharmaceuticals
- Clinical applications of SPECT in oncology, including bone and thyroid cancer
- Recent advancements in SPECT technology
- Role of SPECT in targeted therapy and personalized medicine

Chapter 4: Magnetic Resonance Imaging (MRI)

- Principles of MRI and its unique capabilities in oncology
- Diffusion-weighted MRI for tumor characterization and response assessment
- Functional MRI techniques, such as perfusion and spectroscopy
- Applications of MRI in early cancer detection and personalized treatment planning

Chapter 5: Computed Tomography (CT)

- Principles of CT and its role in cancer imaging
- Advanced CT techniques: dual-energy CT, perfusion CT, and CT angiography

- Clinical applications of CT in tumor detection, staging, and treatment follow-up
- Integration of CT with other functional imaging modalities

Chapter 6: Hybrid Imaging and Multimodality Approach

- Benefits and challenges of combining different functional imaging modalities
- Clinical applications of PET/CT, SPECT/CT, and PET/MRI
- Multimodality imaging for comprehensive cancer characterization
- Future directions in hybrid imaging and its impact on oncology

Chapter 7: Artificial Intelligence and Machine Learning in Functional Imaging

- Overview of artificial intelligence (AI) and machine learning (ML) in oncology
- Applications of AI in functional image analysis for cancer detection, staging, and response assessment
- ML algorithms for personalized treatment planning and prognostication
- Challenges and future prospects of AI in functional imaging

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Functional Imaging in Oncology Clinical Applications Volume is an indispensable resource for clinicians, researchers, and healthcare professionals involved in the diagnosis and management of cancer. Its comprehensive coverage of functional imaging principles, methodologies, and clinical applications provides a solid foundation for understanding and

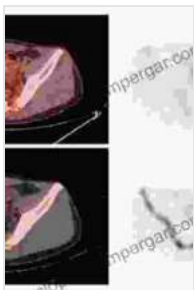
implementing these cutting-edge techniques in daily practice. By leveraging the power of functional imaging, clinicians can gain invaluable insights into tumor biology, enhance cancer detection and staging, optimize treatment strategies, and improve patient outcomes. This guide is a must-read for anyone seeking to advance the field of oncology and revolutionize cancer care.

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About the Authors

Functional Imaging in Oncology Clinical Applications Volume is authored by a team of renowned experts in the field of functional imaging and oncology. Their collective experience and expertise provide a comprehensive and authoritative perspective on the latest advancements in this rapidly evolving field.



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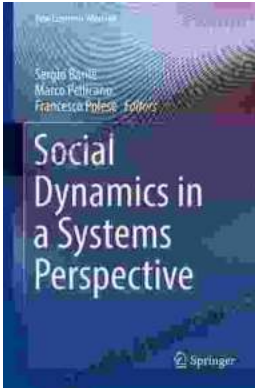
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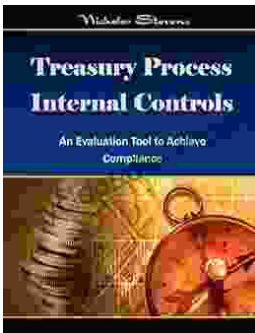
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