Mri Of The Prostate A Practical Approach English

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Prostate Cancer Imaging: Computer-Aided Diagnosis, Prognosis, and Intervention AuthorHouse
This fully updated and revised new edition provides a comprehensive, state-of-the art review of this field, and will serve as a valuable resource for clinicians, surgeons and researchers with an interest in prostate cancer. The book reviews new data about molecular characteristics of the disease, profiles the new grading system for prostate cancer introduced in 2015, and provides new perspectives about imaging of prostate cancer, as well as the role of targeted biopsies. The text summarizes the role of biomarkers and MRI in patient selection and management and details the world wide results of active surveillance. Specific chapters address communication and ethical issues, QOL outcomes, economic aspects, and psycho-social aspects of surveillance. The role of focal therapy for low risk disease is summarized, and the data supporting preventive interventions during surveillance reviewed. This text will serve as a very useful resource for physicians and researchers dealing with, and interested in this common malignancy, as it provides a concise yet comprehensive summary of the current status of the field that will help guide patient management and stimulate investigative efforts.
Molecular & Diagnostic Imaging in Prostate Cancer CRC Press
Prostate cancer killed over 33000 North American men in 2013. However, the survival outlook for prostate cancer is very good if it is caught early. Prostate cancer screening is therefore very important. Although many methods are currently used to screen for prostate cancer, the use of multiparametric magnetic resonance imaging (mpMRI) is increasing in clinical practice and has been shown to have some power in differentiating between healthy and cancerous tissue. This thesis presents a comprehensive feature model for performing prostate cancer diagnosis using mpMRI. It incorporates a novel tumour candidate identification algorithm to efficiently and thoroughly identify regions of concern and a feature model to grade these regions for severity. Unlike conventional automated classification schemes, this feature model aims to ground its decisions in a way that can be interpreted and understood by the diagnostician. It does this by grouping features into high-level feature categories which are already used by radiologists to diagnose prostate cancer: Morphology, Asymmetry, Physiology, and Size (MAPS), using biomarkers inspired by the PI-RADS guidelines for performing structured reporting on prostate MRI. To the author's best knowledge, the proposed feature model is the first using morphology and asymmetry features for prostate cancer detection. Clinical mpMRI data were collected from thirteen men with biopsy-confirmed prostate cancer and labeled by an expert radiologist with thirteen years of experience diagnosing prostate MRI. These annotated data were used to train classifiers using the proposed feature model in order to evaluate classification performance. Training was performed using cross-validation in order to avoid overlearning the training set. Experimental results indicated that the proposed model outperformed each of its constituent feature groups as well as a comparable state of the art feature model. Further work on the MAPS feature model is still warranted. Although the initial results are promising, more data are needed to refine the feature model and discard those features with no predictive power. Additional features should be investigated for inclusion in the model, so that the existing features may be conditioned on the prostate region to reflect the different characteristics between, for instance, the peripheral and the transition zones. Finally, user experience and user acceptance studies would help investigate the degree of cognitive support to diagnosticians that the MAPS model provides.
Oxford Textbook of Urological Surgery Oxford University Press
This book presents the work and development of endourology and the contribution of East Asian Society of Endourology. This book is intended to familiarize the modern urologists with the common endourology, laparoscopic and robotic urologic procedures and the development of technology, techniques and training. The book is the collection of papers and presentations in Congress of East Asia Society of Endourology. Recognized experts in the field of endourology have contributed to share their experiences and opinions. It consists of latest update and advancement of surgical techniques, technology in minimal invasive surgery. The development of endoscopic, laparoscopic and robotic urological operations is reviewed. A whole session is dedicated to training in endourology are included. Detail descriptions of perioperative preparation, step-by-step surgical procedures and tips/tricks will be emphasized in the corresponding chapters, supplemented by photographs and illustrations. In the first session, techniques on kidney, bladder and prostate surgeries are discussed. In the second session, is dedicated to the advances of new technologies in endourology. The third session covers the important areas of endourology training and the development of endourology. This book is most suitable for urology residents and young fellows who are keen to start their endourological training. It also provides up-to-date information on current topics of endourology for practicing urologists and experienced endourologists.
Morphology, Asymmetry, Physiology, Size CRC Press
This book is a basic, practical guide to performing and interpreting state-of-the-art prostate MRI, utilizing the latest

guidelines in the field. Prostate MRI has become one of the fastest growing examinations in the radiology practice, and this demand has continuously increased within the past decade. Since it is relatively new, MRI of the prostate is predominantly being performed at academic institutions, however there is a growing demand within the lower-tier health care institutions to offer this examination to their patients. This is an ideal guide for radiologists who want to enhance or initiate prostate MRI service for their referring clinicians and as a manual for technologists and those who are in training. Prostate cancer is the second leading cause of cancer death in men, exceeded only by lung cancer. The best predictor of disease outcome lies with correct diagnosis, which requires precise imaging and diagnostic procedures aided by prostate MRI. Urologists, medical oncologists and radiation oncologists all agree that multi-parametric prostate MRI is essential for evaluation of prostate cancer. However, the technical aspects of prostate MR imaging are not as straightforward as for the other imaging modalities and constantly evolving. Its small size presents a real challenge to the radiologist, who needs to do the T2 and diffusion weighted images and perform a dynamic contrast enhanced sequence correctly. These images may also need to be analyzed on an independent workstation. Due to the absence of a current reference manual, when a radiologist wants to establish a prostate imaging service, he/she needs to attend dedicated prostate MR workshops or dive into the literature search alone, only to get more confused about what to do and how to do it. With this book, expert authors were asked to give clear guidance to those who want to enhance or initiate their prostate imaging service. With this much-needed, concise, practical guidance, radiologists can perform and interpret multi-parametric prostate MRI in a standardized fashion, in concordance with PI-RADS v2.1 that can be applicable to all available hardware platforms (GE, Philips, Siemens, Toshiba). Additionally, they can perform post-processing for possible targeted biopsy and interpret post-therapy and PET studies. The book discusses imaging protocols (planning and prescription) and sequence parameters with representative images for each MRI sequence. This handbook-style practical manual can be used in the radiology reading room by those interpreting the MR exam as a reference as well as at the MRI scanner by the technologists as a guide. Coverage of basic prostate anatomy, pathology, Urologists' point of view, MRI guided radiation treatment planning and molecular imaging is also included. Throughout the book, authors will discuss basics, pitfalls, and provide tips in image acquisition and interpretation, alongside several case examples.

MRI of the Prostate Morgan James Publishing

This book comprehensively reviews the potential of focal therapy and discusses why the changing face of prostate cancer warrants a change in the way we treat men with the disease. It deals with the mechanisms by which disease can be localized within the gland and then the different technologies used for focal ablation. Bringing together eminent contributors in one accessible reference, this book introduces focal therapy to all urologists, oncologists, and radiologists who are involved in the treatment of men with prostate cancer.

Diseases of the Abdomen and Pelvis 2018-2021 Springer Nature

This book constitutes the refereed proceedings of the International Workshop on Prostate Cancer Imaging, held in conjunction with MICCAI 2011, in Toronto, Canada, in September 2011. The 15 revised full papers presented together with 2 invited talks were carefully reviewed and selected from 19 submissions. The papers cover the clinical areas of radiology, radiation oncology, and image guided intervention, addressing topics such as prostate segmentation, multi-modal prostate registration, and computer-aided diagnosis and classification of prostate cancer.

Prostate MRI Essentials Springer Nature

Imaging and Focal Therapy of Early Prostate Cancer evaluates the scientific evidence for the evolving trend to treat low to intermediate risk, clinically localized prostate cancer in a focally ablative manner with novel gland-preserving, focal therapy methods. Various ablative devices such as high intensity focused ultrasound, irreversible electroporation, photodynamic therapy, cryotherapy and laser ablation, among others, are discussed in regard to their strengths and limitations as a therapeutic modality. Emphasis is placed on tumor stage shift towards early stage disease with an increase in unilateral versus bilateral cancers validated by final pathology assessment of large prostatectomy series. Current and new approaches to image cancer foci within the prostate (3-Dimensional contrast-enhanced transrectal ultrasonography, multiparametric magnetic resonance image with spectroscopy, ETC) are presented along with biopsy techniques to map prostate cancer. Patient selection, treatment strategy, outcomes and safety concerns that may provide acceptable cancer control and improved quality of life for patients are all covered in detail. Written by experts in the field and lavishly illustrated with detailed line-art and photographs, Imaging and Focal Therapy of Early Prostate Cancer is a resourceful volume beneficial to practitioners specializing in the treatment and management of prostate cancer.

Quantitative Prostate Diffusion MRI and Multi-Dimensional Diffusion-Relaxation Correlation MRI for Characterization of Prostate Cancer Thieme

While MRI has proved itself to be an excellent diagnostic noninvasive modality for imaging of the brain, medulla, and musculoskeletal system due to its high intrinsic con trast resolution and tissue characterisation potential based on the judicious application of specific sequences, this has not been the case in the abdomen and pelvis. The reasons are the long exposure time and the lower spatial resolution, inherent to MRI. However, during recent years considerable process has been achieved in MRI of the abdominal and pelvic organs due to the development of new and more rapid imaging sequences and the routine clinical application of specific magnetic resonance contrast media. Consequently for some anatomical areas such as the female genital organs and the biliary system MRI is already the best performing morphological diagnostic modality. However, the question arises as to wether MRI, given its performance capabilities, should not also be considered a primary diagnostic modality for the study of parenchymal organs like the liver, spleen, and pancreas, and not merely as a complen tary modality to solve residual problems after ultrasonography and computed tomog raphy have been performed. Although the future role of MRI in respect of the gas trointestinal tube itself is still somewhat unclear, some possibilities for routine clinical use are becoming visible even in this abdominal field.

Prostate MRI Essentials Springer

This book provides a concise guide to prostate cancer imaging. Beginning with normal MR anatomy, the book details the various components of a typical mpMRI protocol and discusses MR interpretation and reporting under PI-RADS version 2 guidelines. MR appearances of atypical locations of prostate cancer, common tumor mimics, MR-guided biopsy strategies, and the role of active surveillance are also covered. Reading MRI of the Prostate aims to

help urologists and radiologists understand the evaluation and interpretation of prostate MRIs.
Giulio Aristide Sartorio Elsevier
Prostate Ultrasound: Current Practice and Future Directions addresses the most up-to-date imaging techniques that incorporate ultrasound in the evaluation of prostate cancer. The volume features an important section on the applied physics of ultrasound and the future techniques that promise soon be to be routinely available as we continue to improve our ability to evaluate this optically illusive disease. The volume evaluates imaging of the prostate for the diagnosis and treatment of these benign conditions, and evaluates the future of pelvic floor ultrasound in the male. The general scope encompasses the physics of ultrasound, the technical aspects on the use of ultrasound, and the actual present day state of the art use of ultrasound in the treatment and diagnosis of men with prostatic issue. The volume also includes the unique feature of providing links to video clips that illustrate techniques of diagnostic ultrasound that will provide the reader with the foundation to perform accurate and safe ultrasound exams. Prostate Ultrasound: Current Practice and Future Directions will be of great value to urologists, radiologists, medical oncologists ultrasound technicians and fellows and residents in urology.
Atlas of Multiparametric Prostate MRI Springer Science & Business Media
Learn the fundamental principles and clinical applications of the diagnostic and risk assessment imaging test of choice for prostate cancer: prostate MRI Although prostate cancer is the second leading cause of cancer death in men in the USA, it can be treated successfully if detected early. Disease management has gradually changed to a paradigm that relies on close monitoring through active surveillance in select patients, as well as ongoing refinements in treatment interventions, including minimally invasive procedures. This has resulted in a critical need for a more exacting methodology for performing targeted biopsies, assessing risk levels, and devising treatment strategies. Prostate MRI has emerged as the most precise, state-of-the-art imaging modality for prostate cancer diagnosis and management, thereby creating an immediate demand for radiologists to become proficient in its use. Conceived and edited by a leading authority, with contributions from renowned experts in the field, MRI of the Prostate: A Practical Approach is the first book to tackle this important topic. It provides an overview of the fundamentals of prostate MRI acquisition, interpretation, and reporting. Readers will benefit from a wide range of insightful perspectives gleaned from years of hands-on experience. Key Highlights Prostate Imaging Reporting and Data System (PI-RADS) for prostate MRI interpretation and cancer risk scoring Clinical pearls on the optimization and application of prostate MRI for risk assessment, disease staging, MRI-targeted biopsy, recurrent disease, and active surveillance The emerging utilization of PET and PET/MRI for primary prostate cancer evaluation More than 700 illustrations with one entirely image-based chapter featuring educational case studies Radiologists will learn how to optimally perform and interpret prostate MRI, and referring physicians will learn to integrate it into day-to-day practice. This book is an essential resource for radiologists and radiology residents, as well as urologists, oncologists, MRI technicians, and other medical practitioners who treat patients with genitourinary disorders.
Prostate Cancer Imaging. Image Analysis and Image-Guided Interventions John Wiley & Sons
This issue of Radiologic Clinics of North America focuses on MR Imaging of the Prostate, and is edited by Dr. Aytekin Oto. Articles will include: Prostate cancer diagnosis and management: A urologist’s perspective; MRI of prostate zonal anatomy; Technique of Multi-parametric MRI of the prostate; Multi-parametric MRI-interpretation including PIRADS v2; Prostate MRI for screening and active surveillance; Prostate MRI for staging; Prostate MRI for post-treatment evaluation and recurrence; Pitfalls in prostate MRI; MRI-targeted prostate biopsies; MRI-guided focal treatment for prostate cancer; Role of Prostate MRI in radiation oncology; Challenges and future directions of prostate MRI; and more!
Image Guided Prostate Cancer Treatments Elsevier Health Sciences
The second of two companion books which address the biology and clinical aspects of prostate cancer. This volume, Prostate Cancer: Molecular & Diagnostic Imaging and Treatment Stategies, discusses both classic and the most recent imaging approaches for detection, early diagnosis and treatment of prostate cancer. The companion title, Cell & Molecular Biology of Prostate Cancer, covers classic and modern cell and molecular biology as well as genetics, epigenetics, mitochondrial dysfunctions and apoptosis, cancer stem cells, angiogenesis, progression to metastasis, and treatment strategies including clinical trials related to prostate cancer. Taken together, these volumes form one comprehensive and invaluable contribution to the literature.
Advances in Urologic Imaging, An Issue of Urologic Clinics E-Book Elsevier Health Sciences
Prominent physicians review past, current, and future applications of the many powerful imaging techniques now used in the diagnosis, staging, treatment, and outcomes assessment of cancers of the prostate, central nervous system (CNS), and breast. Topics range from the use of screening mammography and approaches to breast cancer detection using MRI to improved visualization of the prostate gland from transrectal ultrasound and MRI, to MRI-guided resection of neoplasms.
Advanced MR Neuroimaging Springer
This updated text provides a concise yet comprehensive and state-of-the-art review of evolving techniques in the new and exciting subspecialty of interventional urology. Significant advances in imaging technologies, diagnostic tools, fusion navigation, and minimally invasive image-guided therapies such as focal ablative therapies have expanded the interventional urologists’ clinical toolkit over the past decade. Organized by organ system with subtopics covering imaging technologies, interventional techniques, recipes for successful practice, pitfalls to shorten the learning curves for new technologies, and clinical outcomes for the vast variety of interventional urologic procedures, this second edition includes many more medical images as well as helpful graphics and reference illustrations. The second edition of Interventional Urology serves as a valuable resource for clinicians, interventional urologists, interventional radiologists, interventional oncologists, urologic oncologists, as well as scientists, researchers, students, and residents with an interest in interventional urology.
Dynamic Contrast-Enhanced MRI Atlas of Prostate Cancer Springer Science & Business Media
Prostate cancer is extremely prevalent, with shifting patient demographics leading to an increasing number of men balancing treatment efficacy with associated side-effects. Non-invasive characterization of disease - useful for guiding biopsy, to monitor disease progression during active surveillance, or for treatment planning of focal therapies - could have a significant impact on

patient management. Through its excellent anatomic imaging capabilities and its ability to characterize physiologic properties, magnetic resonance imaging (MRI) has the potential to fulfill clinical goals; however, further improvements are necessary to maximize accuracy and impact. Thus, this thesis presents: 1) the development of a multi-parametric model to combine parameters derived from measurement of T2 relaxation, diffusion weighted imaging, and dynamic contrast-enhanced MRI to improve the discrimination between normal and malignant peripheral zone tissue; 2) determination of the impact that the presence of normal tissue within regions of tumour has on the measurement of apparent diffusion coefficient (ADC) and T2 relaxation in the peripheral zone; and 3) relationships between MRI measurement and underlying prostate tissue composition. A common patient cohort was used for all studies, with prostate cancer patients having in vivo MRI prior to prostatectomy followed by whole-mount histologic sectioning of the surgical specimens, facilitating the use of pathology as a gold-standard for all analyses. In the first study, the optimal multi-parametric model combines ADC, T2, and volume transfer constant (Ktrans) to yield the probability of malignancy for each voxel. Performance of the model is better than each single parameter, but not significantly so compared to ADC. The second study demonstrates that there is no difference in ADC and T2 between tumours containing significant portions of normal tissue and the surrounding normal tissue itself, indicating that full characterization of prostate cancer with MRI may be limited. Finally, by determining relationships between MRI parameters and tissue characteristics, the third study suggests mechanisms driving MR image appearance in the prostate, including the visualization of cancer. Taken together, this thesis presents potential improvements to prostate cancer imaging, and provides further insight into the interplay between the underlying histology and MRI.

Prostate Cancer Imaging Springer Nature
The multi-parameric approach of acquiring different and unique MR data to characterize prostate cancer developed in this work may increase the usefulness and significance of MR prostate exam for the clinical management of prostate cancer.
Active Surveillance for Localized Prostate Cancer Elsevier
This issue of Radiologic Clinics of North America focuses on MR Imaging of the Prostate, and is edited by Dr. Aytekin Oto. Articles will include: Prostate cancer diagnosis and management: A urologist's perspective; MRI of prostate zonal anatomy; Technique of Multi-parametric MRI of the prostate; Multi-parametric MRI-interpretation including PIRADS v2; Prostate MRI for screening and active surveillance; Prostate MRI for staging; Prostate MRI for post-treatment evaluation and recurrence; Pitfalls in prostate MRI; MRI-targeted prostate biopsies; MRI-guided focal treatment for prostate cancer; Role of Prostate MRI in radiation oncology; Challenges and future directions of prostate MRI; and more!
Male Pelvic Imaging, An Issue of Radiologic Clinics of North America - E-Book Springer Science & Business Media
This text encompass an up-to-date, comprehensive review of the state-of-the-art for gland preserving therapies. Fully updated and revised, this text evaluates the scientific evidence for the evolving trend to treat intermediate risk, clinically localized prostate cancer in a focally ablative manner with novel gland-preserving, focal therapy methods. Various ablative devices such as high intensity focused ultrasound, irreversible electroporation, photodynamic therapy, cryotherapy and laser ablation, among others, is discussed in regard to their strengths and limitations as a therapeutic modality. Emphasis is placed on patient selection and outcomes utilizing both advanced imaging techniques and pathologic evaluation. Current and new approaches to image cancer foci within the prostate (multiparametric ultrasonography, multiparametric magnetic resonance image, etc) are presented along with various biopsy techniques, including robotics to map prostate cancer. Patient selection based on imaging and genomic classification, adjuvants to enhance therapy, treatment strategy, outcomes and patient centered concerns is discussed, providing an acceptable balance between cancer control and improved quality of life for patients. Written by experts in the field and lavishly illustrated with detailed line-art and photographs, Imaging and Focal Therapy of Early Prostate Cancer, Second Edition is designed as a comprehensive resource for urologists, radiation oncologists, medical oncologists, radiologists, uropathologists, molecular biologists, biomedical engineers, other clinicians –- residents, fellows, nurses and allied professionals -- and researchers with an interest in the diagnosis and novel treatment of prostate cancer. It will provide insight into the latest research and clinical applications of image-guided diagnosis and minimally invasive focal, gland-preserving treatment for prostate cancer.
Development of Multi-parametric, High Field Magnetic Resonance Imaging Techniques for Improved Characterization of Prostate Cancer Springer Science & Business Media
Dr. Rifkin's definitive volume on ultrasound of the prostate has now been expanded into a complete guide to diagnosis and treatment of prostate disease using all current imaging modalities--ultrasound (now including color Doppler), computed tomography, magnetic resonance imaging, radionuclide studies, and other modalities. The Second Edition thoroughly examines the disease processes that are diagnosable by imaging studies, explains the diagnostic capabilities and limitations of each imaging modality, and offers expert guidance in selecting, performing, and interpreting imaging studies. Complementing the text are 1,097 illustrations--including 69 in full color--that demonstrate the various imaging procedures and depict both normal and pathologic findings. The book includes detailed discussions of the clinical indications for imaging and suggested patient workups.