

3d mapping cardiac ablation

3D Mapping Cardiac Ablation: A Comprehensive Guide to Best Practices and Pitfalls

Author: Dr. Eleanor Vance, MD, PhD, FACC. Dr. Vance is a renowned electrophysiologist with over 15 years of experience in cardiac ablation procedures, specializing in the application and advancement of 3D mapping techniques. She is a leading researcher in the field and has published extensively on the topic.

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Editor: Dr. Mark Olsen, MD, FACC. Dr. Olsen is a highly experienced cardiac electrophysiologist with extensive editorial experience in medical journals. He has a particular interest in the technological advancements in cardiac ablation.

Summary: This guide provides a comprehensive overview of 3D mapping cardiac ablation, a sophisticated technique used to treat various cardiac arrhythmias. It details the procedure's mechanics, best practices for successful implementation, and common pitfalls to avoid. The guide also addresses the advantages and limitations of 3D mapping cardiac ablation compared to traditional methods, providing clinicians with a complete understanding of this vital procedure.

Introduction: Revolutionizing Cardiac Ablation with 3D Mapping

3D mapping cardiac ablation has revolutionized the treatment of cardiac arrhythmias. This minimally invasive procedure uses sophisticated imaging and mapping systems to create a three-dimensional representation of the heart's chambers and electrical activity. This detailed anatomical and electrophysiological information allows physicians to precisely target and ablate (destroy) the abnormal tissue responsible for the arrhythmia, resulting in more effective and safer treatment.

H1: Understanding the Mechanics of 3D Mapping Cardiac Ablation

3D mapping cardiac ablation typically involves the insertion of catheters into the heart via blood vessels. These catheters contain electrodes that record the heart's electrical signals. This data is then processed by sophisticated computer software to generate a 3D map of the heart. The map displays the location of abnormal electrical activity, allowing the physician to precisely target the ablation energy. Different energy sources can be used, including radiofrequency energy or cryoablation.

H2: Types of 3D Mapping Systems Used in Cardiac Ablation

Several different 3D mapping systems are available, each with its own strengths and weaknesses. These systems vary in their imaging modalities (e.g., electroanatomical mapping, MRI-integrated mapping), catheter technology, and software capabilities. The choice of system depends on the specific clinical scenario and the physician's experience.

H3: Best Practices for 3D Mapping Cardiac Ablation

Pre-procedural planning: Thorough patient evaluation, including detailed history, physical examination, electrocardiogram (ECG), and imaging studies (e.g., echocardiogram, cardiac MRI) is crucial.

Accurate catheter placement: Precise positioning of catheters is essential for obtaining accurate mapping data. Real-time fluoroscopy and electrogram analysis are essential tools.

Optimal mapping strategy: The selection of appropriate mapping algorithms and strategies depends on the type of arrhythmia being treated.

Targeted ablation: Precise ablation of the targeted tissue is key to successful treatment. Real-time electrogram monitoring and imaging are essential to guide ablation.

Post-procedural care: Careful monitoring of the patient's rhythm and hemodynamic status after the procedure is crucial.

H4: Common Pitfalls and Complications of 3D Mapping Cardiac Ablation

Despite its advantages, 3D mapping cardiac ablation is not without potential complications. These include:

Incomplete lesion sets: Failure to completely ablate the targeted tissue can lead to recurrence of the arrhythmia.

Catheter-related complications: These include vascular injury, perforation, and thromboembolism.

Atrioventricular block: Damage to the conduction system can lead to heart block.

Phrenic nerve injury: This can cause diaphragmatic paralysis.

Pericardial effusion or tamponade: Rare but serious complications.

H5: Advantages and Limitations of 3D Mapping Cardiac Ablation

Advantages: Increased precision, reduced procedural time, decreased fluoroscopy time, improved success rates, and reduced complications compared to traditional methods.

Limitations: High initial cost of equipment, complex software, requires specialized training and expertise.

H6: The Future of 3D Mapping Cardiac Ablation

Ongoing research is focused on improving the accuracy, efficiency, and safety of 3D mapping cardiac ablation. This includes advancements in mapping technology, catheter design, and ablation techniques. Integration of artificial intelligence and machine learning promises to further enhance the precision and effectiveness of this procedure.

Conclusion:

3D mapping cardiac ablation represents a significant advancement in the treatment of cardiac arrhythmias. While there are potential risks and complications, adherence to best practices and careful attention to detail can minimize these risks and maximize the likelihood of a successful outcome. This technique allows for more precise targeting of abnormal cardiac tissue, improving the efficacy and safety of ablation procedures. Continued innovation in the field promises to further refine this life-saving technology.

FAQs:

1. What are the different types of arrhythmias treated with 3D mapping cardiac ablation? Atrial fibrillation, atrial flutter, ventricular tachycardia, supraventricular tachycardia.
2. How long does a 3D mapping cardiac ablation procedure typically take? The procedure time varies depending on the complexity of the arrhythmia and the individual patient. It can range from several hours.
3. What is the recovery time after a 3D mapping cardiac ablation procedure? Most patients can go home the day after the procedure. Full recovery may take several weeks.
4. What are the long-term success rates of 3D mapping cardiac ablation? Success rates vary depending on the type of arrhythmia and the individual patient. They are generally high.
5. Are there any alternative treatments for cardiac arrhythmias? Yes, including medications, pacemakers, and implantable cardioverter-defibrillators (ICDs).
6. What are the risks associated with 3D mapping cardiac ablation? Risks include bleeding, infection, stroke, heart block, and phrenic nerve injury.
7. Who is a good candidate for 3D mapping cardiac ablation? Patients with drug-refractory arrhythmias who are at high risk for complications from other treatment options.
8. How much does 3D mapping cardiac ablation cost? The cost varies depending on the location, hospital, and specific procedure.
9. What is the role of AI in 3D mapping cardiac ablation? AI is being used to improve the accuracy and efficiency of mapping and ablation procedures, leading to improved outcomes.

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3d mapping cardiac ablation: *Catheter Ablation of Cardiac Arrhythmias* Shoei K. Huang, Mark A. Wood, 2011 The breadth and range of the topics covered, and the consistent organization of each chapter, give you simple but detailed access to information on anatomy, diagnostic criteria, differential diagnosis, mapping, and ablation. the book includes a unique section on troubleshooting difficult cases for each arrhythmia, and the use of tables, illustrations, and high-quality figures is unmatched among publications in the field.

3d mapping cardiac ablation: *Cardiac Mapping* Mohammad Shenasa, Gerhard Hindricks, David J. Callans, John M. Miller, Mark E. Josephson, 2019-04-04 The expanded guide to cardiac mapping The effective diagnosis and treatment of heart disease may vitally depend upon accurate and detailed cardiac mapping. However, in an era of rapid technological advancement, medical professionals can encounter difficulties maintaining an up-to-date knowledge of current methods. This fifth edition of the much-admired Cardiac Mapping is, therefore, essential, offering a level of cutting-edge insight that is unmatched in its scope and depth. Featuring contributions from a global team of electrophysiologists, the book builds upon previous editions comprehensive explanations of the mapping, imaging, and ablation of the heart. Nearly 100 chapters provide fascinating accounts of topics ranging from the mapping of supraventricular and ventriculararrhythmias, to compelling extrapolations of how the field might develop in the years to come. In this text, readers will find: Full coverage of all aspects of cardiac mapping, and imaging Explorations of mapping in experimental models of arrhythmias Examples of new catheter-based techniques Access to a companion website featuring additional content and illustrative video clips Cardiac Mapping is an indispensable resource for scientists, clinical electrophysiologists, cardiologists, and all physicians who care for patients with cardiac arrhythmias.

3d mapping cardiac ablation: Electroanatomical Mapping Amin Al-Ahmad, David J. Callans, Henry H. Hsia, Andrea Natale, 2011-08-26 Catheter ablation has become a mainstay in the therapy of cardiac arrhythmias. The development of electroanatomical mapping technologies (such as CARTO) has facilitated more complex ablation procedures. This brand new book encompasses cardiac arrhythmias and practical tips for users of electroanatomical mapping, providing a color atlas of different arrhythmias, presented as cases, that have been carefully mapped and correlated with clinical and electrogram data. Including maps from all the major mapping systems such as CARTO, NAVX, ESI, RPM as well as activation maps and voltage maps, this book is an ideal reference book and learning tool for electrophysiologists, electrophysiology fellows and electrophysiology laboratory staff.

3d mapping cardiac ablation: Case-Based Clinical Cardiology Majid Maleki, Azin Alizadehasl, 2021-03-03 This book comprehensively covers a range of pathological cases in clinical cardiology. Chapters are case focused and detail how a patient is diagnosed and treated in a step-by-step format. A range of engaging video clips enhances the reader's appreciation and understanding of how to apply these techniques into their day-to-day clinical practice with special focus on congenital heart disease diagnosis and management. Case-Based Clinical Cardiology presents a range of clinical scenarios across all cardiology disciplines with a particular focus on echocardiography, electrocardiography and cardiac catheterization. Therefore, it is an ideal resource for both the novice and experienced cardiology practitioner seeking an up-to-date selection of cases to test their knowledge.

3d mapping cardiac ablation: Catheter Ablation of Cardiac Arrhythmias C. Schmitt, I. Deisenhofer, B. Zrenner, 2006-08-13 This book on catheter ablation gives a comprehensive overview of the subject. It is a practical guide for exact diagnosis of cardiac arrhythmias, mapping of cardiac arrhythmias with newest 3D technology and catheter ablation of various arrhythmias from WPW syndrome to atrial fibrillation. Colored intracardiac tracings, as well as fluoroscopic and 3D mapping images, reflect the situation in the EP lab and will lead to the right diagnosis and successful ablation.

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technical terminology and data frequently used by electrophysiologists into terms and concepts familiar to the wider cardiovascular community. This includes the interpretation of electrograms and 3D electro-anatomical maps of common arrhythmias. Accordingly, it offers a valuable resource for all non-electrophysiologists seeking a guide to the topic and for electrophysiology trainees establishing their core knowledge and skills in the field. The aim is that this should be the first book anyone new to the field should choose to read.

3d mapping cardiac ablation: *Catheter Ablation of Atrial Fibrillation* Etienne Aliot, 2011-08-31 Catheter Ablation of Atrial Fibrillation Edited by Etienne Aliot, MD, FESC, FACC, FHRS Chief of Cardiology, Hôpital Central, University of Nancy, France Michel Haïssaguerre, MD Chief of Electrophysiology, Hôpital Cardiologique du Haut-Lévêque, France Warren M. Jackman, MD Chief of Electrophysiology, University of Oklahoma Health Science Center, USA In this text, internationally recognized authors explore and explain the advances in basic and clinical electrophysiology that have had the greatest impact on catheter ablation of atrial fibrillation (AF). Designed to assist in patient care, stimulate research projects, and continue the remarkable advances in catheter ablation of AF, the book covers: the fundamental concepts of AF, origin of signals, computer simulation, and updated reviews of ablation tools the present practical approaches to the ablation of specific targets in the fibrillating atria, including pulmonary veins, atrial neural network, fragmented electrograms, and linear lesions, as well as the strategies in paroxysmal or chronic AF or facing left atrial tachycardias the special challenge of heart failure patients, the impact of ablation on mortality, atrial mechanical function, and lessons from surgical AF ablation Richly illustrated by numerous high-quality images, Catheter Ablation of Atrial Fibrillation will help every member of the patient care team.

3d mapping cardiac ablation: *Anatomy for Cardiac Electrophysiologists: A Practical Handbook* S. Yen Ho, Sabine Ernst, 2012-08 This highly visual handbook integrates cardiac anatomy and the state-of-the-art imaging techniques used in today's catheter or electrophysiology laboratory, guiding readers to a comprehensive understanding of both normal cardiac anatomy and the structures associated with complex heart disease. Well organized, easily navigable, and superbly illustrated in a landscape format, this unique text invites the reader on a visual intracardiac journey via stunning images and schematic illustrations, including such imaging modalities as computed tomography, magnetic resonance imaging, ultrasound, radiogra.

3d mapping cardiac ablation: Practical Cardiac Electrophysiology Kartikeyan Bhargava, Samuel J Asirvatham, 2016-11-30 Electrophysiology studies test the electrical activity of the heart to determine the source of an arrhythmia. This book is a comprehensive guide to cardiac electrophysiology providing a thorough understanding of the mechanisms of arrhythmias and therapeutic interventions used in their treatment. Beginning with an introduction to cardiac electrophysiology and the fundamentals of cardiac anatomy, imaging, mapping and ablation, the following sections cover the diagnosis and management of different types of arrhythmia. The final section discusses miscellaneous topics including entrainment, provocative drug testing in the electrophysiology lab, and catheter ablation in children. The book is highly illustrated with nearly 300 images and tables and each chapter concludes with a summary highlighting the main points of the topic and offers suggestions for further reading. Key points Comprehensive guide to diagnosis and treatment of cardiac arrhythmias Provides thorough overview of cardiac anatomy, imaging, mapping and ablation Includes other topics such as provocative drug testing and catheter ablation in children Highly illustrated with nearly 300 images and tables

3d mapping cardiac ablation: Fluoroscopy Reduction Techniques for Catheter Ablation of Cardiac Arrhythmias Mansour Razminia, MD, Paul C. Zei, MD, PhD, 2019-05-01 Catheter ablation has become a widely used approach to treating various cardiac arrhythmias. Traditionally, catheter ablation procedures are guided by fluoroscopic imaging to help understand catheter position during mapping. The potentially significant exposure to radiation to the patient, physician, and staff increases risks of radiation exposure-related disease. Also, the protective lead garments worn increases risks of orthopedic injury. Current advanced electroanatomic mapping and

intracardiac echocardiography technology have allowed the development of endocardial catheter ablation techniques without the use of fluoroscopy safely and effectively. A host of expert and experienced authors present a practical overview of the rationale and methodology for a low- or zero-fluoro environment in the electrophysiology lab with the critical goal of significantly reducing radiation exposure to the patient, physician, and staff. This practical guide: -Covers the entire spectrum of commonly (and less commonly) performed ablation procedures via endocardial approach. -Discusses general principles that are applicable across ICE and EAM platforms. -Will assist the electrophysiologist and their team to safely and effectively work toward the significant reduction in fluoroscopy utilization while also likely improving procedural safety, i.e., fewer complications, after the adoption of these techniques. -Includes a library of 50 videos, with 9 extended films (108 minutes) by Dr. Razminia detailing step-by-step procedures and techniques.

3d mapping cardiac ablation: Electrocardiographic Imaging Maria S. Guillem, Carlos Figuera, Linwei Wang, 2020-04-17 Electrical activity in the myocardium coordinates the contraction of the heart, and its knowledge could lead to a better understanding, diagnosis, and treatment of cardiac diseases. This electrical activity generates an electromagnetic field that propagates outside the heart and reaches the human torso surface, where it can be easily measured. Classical electrocardiography aims to interpret the 12-lead electrocardiogram (ECG) to determine cardiac activity and support the diagnosis of cardiac pathologies such as arrhythmias, altered activations, and ischemia. More recently, a higher number of leads is used to reconstruct a more detailed quantitative description of the electrical activity in the heart by solving the so-called inverse problem of electrocardiography. This technique is known as ECG imaging. Today, clinical applications of ECG imaging are showing promising results in guiding a variety of electrophysiological interventions such as catheter ablation of atrial fibrillation and ventricular tachycardia. However, in order to promote the adoption of ECG imaging in the routine clinical practice, further research is required regarding more accurate mathematical methods, further scientific validation under different preclinical scenarios and a more extensive clinical validation

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many others.

3d mapping cardiac ablation: Catheter Ablation of Cardiac Arrhythmias E-Book Shoei K. Stephen Huang, Jason S. Bradfield, Kalyanam Shivkumar, 2024-04-17 Written and edited by world-renowned experts in the field, including Dr. Shoei K. Stephen Huang, a pioneer of radiofrequency catheter ablation procedures, Huang's Catheter Ablation of Cardiac Arrhythmias, 5th Edition, provides authoritative, comprehensive information on these increasingly used electrophysiology procedures. This outstanding resource is packed with cutting-edge content in every area of this fast-changing field, including anatomy, diagnostic criteria, differential diagnosis, mapping, and ablation. Ideal for practitioners who need a definitive, user-friendly ablation text for the electrophysiology lab or office setting, it offers quick access to practical content, using detailed tables and high-quality images to help you apply what you learn in your practice. - Reflects all the latest technology, including the new pulse field ablation (PFA) procedure, new balloon technologies (RF, laser, and PFA) for pulmonary vein isolation, and high-resolution 3D mapping systems. - Offers expert guidance on atrial tachycardia and flutter, atrial fibrillation, atrioventricular nodal reentrant tachycardia, tachycardias related to accessory atrioventricular connections, ventricular tachycardia, transseptal catheterization techniques, ablation for pediatric patients, and patient safety and complications. - Contains new chapters covering Biophysics and Clinical Applications of Laser Ablation, Biophysics and Clinical Applications of Pulse Field Ablation, Multiple Strategic Approach to Ablate Atrial Fibrillation, Ablation of Challenging/Difficult Accessory Pathways, Ablation of Ventricular Tachycardia in Arrhythmogenic Ventricular Cardiomyopathy, and more. - Contains 450 figures, including ECGs, intracardiac recordings, 3D mapping, ultrasound, fluoroscope, and ablation images. - Includes numerous tables and boxes that provide quick access to key points, arrhythmia mechanisms, diagnostic criteria, target sites for ablation, use of special equipment, complications, and troubleshooting problems and their solutions. - Provides access to 20 video clips, including transseptal access to the left atrium, intracardiac ultrasound, and techniques of pericardial access. - Any additional digital ancillary content may publish up to 6 weeks following the publication date.

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3d mapping cardiac ablation: Electrophysiological Maneuvers for Arrhythmia Analysis George J. Klein MD, Lorne J. Gula MD, Peter Leong-Sit MD, Jaimie Manlucu MD, Paul D. Purves BSc, Allan C. Skanes MD, Raymond Yee MD, 2014-05-01 From senior electrophysiologist and world-class educator George Klein, a fully illustrated guide with over 100 intracardiac tracings and figures that allow the physician to approach electrophysiologic problems effectively and systematically. The book is especially focused on electrophysiological maneuvers and provides a clear and understandable guide to their proper selection and interpretation using abundant clinical examples. Defines the integral role for traditional electrogram (EGM) analysis in order to understand the mechanism of a tachycardia. It goes without saying that a correct arrhythmia diagnosis is a prerequisite to catheter ablation regardless of the presence of sophisticated mapping and imaging technologies. Electrophysiological maneuvers are fundamental to this process, and proper selection and interpretation of maneuvers constitute a core skill of the electrophysiologist. In this volume, we make the case that most maneuvers are fundamentally similar in principle and can be understood by appreciating a few basic physiological and anatomical principles. The art lies not in a comprehensive knowledge by rote of every maneuver or its application, but rather a systematic approach using

common principles. We illustrate this by showing abundant examples and emphasizing the game plan, including checklists that can be applied to virtually any maneuver. —George J. Klein In my opinion, this book should be on the shelf of every electrophysiologist trainee as well as every clinical cardiac electrophysiologist. It is a classic, like its editor. Dr. Klein deserves high praise for organizing his and his colleagues' clinical experiences and thought processes into a concise, practical text that should be part of all training programs in electrophysiology. —From the foreword by Mark E. Josephson, MD

3d mapping cardiac ablation: Catheter Ablation of Cardiac Arrhythmias E-Book Shoei K. Stephen Huang, John M. Miller, 2019-01-01 From anatomy and diagnostic criteria through specific mapping and ablation techniques, *Catheter Ablation of Cardiac Arrhythmias*, 4th Edition, covers all you need to know in this fast-changing field. Ideal for practitioners who need a comprehensive, user-friendly ablation text for the electrophysiology lab or office setting, this authoritative reference offers quick access to practical content, using detailed tables and high-quality images to help you apply what you learn in your practice. - Incorporates recent, exciting developments in the field, including new mapping, imaging, and catheter technologies and ablation techniques. - Contains new chapters on Pulmonary Vein Isolation by a Cryoballoon Catheter; Substrate-Based Ablation for Ventricular Tachycardia; and Ablation of Genetically Triggered Ventricular Tachycardia/Fibrillation. - Offers new and expanded coverage of difficult cases VT ablation, including VT storm and use of hemodynamic support during ablation; new techniques for ablation of persistent and long-lasting persistent atrial fibrillation; cryoballoon-based pulmonary vein isolation to treat atrial fibrillation; and more. - Offers expert guidance on atrial tachycardia and flutter, atrial fibrillation, atrioventricular nodal reentrant tachycardia, tachycardias related to accessory atrioventricular connections, ventricular tachycardia, transseptal catheterization techniques, ablation for pediatric patients, and patient safety and complications. - Helps you master each approach with exceptional visual guidance from nearly 300 new illustrations and figures, including many new ECGs, intracardiac recordings, as well as 3D mapping, ultrasound and fluoroscopic images. - Includes numerous tables that provide quick access to key points, arrhythmia mechanisms, diagnostic criteria, target sites for ablation, use of special equipment, complications, and troubleshooting problems and their solutions.

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3d mapping cardiac ablation: Clinical Cardiac Electrophysiology Mark E. Josephson, 2002 The gold standard in electrophysiology, Dr. Josephson's book brings to light current relevant practices aimed at medical internists, clinical cardiologists, and electrophysiologists, emphasizing the capabilities and limitations of clinical cardiac electrophysiology techniques. Thoroughly revised, the Third Edition includes increased coverage of catheter ablation and the latest information on new catheters and computers that measure electrical activity in the heart. Full-color heart maps and illustrations of electrophysiologic concepts help clarify the text. A Brandon-Hill recommended title.

3d mapping cardiac ablation: Intracardiac Echocardiography: Mansour Razminia, Paul Zei, 2021-10

3d mapping cardiac ablation: Beat Your A-Fib: The Essential Guide to Finding Your Cure Steve S. Ryan, 2012-03 Atrial fibrillation is emerging as the new epidemic in cardiovascular disease. This book helps patients research their best treatment options, steps through how to find the right doctor for their type of A-Fib and treatment goals, gives patients hope and empowers them to develop a plan for finding the A-Fib cure or best outcome.

3d mapping cardiac ablation: Cardiac Electrophysiology: A Visual Guide for Nurses, Techs, and Fellows, Second Edition Paul D. Purves, BSc, RCVT, CEPS, George J. Klein, MD, FRCP(C), 2021-03-01 The Essential Visual Guide to Basic Cardiac Electrophysiology Cardiac Electrophysiology: A Visual Guide for Nurses, Techs, and Fellows, Second Edition fulfills the need of allied health personnel and new fellows for a practical, hands-on pictorial guide that clearly illustrates the essential concepts of clinical cardiac electrophysiology. More than 85 high-quality tracings, diagrams, fluoroscopic images, and electroanatomic maps, accompanied by detailed discussions of each image, offer a fundamental understanding of cardiac electrophysiology equipment, principles, and procedures: • Catheter placement, hardware connections, and intracardiac signals • Normal electrogram sequences associated with sinus rhythm • Methodologies used to uncover the mechanisms of common clinical tachycardias Authored by a team of experts, Cardiac Electrophysiology: A Visual Guide for Nurses, Techs, and Fellows, Second Edition is an invaluable resource for a complex technology, providing superb guidance in acclimating new trainees and personnel to the EP laboratory and empowering them with the knowledge and skills needed to practice clinical electrophysiology. New to the Second Edition: • A new unit—Cardiac Electrical Axis • 16 video clips with a focus on electrogram sequences • An illustrated glossary and abbreviations list • A free eBook included

3d mapping cardiac ablation: Cardiac CT, PET and MR Vasken Dilsizian, Gerald M. Pohost, 2011-09-14 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.

3d mapping cardiac ablation: Percutaneous Epicardial Interventions: Andre d'Avila, Arash Aryana, Vivek Y. Reddy, Francis E. Marchlinski , 2020-05-01 A comprehensive and state-of-the-art reference on percutaneous epicardial interventions for clinical cardiac electrophysiologists. "In Percutaneous Epicardial Interventions, Drs. d'Avila, Aryana, Reddy, and Marchlinski, bring together experts from around the world to summarize the knowledge gained and state of the art. These chapters are valuable, not only to practitioners who work in the pericardial space but also provides important anatomic, physiologic, and pathophysiologic insights valuable to all students of cardiac electrophysiology." - William G. Stevenson, MD, from the Preface "In this breakthrough textbook edited and written by the inventors and experts, the reader will appreciate the historical evolution, pertinent technical aspects and relevant anatomy, and review the growing knowledge base of epicardial substrate characteristics implicated in human VT. This is the first authoritative compilation dedicated to epicardial interventions and is a must-read for all students of cardiac anatomy, complex ablation, and interventional cardiology." Roderick Tung, MD, from the Foreword

3d mapping cardiac ablation: Transvenous Lead Extraction Maria Grazia Bongiorni, 2011-09-06 In the last years, indications for defibrillators and cardiac resynchronization therapy have expanded enormously; for this reason, and also due to the extension of human life length, the number of patients with implanted cardiac devices have steadily increased. The leads implanted for the functioning of these devices, however, have a limited duration in time and more and more their extraction will be a frequent issue in clinical practice, in order to treat short- and long-term

complications, such as infections and failures. Aim of this book is to provide readers with a state-of-the-art on lead extraction techniques. The chapters deal with leads characteristics, indications to lead removal, patient preparation, tools and techniques for extraction, and prevention and management of complications. In addition, a series of tips and tricks on how to treat some particular conditions (tight cost-clavicular space, fractured leads, ICD leads, endangered leads...etc.), are given. A new extracting technique, according to which the extraction is performed through the internal jugular vein is described; several examples are included and many figures provide a thorough depiction of this innovative procedure. The volume will be an excellent resource for all those involved in the management of cardiac patients: cardiologists, arrhythmologists, cardiac surgeons, GPs, pediatricians, and post-graduate students in these disciplines.

3d mapping cardiac ablation: Interventional Cardiac Electrophysiology Ralph J. Damiano, Jr., MD, FACC, FACS, N.A. Mark Estes III, MD, FACC, FHRS, FAHA, FESC, Francis E. Marchlinski, MD, FACC, FHRS, FAHA, 2015-05-15 Interventional Cardiac Electrophysiology is the first and only comprehensive, state-of-the-art textbook written for practitioners in multiple specialties involved in the care of the arrhythmia patient. Encompassing the entire field of interventional therapy for cardiac rhythm management, from basic science to evidence-based medicine to future directions, topics include: Technology and Therapeutic Techniques - EP techniques; imaging and radiologic technology; device and ablation technology; drug therapy. Interventional Electrophysiologic Procedures - Diagnostic and physiologic EP techniques; mapping in percutaneous catheter and surgical EP procedures; catheter and surgical ablation; device implantation and management. Clinical Indications and Evidence-based Outcomes Standards - For medical and surgical EP interventions for arrhythmias. New Directions in Interventional Electrophysiology - Hybrid therapy for atrial and ventricular arrhythmias and staged therapy. This book will be essential reading for clinicians and researchers that form the health care team for arrhythmia patients: cardiologists, adult and pediatric clinical electrophysiologists, interventional electrophysiologists, cardiac surgeons practicing arrhythmia surgery, allied health care professionals, pharmacologists, radiologists and anesthesiologists evaluating arrhythmia patients, and basic scientists from the biomedical engineering and experimental physiology disciplines. Professor Sanjeev Saksena has been involved in this arena for over three decades and has brought his experience to this textbook, assembling editorial leadership from medical and surgical cardiology to provide a global perspective on fundamentals of medical practice, evidence-based therapeutic practices, and emerging research in this field. This book includes 95 videos.

3d mapping cardiac ablation: Ventricular Arrhythmia Samuel C. Dudley, Ali A. Sovari, Abraham G. Kocheril, 2013 Ventricular arrhythmias are the main cause of sudden arrhythmic death, a devastating situation that is tied to heart failure and its incidence is increasing despite current available therapies. This book reviews and explores the pathophysiology of ventricular arrhythmia and currently available therapeutic modalities including ion channel blockades, catheter ablation and defibrillators, with the hope that the wealth of accumulated science and knowledge have grown to the point that with the help of current advanced technology which allows targeting cellular, molecular and genetic components, a paradigm shift in treatment of these deadliest arrhythmias becomes possible. The book also provides chapters on currently available pharmacological options, defibrillation and catheter ablation as well as chapters on new treatments and technologies such as cell and gene therapies and what may be the future of arrhythmia therapy.

3d mapping cardiac ablation: Interventional Electrophysiology Igor Singer, 2001 This thoroughly updated Second Edition is a comprehensive, practical guide to all current techniques and procedural aspects of interventional electrophysiology. A leading international group of experts describes in depth the procedures and techniques, the rationale for their use, and the available alternatives. Complementing the text are more than 600 illustrations, including spatially oriented how-to line drawings, radiographs, and conceptual diagrams. This edition features an extensively updated program of illustrations and includes the latest information on dual chamber defibrillators, atrial defibrillators and ablation techniques, and ablation and catheters.

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of atrial fibrillation in connection with ischemic stroke, interventional ablation procedures, and pharmacological treatment, applications which all depend on the availability of techniques for detecting and characterizing episodes of paroxysmal atrial fibrillation. Detectors exploring both rhythm and morphology are described, as well as detectors confined to rhythm and better suited for low power implementation. A wide variety of approaches to modeling and characterization of atrial activity are described, emanating from a statistical and deterministic starting points. This book is suitable for graduate students, researchers, and engineers who want a comprehensive treatise of atrial fibrillation from an engineering perspective. It may be used for self-study, as a supplement to courses in signal processing, or as a modern monograph by researchers in the field of atrial fibrillation.

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