

Computed Tomography Of The Cardiovascular System

This book is a comprehensive and richly-illustrated guide to cardiac CT, its current state, applications, and future directions. While the first edition of this text focused on what was then a novel instrument looking for application, this edition comes at a time where a wealth of guideline-driven, robust, and beneficial clinical applications have evolved that are enabled by an enormous and ever growing field of technology. Accordingly, the focus of the text has shifted from a technology-centric to a more patient-centric appraisal. While the specifications and capabilities of the CT system itself remain front and center as the basis for diagnostic success, much of the benefit derived from cardiac CT today comes from avant-garde technologies enabling enhanced visualization, quantitative imaging, and functional assessment, along with exciting deep learning, and artificial intelligence applications. Cardiac CT is no longer a mere tool for non-invasive coronary artery stenosis detection in the chest pain diagnostic algorithms; cardiac CT has proven its value for uses as diverse as personalized cardiovascular risk stratification, prediction, and management, diagnosing lesion-specific ischemia, guiding minimally invasive structural heart disease therapy, and planning cardiovascular surgery, among many others. This second edition is an authoritative guide and reference for both novices and experts in the medical imaging sciences who have an interest in cardiac CT.

From basic clinical facts to new advanced guidelines, Practical Cardiology, by Drs. Majid Maleki, Azin Alizadehasl, and Majid Haghjoo, is your new go-to resource for new developments in cardiology knowledge, imaging modalities, management techniques, and more. This step-by-step, practical reference is packed with tips and guidance ideal for residents, fellows, and clinicians in cardiology, as well as internal medicine, cardiac surgery, interventional cardiology, and pediatric cardiology. Features a wealth of information, including practical points from recently published guidelines, ECGs, hemodynamic traces of advanced imaging modalities in real patients, and much more. Offers a comprehensive review of cardiovascular medicine, from basic to advanced.

Technologic advances in imaging now allow cardiologists to diagnose, noninvasively, a wide range of cardiac disorders, from subclinical atherosclerosis to obstructive coronary artery disease. This 500+ Question & Answer review book serves as the board prep product for all cardiologists/fellows/radiologists interested in certifying in this rapidly expanding area. All aspects of cardiovascular CT principles and physics, methodologies, and clinical practice are covered. Features Include:
• Cost-effective board preparation;
• MCQs that mimic the CCT boards;
• Review questions in CT physics, study acquisition, and interpretation;
• Online access to video clips and over 500 Q&As.

Computed Tomography of the Cardiovascular SystemCRC Press

MRI and CT of the Cardiovascular System

Computed Tomography of the Coronary Arteries

Essentials for Clinical Practice

An Atlas of Investigation and Diagnosis

Cardiac MR and CT

Computed tomography (CT) is an increasingly used modality for investigations of patients with suspected coronary artery disease (CAD). Technical advances could improve diagnostic accuracy and lead to clinical workflow improvements. Also, more prognostic information can optimize clinical follow-up strategies and treatments. The general aim of this thesis was to explore the use of CT for CAD investigations. Three studies aimed to examine new technologies, including the evaluation of an on-site, computed tomography-based fractional flow reserve (CT-FFR) software (study I), the evaluation of an AI-based, calcium scoring computed tomography (CSCT) software (study III), and the evaluation of a photon-counting detector (PCD)-CT (study IV). One study aimed to evaluate the long-term prognostic value of coronary computed tomography angiography (CCTA) in symptomatic patients with no history of CAD (study II). The software evaluation studies (study I and III) and the prognostic study (study IV) utilized CT data from clinical patients, while the PCD-CT evaluation study (study IV) used CT data from cadaveric specimens. The performances of both software programs were compared with standard references, being represented by fractional flow reserve (FFR) measurements (study I), and coronary artery calcification (CAC) scores from a semi-automatic software (study III), respectively. The PCD-CT performance on CAC quantification was compared with corresponding results from an energy integrating detector (EID)-CT, using micro-CT as the standard reference (study IV). The prognostic study merged registries to identify major adverse cardiac events (MACE), having a follow-up time of up to 7.5 years (study II). The CT-FFR and CSCT software correlation and agreement to corresponding standard references were good and excellent, respectively. Also, both software programs had time-saving potential (study I and III). The CAC quantification was more accurate using PCD-CT than EID-CT (study IV). The prognosis was excellent in patients with normal coronary arteries, and progressively impaired in non-obstructive and obstructive CAD (study II). The results in this thesis convey developmental, technical CT technology advances for CAD investigations. In addition, prognostic follow-up data is communicated. The results may benefit patients by an increased accuracy in the CT evaluation of CAD and can contribute to improve clinical follow-up strategies. Furthermore, the results suggest possibilities to improve the workflow in clinical radiology, which potentially could impact health care costs. Datortomografi (DT) är en kliniskt anvä nd modalitet för utredning av misst ä nkt kransk ä rlsjukdom. För att för b ä tra framtida diagnostik, klinisk effektivitet och upp för l jningsstrategier är det av stor vikt med teknisk vidareutveckling, och att erh ä lla relevant prognostisk information. Syftet med denna avhandling var att studera anv ä ndandet av DT vid misst ä nkt kransk ä rlsjsjukdom. Tre studier syftade till att utv ä rdera nya tekniker, vilket innefattade utv ä rderingar av tv ä nya mjukvaror samt en utv ä rdering av fotonr ä knar-DT (FR-DT). En studie syftade till att utv ä rdera det prognostiska v ä rdet av DT kransk ä rI. Det för rsta delarbetet utv ä rderade en mjukvara, som anv ä nde data fr ä n DT kransk ä rI för att ber ä kna tryckfall ö ver misst ä nkta kransk ä rlsstenoser. Tiden för att erh ä lla tryckfallsm ä tningarna registrerades ocks ä . Resultaten av tryckfallsm ä tningarna jä mfördes med en standardreferens, vilken utgjordes av invasiva, kateterburna tryckfallsregistreringar. Det andra delarbetet unders ö kte prognosen för patienter med olika fynd vid DT kransk ä rI. Genom registersamk ö rning erh ö lls data om kransk ä rlsrelaterad sjukdom med upp för l jningstid p ä upp till 7.5 ä r. Det tredje delarbetet utv ä rderade en AI-mjukvara som utf ö rde automatiska m ä tningar av kransk ä rlskalk, baserat p ä kliniskt utf ö rda DT-unders ö kningar för detta ä ndam ä l (calcium scoring). Tiden för att erh ä lla m ä tningarna registrerades ocks ä . Resultaten jä mfördes med en standardreferens, vilken utgjordes av en konventionell, semi-automatisk metod. Det fj ä rde delarbetet utv ä rderade för m ä gan att kvantifiera kransk ä rlskalk fr ä n avlidna med FRDT. Bilder fr ä n b ä de FR-DT och DT anv ä ndes för kvantifiering av kalkvolym och jä mfördes med en standardreferens, vilken utgjordes av micro-DT. Korrelationen och ö verens ä mmelsen mellan mjukvarorna och standardreferenserna var god för tryckfallber ä kningarna ö ver kransk ä rlsför r ä ngningar, och mycket god för AI-baserad m ä tning av kransk ä rlskalk. B ä da mjukvarorna hade tidsbesparande potential. För patienter med normala kransk ä rI var prognosen utm ä rkt, men den för ä mrades med ö kad grad av kransk ä rlsjsjukdom. Anv ä ndande av FR-DT bidrog till en b ä ttre noggrannhet ä n DT vid kvantifiering av kransk ä rlskalk. Avhandlingen för medlar v ä rdet av teknisk utveckling vid utredning med DT för misst ä nkt kransk ä rlsjsjukdom. Dessutom presenteras nya, prognostiska data. Resultaten kan gynna patienten genom sk ä rpt diagnostik och mer effektiva utredningar, vilket kan ge framtida ekonomiska effekter. D ä rtil kan de prognostiska resultaten bidra till för b ä trade, kliniska upp för l jningsstrategier.

Cardiac CT obtains information about coronary arteries, great arteries and veins, and heart valves. It shows the location and extent of calcified plaque in the coronary arteries and helps detect coronary artery disease at an early stage, which neither traditional imaging techniques nor cardiac testing can do. Over the last decade technologic advances in CT angiography have been made at a rapid rate, and the new applications and refinements of existing technology continue to be made. This issue will help practicing cardiologists to keep up with the latest technology in this important and swiftly moving field.

Principles of Cardiac and Vascular Computed Tomography has everything you need to successfully obtain and interpret CT and CTA images. Stuart J. Hutchison-a premier cardiac imaging specialist-explains the dos and don ’ ts of CCT so you get the best images and avoid artifacts. Get only the coverage-from evidence-based CTA to noncoronary lesions-you need with clinically oriented, practical information presented in a consistent format that makes finding everything quick and easy. High-quality images and access to the text and more at Expert Consult makes this the one cardiovascular computed tomography resource that has it all. Access videos of CTA procedures at Expert Consult. Get only the coverage that you need-from evidence-based CTA to determination of coronary calcium to noncoronary lesions-from focused, clinically oriented, and practical information. Obtain the best image quality and avoid artifacts through instructions on how to and how not to perform cardiovascular computed tomography. Gain a clear visual understanding through high-quality images-many in color-that reinforce the quality of information in the text. Master probe settings and measurements using numerous tables with useful values and settings. Find information easily thanks to a consistent format.

Atlas of Cardiac CT, by Allen J. Taylor, MD, is a practical cardiac imaging reference that provides comprehensive coverage of all aspects of this modality. Inside you'll find user-friendly case-based structured sections that offer a brief clinical introduction, multiple CT images, highlights of strengths and pitfalls, brief commentary, and further suggested readings-equipping you with everything you need to know to obtain the best imaging results. Expert Consult functionality further enhances your reference power with convenient online access to the complete contents of the book-fully searchable-along with additional images and videos. Features a clinically oriented, case-based and evidence-based approach for coverage that you can readily apply in your daily practice. Offers the guidance of today's experts in cardiac CT, along with input of the editorial team behind Braunwald's Heart Disease, to ensure that you have only the best knowledge at your fingertips. Includes a final chapter, Which Modality for Which Disease, to help you determine the best imaging modality to use for a specific problem. Presents abundant high-quality images that clearly depict the use of cardiac CT and visually reinforce the text. Provides complete guidance on obtaining the best image quality possible and the avoidance of artifacts. Uses a consistent chapter format that makes it easy to find the information you need. Offers access to the complete contents online, fully searchable, along with additional images and videos, at expertconsult.com. Your purchase entitles you to access the web site until the next edition is published, or until the current edition is no longer offered for sale by Elsevier, whichever occurs first. Elsevier reserves the right to offer a suitable replacement product (such as a downloadable or CD-ROM-based electronic version) should access to the web site be discontinued.

The Complete Guide to Cardiac CT

Developmental and Prognostic Investigations

Computed Tomography of the Cardiovascular System

Cardiac CT Imaging

Practical Textbook of Cardiac CT and MRI

Obtaining and interpreting images of the heart is critical to the successful management of any cardiac disorders. Several imaging modalities are used to help cardiologists correctly diagnose these disorders and initiate the most appropriate form of treatment. Since the first publication of this book, the use of cardiovascular CT imaging has increased exponentially. Revised and updated, Cardiac CT Made Easy: An Introduction to Cardiovascular Multidetector Computed Tomography, Second Edition* captures these advances in CT scanner technology and clinical experience. For the first time, this new edition includes online access to imaging video clips. Combining the expertise of leading cardiovascular imaging groups in North America, Europe, and Asia, this second edition continues to serve as a comprehensive introduction to the field. It focuses on the principles of multidetector computed tomography (MDCT) for cardiovascular applications, practical aspects of scan acquisition and interpretation, clinical indications and imaging protocols, and clinical findings of common cardiovascular disease conditions. The book is an essential resource for those new to the field and a trustworthy reference for those needing answers to specific questions or looking to update their knowledge. *Now includes an identical eBook version from VitalSource with access to video material

This atlas is a comprehensive visual reference for the use of cardiovascular computed tomography (CT) containing photomicrographs, anatomic illustrations, tables, and charts paired with extensive legends and explanations that are supplemented by extensive research, peer-reviewed articles, and textbooks. In addition to providing historical perspective and current direction for CT, this new edition of Atlas of Cardiovascular Computed Tomography 2e focuses on research involving coronary artery diseases and anomalies, congestive heart failure, atherosclerotic plaques and asymptomatic disease, as well as imaging techniques, including preparation, acquisition, and processing, involving the great vessels and carotids, the peripheral vasculature, and coronary and pulmonary veins. The increasing role of CT in the emergency room and in private cardiology practice is also reviewed thoroughly, making this an essential read for all involved in cardiac imaging, cardiology and emergency medicine.

This book collates all the current knowledge of cardiac CT and presents it in a clinically relevant and practical textbook format appropriate for both cardiologists and radiologists. The images have been supplied by an experienced set of contributing authors and represent the full spectrum of cardiac CT. The field of Cardiovascular CT has experienced continued rapid evolution due to: 1) advances in technology, 2) expanded spectrum of cardiovascular applications and 3) significant growth in published data including large prospective multicenter studies. As increasing numbers have access to cardiac CT scanners, this book provides all the relevant information on this modality. This is an extensive update of the previous edition bringing the reader up-to-date with the immense amount of updated content in the discipline.

CT is an accurate technique for assessing cardiac structure and function, but advances in computing power and scanning technology have resulted in increased popularity. It is useful in evaluating the myocardium, coronary arteries, pulmonary veins, thoracic aorta, pericardium, and cardiac masses; because of this and the speed at which scans can be performed, CT is even more attractive as a cost-effective and integral part of patient evaluation. This book collates all the current knowledge of cardiac CT and presents it in a clinically relevant and practical format appropriate for both cardiologists and radiologists. The images have been supplied by an experienced set of contributing authors and represent the full spectrum of cardiac CT. As increasing numbers have access to cardiac CT scanners, this book provides all the relevant information on this modality. This is an extensive update of the previous edition bringing the reader up-to-date with the immense amount of updated content in the discipline.

An Introduction to Cardiovascular Multidetector Computed Tomography, Second Edition

Computed Tomography Imaging in 2012, An Issue of Cardiology Clinics

Handbook of Cardiovascular CT

Atlas of Non-Invasive Coronary Angiography by Multidetector Computed Tomography

The essentials of Computed Tomography and its application in cardiac imaging

Cardiovascular and Coronary Artery Imaging, Volume One covers state-of-the-art approaches for automated non-invasive systems in early cardiovascular disease diagnosis. The book includes several prominent imaging modalities, such as MRI, CT and PET technologies. A special emphasis is placed on automated imaging analysis techniques, which are important to biomedical imaging analysis of the cardiovascular system. This is a comprehensive, multi-contributed reference work that details the latest developments in spatial, temporal and functional cardiac imaging. Takes an integrated approach to cardiovascular and coronary imaging, covering machine learning, deep learning and reinforcement learning approaches Covers state-of-the-art approaches for automated non-invasive systems for early cardiovascular disease diagnosis Provides a perspective on future cardiovascular imaging and highlights areas that still need improvement

'Handbook of Cardiac CT' is a primer for the practical performance and interpretation of cardiovascular computed tomography. This manual serves as a companion to the textbook: 'Cardiac CT Imaging: Diagnosis of Cardiovascular Disease' and provides essential concise and practical text summary of each topic, with additional tables, algorithms, protocols and key images for orientation to and familiarization with important disease processes. This manual targets a reading audience who are in the training phase of performance and interpretation of cardiovascular CT and is designed as an easily accessible pocket reference.

Cardiovascular Computed Tomography has a prominent role in the diagnosis and management across a wide spectrum of clinical indications. Therefore, knowledge about this exciting technology is critical for imaging specialists and clinicians alike. Complementary to more detailed textbooks, this book is geared towards readers, who are learning about cardiovascular CT regardless of their clinical specialty. It is intended to be a short practical introduction with a focus on visual material. With this in mind, the third edition has been carefully revised and updated to include recent developments in CT scanner technology and clinical indications. The current third edition of the book covers the entire spectrum of cardiovascular computed tomography, but the text and number of images have been reduced to focus on the essential material. Cardiac CT Made Easy provides a rapid introduction and initial understanding about cardiovascular CT.

Key Features Covers the entire spectrum of cardiovascular computed tomography: this third edition provides a concise and practical text Addresses the needs of radiologists and cardiologists who practice cardiovascular imaging, providing technical and practical aspects of MDCT for cardiovascular applications, especially from the perspective of clinicians Contains new material covering recent developments in CT scanner technology (e.g. photon-counting detector technology) and clinical indications (e.g. imaging in the context of structural and valvular interventional procedures)

A complete guide to non-invasive imaging techniques in cardiology Today's imaging technologies offer cardiologists more ways than ever to diagnose conditions of the heart without the need of endoscopies and other invasive procedures. Now in its third edition,Cardiac CT, PET and MRI continues to provide an in-depth explanation of these tools and their correct applications, while also exploring cardiac imaging's most recent and groundbreaking developments. This wide-ranging guide places CT, PET and MRI in a practical context, illustrating clearly their respective functions as they apply to specific cardiological disorders and clinical situations. With the addition of seven new chapters, it also offers an expanded insight into PET – an increasingly popular and affordable diagnostic utility, hitherto underexplored in texts devoted to imaging. Cardiac CT, PET and MRI includes: Clinically focused examinations of CT, PET and MRI – the three most popular non-invasive imaging modalities Illustrative full-color photos and images Access to a companion website featuring additional content Cardiologists, radiologists, nuclear medicine physicians, physicists, and imaging technologists alike will find the third edition of Cardiac CT, PET and MRI an informative and accessible resource with a direct use in their day-to-day practice.

Cardiac CT Made Easy: An Introduction to Cardiovascular Multidetector Computed Tomography, Second Edition

Atlas of Cardiovascular Computed Tomography

Dual-Energy CT in Cardiovascular Imaging

A Computed-Tomography-Based Atlas and Reference

Oxford Textbook of Interventional Cardiology

Obtaining and interpreting images of the heart is critical to the successful management of any cardiac disorders. Several imaging modalities are used to help cardiologists correctly diagnose these disorders and initiate the most appropriate form of treatment.Since the first publication of this book, the use of cardiovascular CT imaging has increase

This up-to-date textbook comprehensively reviews all aspects of cardiac CT and MRI and demonstrates the value of these techniques in clinical practice. A wide range of applications are considered, including imaging of atherosclerotic and non-atherosclerotic coronary artery disease, coronary revascularization, ischemic heart disease, non-ischemic cardiomyopathy, valvular heart disease, cardiac tumors, and pericardial disease. The numerous high-quality images illustrate how to interpret cardiac CT and MRI correctly for the purposes of diagnosis, treatment planning, and follow-up. Helpful summarizing sections in every chapter will facilitate rapid retrieval of information. This book will be of great value to radiologists and cardiologists seeking a reliable guide to the optimal use of cardiac CT and MRI in real clinical situations. An additional feature is the provision of QR codes allowing internet access to references, further figures, and motion pictures. The reader will be able to enjoy this book using a smartphone or tablet PC.

Recent years have seen a marked increase in cardiovascular computed tomography (CT) imaging, with the technique now integrated into many imaging guidelines, such as those published by ESC and NICE. Rapid clinical and technological progress has created a need for guidance on the practical aspects of CT image acquisition, analysis and interpretation. The Oxford Specialist Handbook of Cardiovascular CT, now revised for the second edition by practising international experts with many years of hands-on experience, is designed to fulfil this need. The Handbook is a practical guide on performing, analysing and interpreting cardiovascular CT scans, covering all aspects from patient safety to optimal image acquisition to differential diagnoses of tricky images. It takes an international approach to both accreditation and certification, highlighting British, European, and American examinations and courses. The format is designed to be accessible and is laid out in easy to navigate sections. It is meant as a quick-reference guide, to live near the CT scanner, workstation, or on the office shelf. The Handbook is aimed at all cardiovascular CT users (Cardiologists, Radiologists and Radiographers), particularly those new to cardiovascular CT, although even the advanced user should find useful tips and tricks within.

A comprehensive atlas containing photomicrographs, anatomic illustrations, tables, and charts paired with legends and explanations that are supplemented by extensive research, peer-reviewed articles, and textbooks. In addition to providing historical perspective and current direction for computed tomography, this atlas focuses on research involving coronary artery diseases and anomalies, congestive heart failure, atherosclerotic plaques and asymptomatic disease, as well as imaging techniques, including preparation, acquisition, and processing, involving the great vessels and carotids, the peripheral vasculature, and coronary and pulmonary veins. Also a discussion of the role of computed tomography in the emergency room and in private cardiology practice.

Principles and Applications

An Introduction to Cardiovascular Multidetector Computer Tomography (Combined Book and DVD Set)

Diagnosis of Cardiovascular Disease

An Imaging Companion to Braunwald's Heart Disease

Written by internationally eminent experts in cardiovascular imaging, this volume provides state-of-the-art information on the use of MRI and CT in the assessment of cardiac and vascular diseases. This Second Edition reflects recent significant advances in cardiovascular MRI technology and the emergence of multi-detector CT as an important diagnostic modality, particularly for ischemic heart disease. New chapters in this edition cover coronary CTA and plaque characterization. A brand-new interventional MR section covers catheter tracking and devices, endovascular interventions, MR-guided cardiac catheterization, and endovascular delivery of gene and stem cell therapy. More than 900 illustrations present diagnostic information in unprecedented detail.

Acquire a thorough understanding of cardiac imaging! "I believe radiologists, cardiologists, and clinicians, as well as trainees, will find *The Complete Guide to Cardiac CT* to be an indispensable tool for learning the subject matter...It is practical in approach, but is solidly grounded in evidence-based medicine with a comprehensive review of the literature and timely references. The textbook provides an ideal resource for the cardiac imager and serves as an exceptional reference tool for understanding the anatomy and disease processes of the heart and coronary circulatory systems."--Theresa C. McLoud, MD, Dept. of Radiology, Massachusetts General Hospital, and Professor of Radiology, Harvard Medical School (from the foreword) Based on the popular review courses of educator and radiologist Dr. Simeon Abramson, *The Complete Guide to Cardiac CT* is a timely, hands-on learning tool--one that will help you master every important aspect of cardiac CT, from acquisition to interpretation. This unique guide translates complex concepts and topics into understandable, relevant subject matter and includes contributions from international leaders in cardiac CT. Designed for the practical, day-to-day application of cardiac CT, the text also serves as a comprehensive visual resource more than 1000 laser-precise images and illustrations, all of which reflect the latest clinical acumen and cardiac imaging technology. FEATURES Focuses on the recognition, identification, and comprehension of heart and coronary circulatory pathology Valuable to clinicians at any experience level Logical 4-part organization consists of: Technology section that encompasses coronary CT angiography technique, radiation concepts, and successful application of radiation dose reduction tools--plus a detailed review of strategies for overcoming suboptimal examinations, complete with case examples. Coronary Arteries section that thoroughly examines plaque detection and characterization, stenosis assessment, stents and bypass grafts, and assessment of coronary artery anomalies. Beyond the Coronary Arteries details cardiac CT anatomy; myocardial, pericardial and valvular pathology; electrophysiology applications; and congenital heart disease in both pediatric and adult populations. Controversial topics focuses on the utilization of cardiac CT in the acute setting, institution of the triple rule-out protocol, and anatomic versus physiologic imaging with Rubidium PET/CT/ Helpful pedagogy includes numerous tables, diagrams, figures, and illustrations

Based on advances in scanner and software technology, cardiovascular imaging with multidetector computed tomography (MDCT) is developing into an important clinical diagnostic tool for cardiac disease. Combining the in-depth coverage of a text with the diagnostic utility of a manual, *Cardiac CT Made Easy: An Introduction to Cardiovascular Multidetector Computed Tomography* provides a simple introduction to the principles of MDCT for cardiovascular applications from the perspective of the CT technologist as well as the clinician. Covering the essential topics in a detailed manner, this volume: Reviews the technical principles of CT Discusses characteristics of the normal heart as well as clinical cardiovascular indications Focuses on clinical manifestations of disease, diagnostic criteria, and options for management Reviews major anti-arrhythmic drugs and new agents coming into use Discusses clinical applications in comparison with other imaging modalities-- clarifying the strengths and the limitations of CT in the assessment of specific clinical problems Explores current standard applications such as imaging of the aorta, as well as emerging areas for coronary artery imaging Contains a large number of selected images to place the material in context Practical and fully up to date, this is an essential book for cardiovascular clinicians and technologists using CT imaging technology, cardiac specialists and nurses, and imaging physicists.

This atlas presents over 160 illustrations, with 116 in color, and illustrates the capacity of multidetector CT for the analysis of the anatomy of the coronary arteries. The multidetector CT scanner speeds diagnosis and treatment of patients. One of its many uses is to perform CT coronary angiography. Multidetector CT provides clear pictures and takes less time than other non-invasive techniques. The book is written by cardiologists and radiologists.

CT Coronary Angiography

Problem-Based Learning

Volume 1

Cardiac Computed Tomography

Novel Techniques for Imaging the Heart

Written by internationally eminent experts in cardiovascular imaging, this volume provides state-of-the-art information on the use of MRI and CT in the assessment of cardiac and vascular diseases. This third edition, now in four-color, reflects recent significant advances in cardiovascular MRI technology and the continuing emergence of multi-detector CT as an important diagnostic modality, particularly for ischemic heart disease. Seven new chapters have been added including chapters on anatomy, cardiovascular MR in infants/children, assessing myocardial viability, risk assessment in ischemic heart disease and MR guidance.

Leading clinicians and researchers from around the world review the full scope of current developments, research, and scientific controversy regarding the principles and applications of cardiac CT. Richly illustrated with numerous black-and-white and color images, the book discusses the interpretation of CT images of the heart in a variety of clinical, physiological, and pathological applications. The authors emphasize current state-of-the-art uses of CT, but also examine developments at the horizon. They also review the technical basis of CT image acquisition, as well as tools for image visualization and analysis.

Computed tomography of the heart and cardiovascular system continues to show an impressive and tremendously successful development. Technical improvements translate into new applications and enhanced diagnostic accuracy and the new diagnostic opportunities may potentially be beneficial for many individuals with known or suspected cardiovascular dis

Updated to reflect the notable advances in cardiac computed tomography (CT) imaging, the Second Edition of the best-selling Computed Tomography of the Coronary Arteries provides cardiologists and radiologists with a practical text that explains the basic principles and applications of CT. Written by renowned international experts in the field, this

Cardiovascular and Coronary Artery Imaging

Principles of Cardiac and Vascular Computed Tomography

Expert Consult

X-ray Computed Tomography of the Cardiovascular System

Cardiovascular Computed Tomography

This is the first textbook in DECT focussing especially on the cardiovascular field. DECT was developed many years ago but has recently spread its clinical utility. Many new applications have been developed over the last years and the cardiovascular system has benefited from these advances. New protocols will be used in the near future vs results obtained until now with single energy CT, such as a more precise quantification of coronary artery stenosis using either different monochromatic levels or material decomposition, reduction of beam hardening artifacts in perfusion studies and optimizing endovenous contrast, among others.?

Cardiac computed tomography (CT) has become a highly accurate diagnostic modality that continues to attract increasing attention. This extensively illustrated book aims to assist the reader in integrating cardiac CT into daily clinical practice, while also reviewing its current technical status and applications. Clear guidance is provided on the interpretation of imaging using the latest technology, which offers greater coverage, better spatial resolution, and faster imaging while also providing functional information about cardiac diseases. The specific features of scanners from all four main vendors, including those that have only recently become available, are presented. Among the topics and issues discussed are coronary calcium scoring, coronary artery bypass grafts, stents, and anomalies, cardiac valves and function, congenital and acquired heart disease, and radiation exposure. Upcoming clinical uses of cardiac CT, such as hybrid imaging, preparation and follow-up after valve replacement, electrophysiology applications, myocardial fractional flow reserve assessment, and plaque imaging, are also explored.

Packed with useful information, *The Interventional Cardiac Catheterization Handbook, 4th Edition*, by Drs. Morton J. Kern, Michael J. Lim, and Paul Sorajja, is the perfect hands-on resource for physicians, nurses, and technicians who need to understand and perform these complex procedures. Easy-to-read text, hundreds of clear images, and expert commentary ensure that health care workers at all levels have quick access to easily accessible guidelines on procedures and patient care. Features a wealth of quick-reference tables, and more than 500 images - making this handbook a must-have reference for physicians and staff members in every cath lab. Includes a chapter dedicated to interventional techniques. Includes new content on correction of mitral regurgitation with Mitra ClipTM, enhanced coverage of aortic valve stenosis with TAVR, expansion of biodegradable and drug-eluting stents, enhanced descriptions of lesion assessment, chronic total occlusion intervention, and radial access approach to intervention. Covers the latest treatment techniques for mitral stenosis, new procedural enhancements for the treatment of aortic valve stenosis, and chronic total occlusion intervention technique updates.

This new atlas represents a fresh fresh approach to cardiac anatomy, providing images of unparalleled quality, along with explanatory text, to show in vivo heart anatomy and explain the clinically relevant underlying anatomic concepts. In spite of amazing proliferation of information on the Internet and multiple websites filled with up-to-date information, this similarly detailed and systematic compilation of morphological imaging with CT. Organized for both systematic learning and to serve as a quick, yet detailed reference for specific clinical questions, this book is an invaluable resource for medical students and residents, cardiologists, and especially surgeons, interventionalists and electrophysiologists. This more detailed imaging support in order to successfully perform increasingly complex coronary and noncoronary structural interventions and other procedures.

Cardiac CT Made Easy

An Introduction to Cardiovascular Multidetector Computed Tomography

Revisiting Cardiac Anatomy

CT of the Heart

Practical Cardiology

Seminar paper from the year 2011 in the subject Medicine - Other, grade: 1,3, University of Applied Sciences Ulm (Informatik), course: Medizinische Bildverarbeitung, language: English, abstract: This paper introduces into the essentials of computed tomography and gives a brief lead-in to Cardiac CT, which is the clinical application of computed tomography in cardiac imaging. At first, the usage of X-rays is explained and the resulting main task of a CT scanner: The reconstruction of a three-dimensional image from the X-ray shadows, that are captured by the digital radiation detector unit. This reconstruction problem is known as the inverse problem in mathematics, which was initially solved by Johann Radon. Transferred to the field of computed tomography, the inverse problem means the definition of a volume dataset by reconstruction algorithms like for instance the Fourier Transform, which is shortly introduced, as well as the filtered backprojection. The main issue of Cardiac CT is the steady movement of the heart and chest of an examined patient. To ensure high image quality the scanner is triggered by a concurrently recorded ECG. ECG Triggering can ensure that the scanner only captures images during the phases of the heartbeat, where the movement is minimal. One major application of Cardiac CT is non-invasive coronary angiography, which possibly could substitute invasive diagnostic surgeries like cardiac catheterization of non-emergency patients.

This book brings the recent dramatic changes in the field of cardiovascular imaging into the clinical setting to enable the clinician to best use the technology at hand. *Novel Techniques for Imaging the Heart* opens with three chapters reviewing the general considerations and fundamentals of imaging, followed by a series of chapters that address clinical applications of CT and CMR, including critical review of imaging approaches for diagnosis and prognosis of CAD evaluating the patient with new onset heart failure evaluating the patient before non-cardiac surgery evaluating the patient before interventional electrophysiology novel assessment of vascular flow and valvular disease relative merits of CTA and MRA for coronary artery imaging The final section deals with advanced applications of CT and MR imaging, considers technical advances and future prospects of high field MRI, and concludes with a chapter on image-guided cardiac interventions. The book includes a companion CD-ROM with a searchable database of figures from the book and 40 video clips fully referenced in the text.

This careful revision keeps pace with developments in the field, with new chapters on PET Metabolism, CT and MRI in the Emergency Department, Image-Guided Electrophysiology Mapping and Ablation, and Identification of Vulnerable Atherosclerotic Plaque by Radionuclide and CT techniques, plus the introduction of new contributors Udo Hoffman and Stephan Achenbach. Praised in its previous edition as a concise source of essential information, this new edition presents the most recent information in an accessible format and serves as an excellent reference source for all cardiologists, radiologists and nuclear medicine physicians. Computed tomography (CT) is seen increasingly to play a pivotal role in cardiovascular imaging, although a relatively new imaging technique compared to traditional methods of angiography. The flexibility, availability and clinical robustness of CT allows a comprehensive assessment of the patient's vasculature that can be matched only by more risky invasive procedures. The concept applies to all vascular regions of the human body, but, in particular, cardiac CT angiography is viewed as the potential modality of choice for primary cardiovascular risk stratification. This book presents the reader with a thorough grounding in the basics of cardiac CT, with particular reference to coronary artery disease. It is primarily a practical guide, reviewing basic techniques, optimization, data handling and reporting. The atlas is grounded firmly in a clinical context, comprehensively illustrated throughout and using detailed case studies to demonstrate the role of cardiac CT in a wide variety of clinical settings. This atlas is an essential reference for the hospital radiology department and for the trainee.

Cardiac CT, PET and MR

The Interventional Cardiac Catheterization Handbook E-Book

Cardiac CT

The ESC Textbook of Cardiovascular Medicine

Cardiovascular Computed Tomography for Diagnosis and Risk Stratification of Coronary Artery Disease

Cardiac catheterization and coronary angiography remain the key tools in the management of patients with coronary heart disease. Interventional cardiology is now routinely performed outside of major cardiac centres, often in small district hospitals. General training in cardiology rarely offers more than the opportunity to assist a more senior operator to perform angioplasty procedures, so a textbook for the non-specialist has become essential reading. Oxford Textbook of Interventional Cardiology is a definitive text spanning the whole spectrum of interventional cardiology procedures, including management of patients with coronary artery disease, one of the leading killers in western society. Written by an expert faculty of international authors, it offers guidance on all aspects of interventional cardiology according to the European curriculum and guidelines for practice, and covers the very latest techniques and devices to provide practical, evidence-based guidance on treating a full range of coronary lesions. The book also covers structural heart disease and new developments in heart valve disease, which were previously in the realm of cardiac surgeons but are now being treated by cardiologists using less invasive methods.