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# Minimally Invasive Spine Surgery

Surgical Techniques and  
Disease Management

 Springer

# Minimally Invasive Spine Surgery Surgical Techniques And Disease Management

**Mick J. Perez-Cruet**



## **Minimally Invasive Spine Surgery Surgical Techniques And Disease Management:**

**Minimally Invasive Spine Surgery** Frank Phillips, Isador Lieberman, David Polly, 2014-06-23 Over the past decade minimally invasive techniques have developed rapidly and are widely applied in the management of spine disorders With the development of enabling technologies including specifically designed spinal retractor systems intraoperative imaging and navigation technologies and real time neural monitoring minimally invasive spine surgery MISS techniques are safe effective and reproducible Indeed studies have confirmed the clinical and economic advantages of these procedures Minimally Invasive Spine Surgery includes detailed discussions of enabling technologies surgical techniques including posterior decompression and fusion approaches to specific diseases and conditions as well as strategies to manage the unique risks and complications of MISS Generously illustrated this will be an essential reference for orthopedic surgeons neurosurgeons and all health care professionals who treat the spine

**Minimally Invasive Spine Surgery** Frank M. Phillips, Isador H. Lieberman, David W. Polly Jr., Michael Y. Wang, 2020-01-13 The use of minimally invasive spine surgery MISS has grown rapidly over the last decade and remains the fastest growing area in spine surgery Now in a revised and expanded second edition including 19 new chapters this comprehensive textbook provides an updated presentation of the field of MISS highlighting surgical techniques and clinical outcomes as well as providing a unique focus on how these techniques are applied for specific spinal conditions Minimally Invasive Spine Surgery Second Edition includes detailed discussions of enabling technologies surgical techniques approaches to specific diseases and conditions a new section on out patient ambulatory spine surgery and strategies to manage the unique risks and complications associated with MISS Each chapter whether revised or new is formatted in a consistent manner including bulleted key learning points as well as review questions pearls and pitfalls and generous illustrations and intra operative photographs Written and edited by thought leaders in the field this user friendly textbook will be an essential resource for orthopedic and neurosurgery trainees as well as a valuable reference and review for spine surgeons and health care professionals who treat the spine

*Update in Minimally Invasive Spine (mis) Surgery* James D. Bruffey, Ali Araghi, 2011-06-13 In this new reference text Update in Minimally Invasive Spine MIS Surgery Clinical Examples of Anatomy Indications and Surgical Techniques the editors attempt to give the reader a snapshot of this fast moving field by discussing topics of applied clinical spinal anatomy clinical indications and outcomes for MIS surgery instrumentation and biomechanics adjacent level disease and fusion biology as well as management of clinical complications and strategies for revision surgeries In the past spinal fusion meant long incisions significant blood loss prolonged hospitalization and recovery along with persistent pain less mobility and limited return to function Recently however less traumatizing techniques have found their way into mainstream spinal surgery and are being increasingly accepted as alternatives to traditional open procedures These new concepts of minimally invasive techniques have emerged and are withstanding the test of time Consequently there is increasing interest among spine

surgeons to apply MIS approaches to common clinical problems. Examples of these new trends include advanced endoscopic and percutaneous techniques to remove a herniated disc, treat spinal stenosis, debride spinal infections, and the emergence of percutaneous adjunctive procedures to spinal fusion. Other advances include percutaneous pedicle screw application instead of open screw placement and minimal invasive decompressions through small percutaneously placed tubes instead of open wide laminectomy procedures through large incisions. In addition, minimally invasive techniques are now aided by computerized navigation systems. Moreover, advances in osteobiologics have increasingly obviated the need for autologous bone graft harvest, which has greatly enhanced the benefits of minimally invasive spinal surgery. On the other hand, complications have been reported with the routine use of MIS techniques such as transforaminal lumbar interbody fusion (TLIF) through small access portal or direct lumbar interbody fusion (DLIF) through a mini direct lateral access. In other words, the field of minimally invasive spinal surgery continues to emerge and is expected to change rapidly as new technologies surface. We have therefore taken a multidisciplinary approach by representing aspects ranging from anatomy, biomechanics, and biologics to surgical techniques and clinical outcome research with respect to state-of-the-art technologies as well as biomaterials in reconstructive procedures of the spine. Chapters are focused on the description of the clinical indications, surgical techniques, and clinical outcome assessments by discussing standards in analytical methodology and quality control. Specific clinical examples are at the heart of this new reference text to illustrate the development of new devices and materials capable of improving minimally invasive spinal surgery. We hope you find this text to be a valuable update in the discussion of MIS techniques in spinal surgery.

**Minimally Invasive Spine Surgery: An Algorithmic Approach** Kern Singh, 2013-12-15

This book, *Minimally Invasive Spine Surgery: An Algorithmic Approach*, is organized in a logical fashion with an introduction, clinical evaluation, intraoperative positioning, surgical techniques, potential pitfalls, and pearls of treatment and discussion. This book has been written by extremely well-known surgeons who are experts in their respective fields of minimally invasive surgery. This textbook attempts to formally describe a simple-to-understand decision-making process that is the essence of minimally invasive surgery. The chapters of this book are organized in a very technique-focused text that provides intraoperative pearls, pitfalls, and technical descriptions. The reader can quickly review the decision-making algorithm at the beginning of each chapter and read the text for a more detailed description of the decision-making surgical process. Readers will enjoy a high level of sophistication with the text. The remainder of the chapter is devoted to the surgical pearls that are rarely mentioned in other surgical textbooks. All aspects of minimally invasive spine surgery are covered, especially special topics including Tumor, Trauma, and Deformity. Routine procedures are covered in detail with particular emphasis given to surgical nuances and pearls learned from experienced MIS spine surgeons. All levels of experience will truly appreciate the detail, clarity, and sophistication associated with this comprehensive MIS Spine Surgery algorithmic textbook. Make this book well-suited for medical students, residents, fellows, and surgeons who not only want to be introduced to a new method of

surgical management but also to refresh an experienced surgeon on a particular surgical technique **Cervical Spine** Pier Paolo Maria Menchetti, 2022-05-10 This heavily revised second edition covers minimally invasive and open surgical techniques for treating a variety of common and rare of cervical pathologies Extensively revised chapters detail how to successfully perform a variety of the latest procedures for conditions including cervical spine fractures cervical tumours and cranio cervical anomalies Guidance on the appropriate techniques for decompression and fusion with cages and autologous bone graft are also described Cervical Spine Minimally Invasive and Open Surgery satisfies the need for a multi disciplinary text covering open and minimally invasive techniques available for treating ailments of the cervical spine Practicing and trainee orthopedic surgeons neurosurgeons radiologists anesthesiologists and pain management specialists will all find the content of this work to be of a great help to them when seeking guidance on the latest advances in the field

**Rothman-Simeone The Spine E-Book** Steven R. Garfin, Frank J. Eismont, Gordon R. Bell, Christopher M. Bono, Jeffrey S. Fischgrund, 2017-09-11 Get comprehensive practical coverage of both surgical and non surgical treatment approaches from the world's most trusted authorities in spine surgery and care Rothman Simeone and Herkowitz's The Spine 7th Edition edited by Drs Steven R Garfin Frank J Eismont Gordon R Bell Jeffrey S Fischgrund and Christopher M Bono presents state of the art techniques helping you apply today's newest developments in your practice Highlights critical information through the use of pearls pitfalls and key points throughout the text as well as more than 2 300 full color photographs and illustrations Offers a newly revised streamlined format that makes it easier than ever to find the information you need Contains new chapters on the clinical relevance of finite element modeling and SI joint surgery Includes an expanded section on minimally invasive spine surgery including recent developments and future directions Provides the latest evidence based research from high quality studies including new randomized controlled trials for lumbar stenosis surgery fusion and injections Presents the knowledge and expertise of new international contributors as well as new editorial leadership from Dr Steven Garfin Expert Consult™ eBook version included with purchase This enhanced eBook experience allows you to search all of the text figures and references from the book on a variety of devices *Decision Making for Minimally Invasive Spine Surgery* Faheem A. Sandhu, Jean-Marc Voyadzis, Richard Glenn Fessler, 2011-01-06 The essential decision making primer for minimally invasive spine procedures Decision Making for Minimally Invasive Spine Surgery provides the critical tools needed to determine exactly when for whom and why minimally invasive spine surgery MISS is a viable option Ten tightly focused chapters each begin with a decision making algorithm that explains how to ascertain if MISS will benefit the patient more than traditional open surgery Following each algorithm concise yet detailed information on the preoperative evaluation surgical techniques and possible outcomes helps the reader to formulate a clear surgical strategy The book closes with an incisive analysis of radiosurgery instrumentation systems image guidance and promising advances in MISS that will stimulate further discussion of this emerging area Features A realistic assessment of both the advantages and drawbacks of MISS by

pioneers in the field Evaluative algorithms allow readers to form rapid fully informed treatment decisions Intuitive organization by spinal region facilitates quick reference Spine surgeons residents or fellows in orthopedic surgery or neurosurgery will refer to this easily accessible manual every time they consider performing a minimally invasive spine procedure

Minimally Invasive Surgery of the Lumbar Spine Pier Paolo Maria Menchetti,2013-10-01 Minimally invasive procedures are increasingly utilized and are replacing open surgery to reduce scarring and pain enhance patient recovery and minimize cost This guide provides step by step guidance expert instruction and detailed illustration of the most recent minimally invasive orthopedic spine procedures With a variety of chapters covering critical developments in the field including the utilization of biologic materials image guided surgery and bone fusion this guide delves into discussions of indications methods for preoperative planning complication avoidance strategies and patient outcomes

**Minimally Invasive Spine Fusion** Mick J. Perez-Cruet,2011 Minimally Invasive Spine Fusion Techniques and Operative Nuances provides spine surgeons with the comprehensive information they need to incorporate minimally invasive fusion techniques and instrumentation into their practices Edited and authored by the experts in spine surgery this comprehensive publication is filled with detailed clinical information to help the spine surgeon skillfully execute these procedures Every technique is described in precise step by step fashion and incorporates information on preoperative assessment and planning treatment options operative technique potential complications and management outcome data and tips and tricks Beautiful color illustrations and intraoperative photos highlight the key steps for performing these techniques safely and effectively Numerous preoperative and postoperative images demonstrate the possible results that can be achieved Instrumentation monitoring outcome analysis and complications are also discussed in detail To enhance the learning experience two DVDs with operative video are available for purchase For experienced spine surgeons or for those spine surgeons wishing to expand their practices to include minimally invasive techniques this book is a must No other source provides so much sound practical advice or such complete coverage

**Minimally Invasive Spine Surgery** H.M. Mayer,2013-03-09 In the past few years spine surgery has undergone revolutionary changes leading towards minimally invasive techniques This book is a survey of microsurgical as well as endoscopic surgical techniques for the treatment of a variety of spinal disorders The structure of the individual chapters includes terminology history surgical principles advantages disadvantages indications surgical technique complications and hazards as well as results However all chapters are focused on a very didactic presentation of surgical steps Thus the reader will get familiar with a variety of new techniques some of which are already integrated into clinical routine others still being part of ongoing clinical trials and development

Minimally Invasive Spine Surgery Luis Manuel Tumialan,2020-10-01 Unique resource provides spine surgeons with the right tools and mindset to perform minimally invasive surgery Minimally Invasive Spine Surgery A Primer by Luis Manuel Tumial n is the ideal introduction to minimally invasive spine approaches especially for neurosurgery and orthopedic residents fellows and spine

surgeons who want to incorporate minimally invasive approaches into their practice The Primer offers a treasure trove of 3D illustrations and animations that virtually brings the aspiring minimally invasive spine surgeon into the operating room alongside their professor The text starts with a discussion of open spine surgery versus minimally invasive procedures and the optimal mindset required to convert from one to the other The book is divided into lumbar cervical and thoracic spine sections and a fourth section dedicated to the fundamentals of fluoroscopy and radiation exposure The text begins with an overview history and evolution of each procedure followed by a discussion of the anatomical basis for using a minimally invasive approach Each anatomical section starts with the least complicated surgeries thereby laying the foundation for more complex procedures discussed in subsequent chapters The third section focuses on thoracic decompression nerve sheath tumors in the lumbar and thoracic spine and management of metastatic disease and intradural extramedullary lesions Key Features Single authored text provides uniform readability and philosophy cover to cover Lumbar approaches include microdiscectomy laminectomy transforaminal interbody fusions and the transpsoas approach Cervical procedures encompass posterior foraminotomy laminectomy and anterior discectomy Superb illustrations high fidelity anatomical animations based on computer modeling and procedural videos enhance understanding of minimally invasive spine principles This unique single author Primer is a must have resource for early career spine surgeons who wish to learn minimally invasive principles as well as veteran surgeons who have a desire to incorporate minimally invasive spine surgery into clinical practice

*Essential Step-by-Step Techniques for Minimally Invasive Spinal Surgery* Roger Hartl, Rodrigo

Navarro-Ramirez, 2022-05-27 The ultimate resource for learning and mastering minimally invasive spine surgery techniques An estimated 1.5 million instrumented spinal procedures are performed every year in the US The majority of decompressions and about 50% of fusion procedures can be performed completely or partially using minimally invasive spine surgery MISS techniques The full potential of MISS techniques has yet to be realized *Essential Step by Step Techniques for Minimally Invasive Spinal Surgery* by internationally renowned MISS neurosurgeon Roger Hartl spine neurosurgeon Rodrigo Navarro Ramirez and an impressive group of global multidisciplinary contributors is the most comprehensive and detailed textbook written to date on this topic The foundation of the book is built on six interacting principles critical to surgical success and MISS in particular Target Technology Technique Teaching and Training Testing and Talent The text starts with an opening chapter on the definition of MISS and introduction of these principles Fifty six subsequent chapters provide a comprehensive discussion on how to utilize an MISS approach for a full spectrum of spinal pathologies using nuanced variations specific to the operating surgeon To ensure readers are well versed in all aspects of MISS these chapters include painstaking details on indications contraindications pathoanatomy operating room set up step by step techniques and postoperative management Key Highlights Contributions from master spine surgeons across the world provide a balanced global perspective on mastering and incorporating diverse techniques into practice Invaluable clinical pearls including tips tricks and complication

avoidance High quality images figures anatomic drawings and imaging studies illustrate relevant anatomic approaches and corridors and delineate why anatomic mastery is critical to MISS Twenty five videos enhance the ability to learn and implement MISS approaches This is a must have resource for practicing spine surgeons interested in MISS who wish to learn the latest techniques from master surgeons and achieve optimal patient outcomes The text and videos also provide a robust training tool for senior level orthopaedic and neurosurgery residents and spine fellows **Arthroscopic and Endoscopic**

**Spinal Surgery** Parviz Kambin, 2007-10-28 The term minimally invasive spinal surgery was coined in early 1990 following publication of the first edition of this text entitled Arthroscopic Microdiscectomy Minimal Intervention in Spinal Surgery and subsequent establishment of the International Society for Minimal Intervention in Spinal Surgery ISMISS under the auspices of the International Society of Orthopaedic Surgery and Traumatology SICOT in April 1990 The orthopedic and neurological surgeons who participated in lectures and hands on workshops both in Philadelphia and abroad have witnessed the evolution of minimally invasive spinal surgery from blind nucleotomy to endoscopic fragmentectomy decompression of lateral recess stenosis foraminoplasty and spinal stabilization In Arthroscopic and Endoscopic Spinal Surgery Text and Atlas Second Edition experts describe and illustrate various techniques and approaches that are currently used in this field In addition the ongoing research for the betterment of spine care via minimally invasive approaches is briefly reviewed I would like to express my sincere appreciation to so many of my colleagues who supported my efforts in the field of minimally invasive spinal surgery throughout the years Many of them participated in our teaching symposiums and have provided valuable contributions to this text **Core Techniques of Minimally Invasive Spine Surgery** Yong Ahn, Jin-Kyu Park, Chun-Kun Park, 2023-06-19 This

book issues all aspects of minimally invasive spine surgery From interventional techniques such as nerve block to multilevel fusion surgery the field of minimally invasive surgery is organized by chapter from basics to the end Each chapter will include various figures and tables and videos will be added in the surgery related parts A special focus will be placed on spinal endoscopic surgery which has undergone rapid development in recent years Both full endoscopic spine surgery and uniportal bilateral endoscopic will be dealt Various surgical approaches and procedures will be presented for disc herniated disease and stenotic lesion from cervical to lumbar The new technology solution such as navigation guided spine surgery and robot surgery and artificial and augmented reality will be introduced *Minimally Invasive Spinal Surgery* Kai-Uwe

Lewandrowski, Michael Schubert, Jorge F Ramírez León, Richard G Fessler, 2018-03-13 This book provides a timely comprehensive and evidence based review of minimally invasive surgery of the cervical thoracic and lumbar spine Minimally invasive techniques are now aided by more advanced endoscopic instruments video and computerised navigation systems broadening the range of surgical procedures that can be carried out with similar efficacy as traditional open spinal surgeries without the significant burden on the patient recovery and rehabilitation This book thoroughly reviews the preclinical and clinical data on minimally invasive spinal surgery and describes and illustrates the current effective techniques An



authoritative international team of contributors add their clinical experience and expertise to provide a clear authoritative and practical guide The book is organised in four sections covering cervical thoracic and lumbar spine regions with a final section on the latest advances in technologies and the cost effectiveness of current treatments *Principles and Practice of Spine Surgery* Alexander R. Vaccaro, Randal R. Betz, Seth M. Zeidman, 2003 Here s all the practical must know information needed to diagnose and manage a full range of spinal disorders Written with the busy practitioner in mind this brand new resource provides a comprehensive overview of contemporary spine surgery focusing on the key information and procedures needed in the day to day practice of spine surgery Features the expertise of 106 highly renowned clinicians from a wide range of disciplines including orthopaedics neurosurgery pediatric neurosurgery pain management rehabilitation and more Comprehensively covers the full range of spinal pathologies in adults and children Presents information in brief highly illustrated chapters enabling readers to quickly find the information they need User friendly format features hundreds of boxes that highlight key concepts in the text Includes a wealth of tables that summarize disease processes Explores hot topics in the field such as spinal deformities in osteoporosis spinal infections primary spinal tumors anterior minimally invasive techniques of the lumbar spine and more Provides a wealth of clear line drawings on surgical technique With 112 additional contributors Minimally Invasive Spinal Deformity Surgery Michael Y. Wang, Yi Lu, D. Greg Anderson, Praveen V. Mummaneni, 2014-01-17 Contemporary spinal surgeons whether orthopedic or neurosurgeons are increasingly recognizing minimally invasive spine surgery MISS as a desirable option to manage advanced degenerative diseases MISS techniques minimize blood loss surgical site pain and speed recovery Thus the marriage of MISS with adult spinal deformity was a natural one Currently the techniques technologies and education of surgeons have finally reached a point where MISS deformity surgeries are becoming commonplace Nevertheless the field is young enough that no comprehensive texts have addressed the unique challenges faced by surgeons exploring this evolving field This book will fill the gap **Video Atlas of Spine Surgical Techniques** Federico A. Landriel, Eduardo Vecchi, 2016-05-04 This video atlas covers a broad range of spinal surgical procedures The volume includes a collection of high quality 3 to 8 minute videos of some of the most critical spine operations performed by internationally renowned expert surgeons Key features of the book contents include o Downloadable high quality video content with subtitles suitable for viewing on any display A brief preview of the book content can be viewed at <https://www.youtube.com/watch?v=SxMi4UFj7HA> o Detailed descriptions of surgical indications preoperative planning patient positioning surgical technique complications postoperative care and outcomes for each procedure o Full color images and illustrations highlighting different key stages of each surgical technique The video format allows skill development of its intended audience by conveying temporal and spatial details which often go unnoticed in photograph format This volume will be of immense interest to both the novice and the experienced spinal surgeon as they can benefit from the visual guides presented in the book It also serves as an ideal teaching tool for spine surgery units in

medical schools      *Minimally Invasive Spine Surgery* Roger Haertl, Andreas Korge, 2012-12-12 Minimally invasive spine surgery in some form or other has historical roots dating back more than 100 years and recent advances in technology now make it increasingly effective in treating suitable spine patients While minimally invasive approaches have shown to reduce muscle damage blood loss and post operative pain to perform this type of surgery correctly even highly skilled modern day surgeons must prepare themselves for a demanding learning curve For this reason AOSpine proudly presents Minimally Invasive Spine Surgery Techniques Evidence and Controversies the most comprehensive book of its kind which includes more than 500 pages of surgical techniques illustrations case images tips and tricks and research providing an invaluable tool for spine surgeons around the world Each technique is fully examined The pros and cons of each is objectively reviewed Its spectrum of indications and contraindications is summarized Historical and modern day controversies relating to each technique are discussed Uniquely chapters in the text are further supported by an evidence based section summarizing research studies analysis and conclusions into each technique from peer reviewed journals The text covers more than just a range of interesting medical techniques By including brief historical introductions on each technique and the surgeons that explored and founded its methods their early sometimes self made instrumentation right through to today's current best practice this book provides an interesting informative and topical instruction on minimally invasive surgery and its increasingly encouraging results for spine patient care      **Atlas of Endoscopic Spine Surgery** John J. Regan, Paul C. McAfee, Michael J. Mack, 1995 John Regan demonstrates the procedures discussed in the book Contains footage of operations with narration reviews indications contraindications description of pertinent anatomy recommendations for operating room set up and tips about complications

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