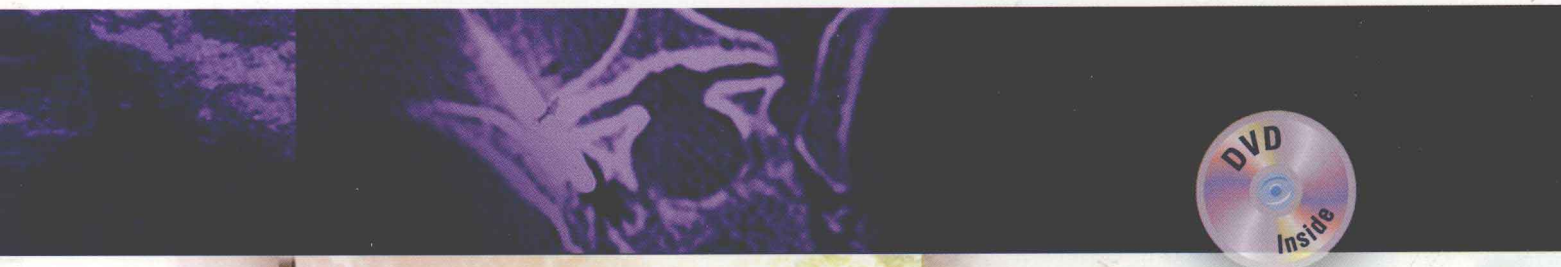
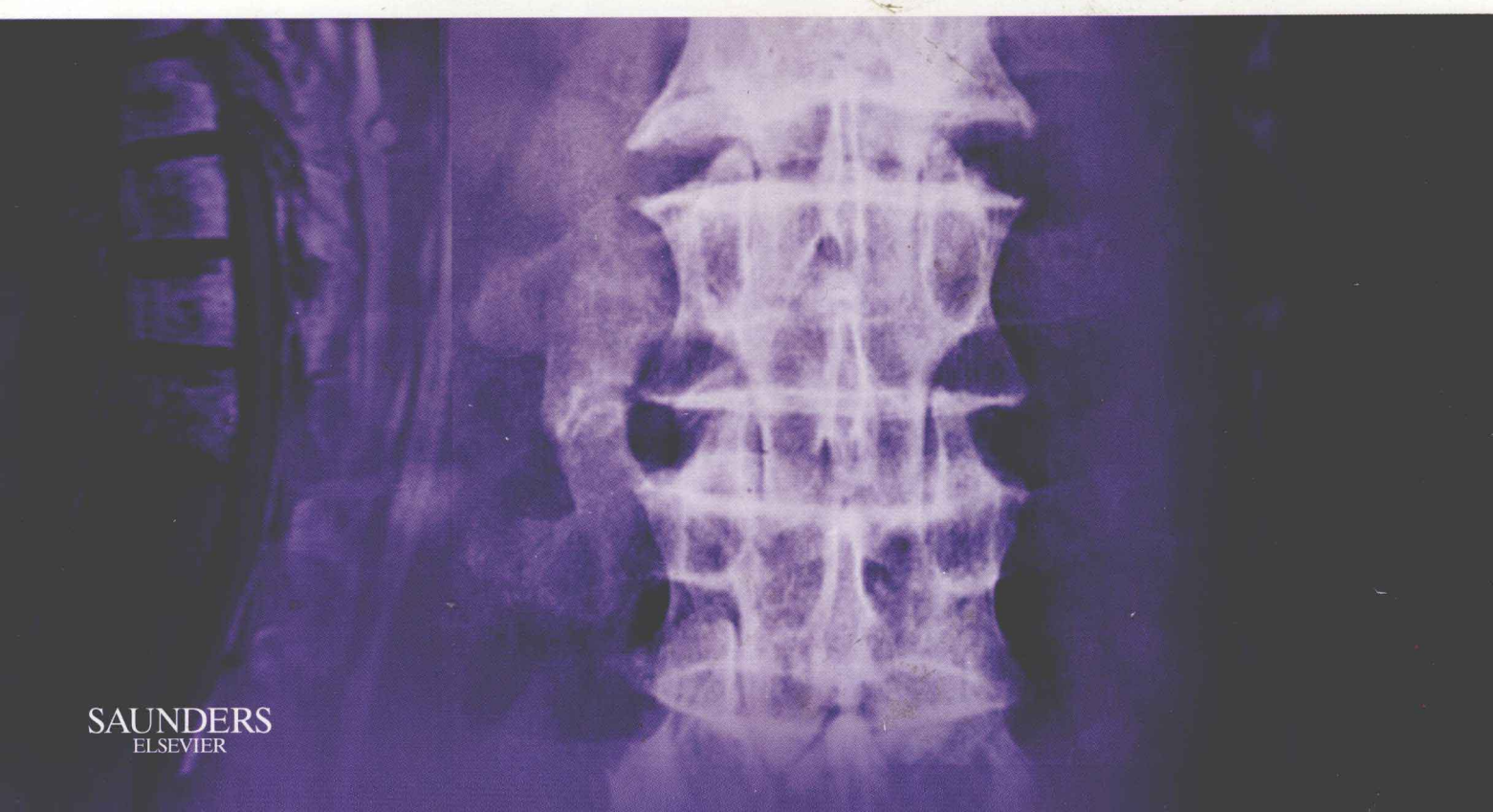


DVD Inside

Arthritis & Arthroplasty of The Spine

Francis H. Shen • Christopher I. Shaffrey



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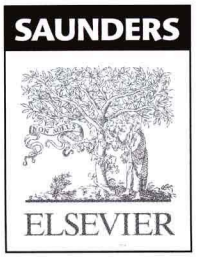
Arthritis & Arthroplasty: The Spine

Edited by

Francis H. Shen, MD, FACS
Associate Professor
Division of Spine Surgery
Director, Spine Fellowship
Co-Director, Spine Center
Department of Orthopaedic Surgery
University of Virginia
Charlottesville, Virginia

Christopher I. Shaffrey, MD
Harrison Distinguished Teaching Professor of Neurological Surgery
Department of Neurological Surgery
University of Virginia
Charlottesville, Virginia



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1600 John F. Kennedy Blvd.
Ste 1800
Philadelphia, Pennsylvania 19103-2899

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To my daughter, whose beautiful smile and endless energy keeps me happy and young, and to my parents, a source of continual support and inspiration.

-F.H.S.

To my loving and devoted family.

-C.I.S.

Foreword

As the editors indicate in the Preface, this series was developed in an effort to address the broad spectrum of orthopedic reconstructive practice involving joint pathology, with an emphasis on joint replacement arthroplasty. There have been other somewhat similar efforts to provide the orthopedic community with a comprehensive compendium of orthopedic knowledge. The feature that sets this particular effort apart is the fact that the authors have a focus, even though the spectrum is quite broad. The clear goal is to provide the surgeon with a comprehensive, up-to-date, detailed, user-friendly source of information that provides a basis for improved patient care related to the management of the arthritic joint. The approach and organization by individual anatomic site for each specific volume is not new, but this series is unique. The tremendous burden to provide a standardized format and a consistent quality of information and illustrations has been addressed and effectively realized in this series. I am impressed at the editors' selection of contributors, which includes both younger talent of our profession as well as well-recognized and established individuals. This offers a nice balance and blend of current and emerging orthopedic thought that is clearly conveyed through these pages.

Both the series and volume editors are well recognized for their interest and competency in joint reconstructive surgery. Their energy and organizational skills are evident in this compendium.

From my standpoint, this initiative certainly does fill a niche that, in spite of the numerous efforts from various perspectives, addresses an area of need in the orthopedic spectrum of knowledge. The specific attractive features include the standardized format within a given volume that is carried throughout each of the volumes. The fact that the chapters are organized to allow a quick review of the content is readily identified as keeping with the "sound bytes" learning style of the orthopedic surgeons of today. This is best recognized in the sections dealing with the pearls and pitfalls. Thus, these texts provide an interesting blend of abbreviated insights supported by detail and substance. The orthopedist's passion and need for visual validation of our thinking and understanding is captured in the video sections that are laced throughout this series. The figures are clear; the references are comprehensive but not exhaustive. Thus, one easily recognizes the effort to make this a user-friendly, comprehensive, up-to-date, technique-oriented source of truth for the busy orthopedic surgeon.

The aggressive goal and vision of the editors has been very well realized in these volumes. It is highly likely that some of these volumes, if not the entire series, will be considered a must for the busy orthopedic surgeon dealing with the arthritic joint.

B.F. Morrey, MD

Preface

Like all areas of surgery, the decision to operate–and at times when not to operate–is not always an easy decision. This is particularly challenging in the management of spinal pathologies. Radiographic abnormalities are very common in patients presenting for evaluation of spinal disorders. Although the combination of a careful history, physical examination, and imaging will often yield a diagnosis, a thorough understanding of psychosocial and economic issues is needed prior to recommending a surgical procedure. Perfoming the "right" operation on the "wrong" patient will almost certainly give a poor result. There are few absolute recommendations in surgical approach or selection of the type of spinal instrumentation. Selection of the ideal operative approach is complicated by a constant evolution in surgical techniques and advances in spinal implants. Management strategies can be challenging enough for the experienced spine surgeon, but even more difficult for the spine surgeon just starting out in practice.

We hope that this textbook will serve as a reference for all of our readers. We believe that it should prove to be particularly beneficial for those early in their practice, but also provide information in newer techniques for the experienced spine surgeon. We were extremely fortunate to have worked with a group of contributors that are not only well known specialists in the field of spine surgery, but also experts in the particular topics that they covered. In this volume, we have not only grouped the conditions by anatomic region (i.e., cervical, thoracic, and lumbar spine) but by topic as well (i.e., deformity, complications, minimal invasive surgery, and emerging technologies). While there is certainly overlap between sections, this should make finding the appropriate topics easier and help to organize pathologies in the mind of the reader.

The decision to proceed with surgery is ultimately based on a discussion between the patient and their surgeon. In the end, the selection of the surgical procedure should be tailored to the patient and not the patient to the procedure. Spine surgery will almost certainly continue to evolve, and it will be incumbent on the practicing spine provider to continually update their knowledge. We hope that this volume of work will be part of that continual self-improvement.

Francis H. Shen, MD

Christopher I. Shaffrey, MD

List of Contributors

Steve S. Agabegi, MD
Assistant Professor of Orthopaedic Surgery, Division of Spine Surgery, University of Cincinnati College of Medicine and Cincinnati Childrens Hospital Medical Center, Cincinnati, Ohio

Todd J. Albert, MD
James Edwards Professor and Chair, Department of Orthopaedic Surgery, Jefferson Medical College and Thomas Jefferson University Hospital, Philadelphia, Pennsylvania

Howard S. An, MD
Department of Orthopaedic Surgery, Rush University Medical Center, Chicago, Illinois

David G. Anderson, MD
Associate Professor, Thomas Jefferson University; Spinal Surgeon, Thomas Jefferson University, Philadelphia, Pennsylvania

David T. Anderson, MD
Resident-Physician, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania

Vincent Arlet, MD
Professor, University of Virginia, Charlottesville, Virginia

Paul L. Asdourian, MD
Chief of Spine Surgery, Union Memorial Hospital, Baltimore, Maryland

Kelley Banagan, BS, MD
Resident, University of Maryland, Department of Orthopaedics, Baltimore, Maryland

Robert J. Banco, MD
Assistant Clinical Professor, Tufts University School of Medicine; Chief, Spine Section, New England Baptist Hospital, Boston, Massachusetts

Leonardo Augusto de Barros Oliveira
Clinica Mattos Pimenta, Sao Paulo, Brazil

Gordon Bell, MD
Head, Section of Spine Surgery, Cleveland Clinic, Cleveland, Ohio

Jesse E. Bible, MD, MHS
Orthopaedic Surgery Resident, Department of Orthopaedics and Rehabilitation, Vanderbilt University Medical Center, Nashville, Tennessee

Christopher M. Bono, MD
Assistant Professor of Orthopaedic Surgery, Harvard Medical School; Chief, Orthopaedic Spine Service, Brigham and Women's Hospital, Boston, Massachusetts

Jared Brandoff, MD
Department of Orthopaedics, Long Island Jewish Medical Center, New Hyde Park, New York

Richard J. Bransford, MD
Assistant Professor, Department of Orthopaedics and Sports Medicine, Harborview Medical Center, University of Washington, Seattle, Washington

James L. Brezina Jr., MD
Spine Surgery Fellow, University of Virginia Medical Center, Charlottesville, Virginia

Tuan L. Bui, MD
Department of Orthopedic Surgery, Emory University, Decatur, Georgia

Thomas D. Cha, MD
Department of Orthopaedic Surgery, New York Presbyterian Hospital, New York, New York

Jens R. Chapman, MD
Professor of Orthopaedic Surgery and Sports Medicine, Adjunct Professor of Neurological, Surgery, HansJoerg Wyss Endowed Chair, Director of Spine Service, University of Washington, Seattle, Washington

Norman B. Chutkan, MD
Chairman, Department of Orthopaedic Surgery, Medical College of Georgia, Augusta, Georgia

Brian J. Dlouhy, MD
Neurosurgery Resident, University of Iowa, Iowa City, Iowa

Richard G. Fessler, MD, PhD
Professor of Neurological Surgery, Northwestern University, Chicago, Illinois

Jeffrey S. Fischgrund, MD
Fellowship Director, William Beaumont Hospital, Royal Oak, Michigan

John C. France, MD
Professor of Orthopaedic and Neurosurgery, West Virginia University, Morgantown, West Virginia

Daniel Gelb, MD
Associate Professor and Vice Chairman, Department of Orthopaedics, University of Maryland School of Medicine, Baltimore, Maryland

Oren N. Gottfried, MD
Department of Neurosurgery, Johns Hopkins Hospital, Baltimore, Maryland

Jonathan N. Grauer, MD
Associate Professor, Department of Orthopaedics and Rehabilitation, Yale University School of Medicine, New Haven, Connecticut

Michael W. Groff, MD
Visiting Assistant Professor of Surgery, Harvard Medical School; Chief of Neursurgical Spine Service, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Amgad S. Hanna, MD
Department of Neurological Surgery, Thomas Jefferson Medical College, Philadelphia, Pennsylvania

Mitchell A. Hardenbrook, MD
Assistant Professor, Department of Surgery, Uniformed Services University of the Health Sciences, Bethesda, Maryland; Boston Spine Group, Boston, Massachusetts

Eric B. Harris, MD
The Rothman Institute at Thomas Jefferson University Hospital, Philadelphia, Pennsylvania

Mitchel B. Harris, MD
Director, Orthopedic Trauma Service, Brigham and Women's Hospital, Boston, Massachusetts

James S. Harrop, MD
Associate Professor of Neurologic and Orthopedic Surgery, Jefferson Medical College, Philadelphia, Pennsylvania

Christopher Henderson, MD
Spine Surgery Fellow, Leatherman Spine Center, Louisville, Kentucky

Alan S. Hilibrand, MD
Professor of Orthopaedic Surgery and Neurosurgery, Jefferson Medical College/The Rothman Institute, Philadelphia, Pennsylvania

Daniel J. Hoh, MD
Department of Neurological Surgery, Keck School of Medicine, University of Southern California, Los Angeles, California

Matthew Hwang, MD
Spine Surgery Fellow, New England Baptist Hospital, Boston, Massachusetts

Iain H. Kalfas, MD
Department of Neurosurgery, Cleveland Clinic, Cleveland, Ohio

Khaled Kebaish, MD, FRCSC
Assistant Professor, Johns Hopkins University, Baltimore, Maryland

Kathryn A. Keeler, MD
Assistant Professor, Orthopaedic Surgery, Washington University School of Medicine, St. Louis, Missouri

A. Jay Khanna, MD, MBA
Assistant Professor, Departments of Orthopaedic Surgery and Biomedical Engineering, Johns Hopkins University, Baltimore, Maryland

Choll Kim, MD, PhD
Assistant Professor of Orthopaedic Surgery, University of California; Director, University of California San Diego Spine Fellowship Program, University of California San Diego Medical Center, San Diego, California

Paul Kraemer, MD
Spine Surgeon, Indiana Spine Group; Assistant Professor, Department of Orthopaedic Surgery, Indiana University, Indianapolis, Indiana

Timothy R. Kuklo, MD, JD
Department of Orthopaedic Surgery – Spine Service, Washington University School of Medicine, St. Louis, Missouri

Mark Kuper, DO
Cleburne Surgical Center, Cleburne, Texas

Jim Lashley, MD
Fellow, Department of Orthopaedic Surgery, Indiana Spine Group, Indianapolis, Indiana

Carl Lauryssen, MD
Director of Spine Surgery, Olympia Medical Center; Associate Professor of Neurosurgery, University of Southern California; Tower Orthopaedic & Neurosurgical Spine Institute, Beverly Hills, California

James P. Lawrence, MD, MBA
Assistant Professor of Surgery, Albany Medical College; Attending Spine Surgeon, Capital Region Spine, Albany, New York

Isador H. Lieberman, MD, MBA, FRCSC
Professor of Surgery, Orthopaedic and Spinal Surgeon Chairman, Medical Interventional and Surgical Spine Center, Cleveland Clinic Florida, Weston, Florida

Steven C. Ludwig, MD
Department of Orthopaedic Surgery, University of Maryland, Baltimore, Maryland

Shen-Ying (Richard) Ma, MD
Resident Physician, University of Virginia, Charlottesville, Virginia

Kevin Macadaeg, MD
Indiana Spine Group, Indianapolis, Indiana

Paul McAfee, MD
Director, Scoliosis and Spine Center, St. Joseph Medical Center, Towson, Maryland

Ahmed Mohamed, MD
Fellow, Johns Hopkins University, Baltimore, Maryland

Swetha Naroji, MD
Thomas Jefferson Medical College, Philadelphia, Pennsylvania

Douglas D. Nowak, MD
Resident Physician, Department of Orthopaedic Surgery, New York-Presbyterian, Hospital/Columbia University Medical Center, New York, New York

Alfred T. Ogden, MD
The Spine Center, Columbia University Medical Center, New York, New York

Babajide A. Ogunseinde, MD
Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts

Daniel Park, MD
Orthopedic Surgery Resident Physician, Rush University Medical Center, Chicago, Illinois

Alpesh A. Patel, MD
Assistant Professor, Department of Orthopaedic Surgery, University of Utah School of Medicine; Assistant Professor, Department of Neurosurgery, University of Utah School of Medicine, Salt Lake City, Utah

Carlos Arias Pesántez, MD
Neurospine Surgeon, Del Rio University Hospital, IESS Universitary Hospital, Cuenca-Ecuador

Frank M. Phillips, MD
Professor, Department of Orthopaedic Surgery, Rush University Medical Center, Chicago, Illinois

Luiz M. Pimenta, MD, PhD
Neurosurgeon, Clinica Mattos Pimenta, Sao Paulo, Brazil

Kornelis A. Poelstra, MD, PhD
Assistant Professor, University of Maryland, Shock Trauma Center, Department of Orthopaedics, Baltimore, Maryland

Ra'Kerry K. Rahman, MD
Resident, Columbia-New York Orthopaedic Hospital, New York, New York

Nicholas Renaldo, MD
Department of Orthopaedic Surgery, New York University Hospital for Joint Diseases, New York, New York

Jeffrey A. Rihn, MD
Assistant Professor, Department of Orthopaedic Surgery, Thomas Jefferson University Hospital, The Rothman Institute, Philadelphia, Pennsylvania

Lee H. Riley, MD
Associate Professor Orthopaedic Surgery and Neurosurgery, Chief Orthopaedic Spine Division, Johns Hopkins University, School of Medicine, Baltimore, Maryland

Ian Rodway, BS, MD
Clinical Instructor Orthopaedic Surgery, Tufts University; Orthopaedic Spine Surgery Fellow, New England Baptist Hospital, Boston, Massachusetts

Walter Samora, MD
Department of Orthopaedic and Neurosurgery, West Virginia University, Morgantown, West Virginia

James A. Sanfilippo, MD, MHS
Reconstructive Orthopaedics, Lumberton, New Jersey

Rick C. Sasso, MD
Orthopaedic Surgeon, Indiana Spine Group, Indianapolis, Indiana; Assistant Professor, Clinicial Orthopaedic Surgery, Indiana University School of Medicine, Indianapolis, Indiana

Dilip K. Sengupta, MCh (Orth), MD, Dr. Med
Assistant Professor, Spine Center, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire

Francis H. Shen, MD, FACS
Associate Professor, Division of Spine Surgery; Director, Spine Fellowship, Co-Director, Spine Center, Department of Orthopaedic Surgery, University of Virginia, Charlottesville, Virginia

Jonathan Sherman, MD
Mountain Neurosurgical and Spine Institute, Pennsylvania, Asheville, North Carolina

Adam Shimer, MD
Spinal Surgery Fellow, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania

Jeffrey S. Silber, MD, DC
Associate Professor, Department of Orthopedic Surgery, Albert Einstein School of Medicine; Associate Director, Orthopedic Spine Center, Great Neck, New York, New York

Edward D. Simmons, MD, CM, BSc, MSc
Clinical Professor, State University of New York at Buffalo, Buffalo, New York

Andrew K. Simpson, MD
Department of Orthopaedics and Rehabilitation, Yale University School of Medicine, New Haven, Connecticut

Kern Singh, MD
Assistant Professor, Department of Orthopaedic Surgery, Rush University Medical Center, Chicago, Illinois

Joseph Smucker, MD
Assistant Professor, The University of Iowa, Iowa City, Iowa

Umasuthan Srikumaran, MD
Department of Pathology, Johns Hopkins Medical Institutions, Baltimore, Maryland

Selvon F. St. Clair, MD, PhD
Orthopaedic Surgery Resident, Cleveland Clinic, Cleveland, Ohio

Chadi Tannoury, MD
Orthopaedic Resident, Thomas Jefferson University Hospital and the Rothman Institute, Philadelphia, Pennsylvania

Eeric Truumees, MD
Orthopaedic Surgeon, Weissman, Gitlin, Herkowitz, Southfield, Michigan; William Beaumont Hospital Spine Center, Royal Oak, Michigan

Jonathan A. Tuttle, MD
Department of Orthopaedic Surgery, Medical College of Georgia, Augusta, Georgia

Alexander R. Vaccaro, MD, PhD
Professor of Orthopaedic and Neurosurgery, Thomas Jefferson University/Rothman Institute; Co-Director, Thomas Jefferson University/Rothman Institute, Philadelphia, Pennsylvania

Michael Wang, MD
Associate Professor, University of Miami, Miami, Florida

Peter G. Whang, MD
Assistant Professor, Spine Service, Department of Orthopaedics and Rehabilitation, Yale University School of Medicine, New Haven, Connecticut

Andrew P. White, MD
Instructor, Harvard Medical School, Boston, Massachusetts; Carl J. Shapiro Department of Orthopaedic Surgery, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Kirkham B. Wood, MD
Chief of the Orthopaedic Spine Service, Assistant Professor of Orthopaedic Surgery, Harvard Medical School, Boston, Massachusetts

Tim Yoon, MD, PhD
Assistant Professor, Emory University; Chief of Orthopaedic Surgery, Atlanta, VAMC, Atlanta, Georgia

Jim A. Youssef, MD
Senior Partner, Durango Orthopedic Associates/Spine Colorado, Durango, Colorado

Hansen A. Yuan, MD
Professor, Department of Orthopaedic & Neurological Surgery, Syracuse, New York, New York

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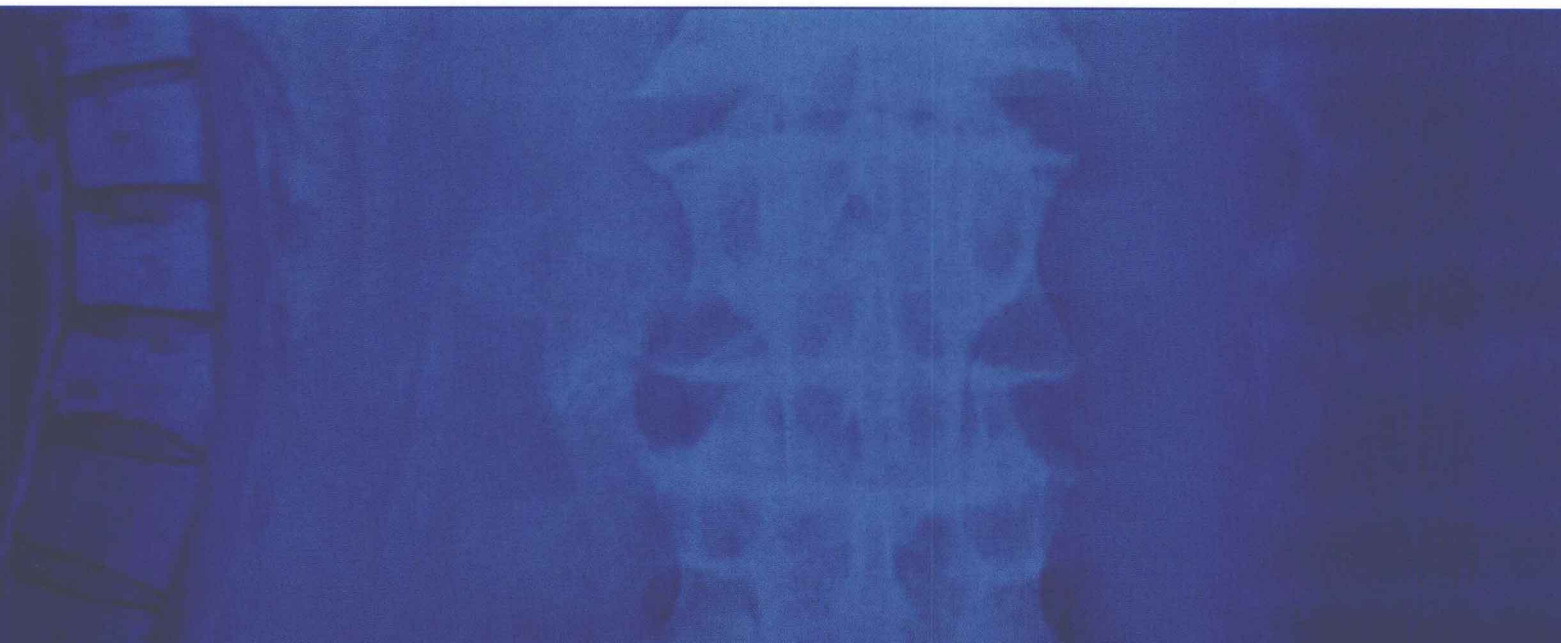
Spine



CHAPTER I

Preoperative Evaluation of the Spine

Jonathan A. Tuttle • Norman B. Chutkan

CHAPTER PREVIEW

CHAPTER SYNOPSIS: Careful preoperative evaluation of the spine patient is of paramount importance to the success of the treatment being initiated. This begins with careful history followed by physical examination and appropriate imaging. The physician must have a thorough knowledge of the anatomy of the pathologic area, as well as an understanding of other factors that can complicate these cases such as secondary gain issues. At the conclusion of a thorough history and physical examination, the physician should have been able to significantly narrow the differential diagnoses. Appropriate imaging with plain radiography, magnetic resonance imaging, computerized tomography, and/or myelography can then be obtained to verify the diagnosis and to guide the formation of an appropriate treatment plan.

IMPORTANT POINTS:

- 90% of patients with an acute disc herniation causing a radiculopathy will improve with nonoperative management.
- The most common cervical levels that require surgical intervention are C5-6 and C6-7.
- Surgical intervention is much less common for disease in the thoracic spine than in the cervical and lumbar spine with the notable exception of thoracolumbar trauma.
- Mechanical back pain is the most common cause of lumbar spine complaints.
- History and physical examination are the most appropriate first steps in determining the presence of more severe disease such as radiculopathy, myelopathy, or myeloradiculopathy.
- The key to a successful surgical outcome lies first in a careful and thorough preoperative patient evaluation.

CLINICAL PEARLS:

- Although characteristic findings may be associated with pathology at each individual spinal level, some crossover and variability are common.
- Cervical spondylotic myelopathy is of primary concern in patients older than 55 years, and is characterized by a combination of hand "clumsiness" and gait unsteadiness.
- Cervical radiculopathy usually occurs in younger patients and is frequently caused by a disc herniation; this can also occur in patients older than 55 years with cervical spondylosis.
- Patients involved in litigation or workers' compensation claims may have secondary gain issues that affect their pain and treatment outcome.
- Waddell described five signs to help determine the presence of nonorganic low back pain:
  a. Pain with axial loading
  b. Inconsistent performance during examination
  c. Exaggerated response to physical examination
  d. Inappropriate diffuse or superficial pain
  e. Motor or sensory findings that are not consistent with normal anatomy

CLINICAL/SURGICAL PITFALLS:

- The majority of lumbar pain is simple mechanical back pain, but careful examination must be done in every case to confirm that diagnosis.
- A high index of suspicion is necessary for conditions such as cauda equina syndrome, which, although rare, is an indication for urgent diagnosis and surgical intervention.
- Caution should be used when considering issues such as possible secondary gain so as not to miss "red flags" in the history and physical examination that might indicate more serious pathology.
- Advanced imaging should never take the place of a thorough history and physical examination to make a diagnosis of spine pain, but it should be used to confirm that diagnosis and treatment plan.

VIDEO AVAILABLE:

N/A