

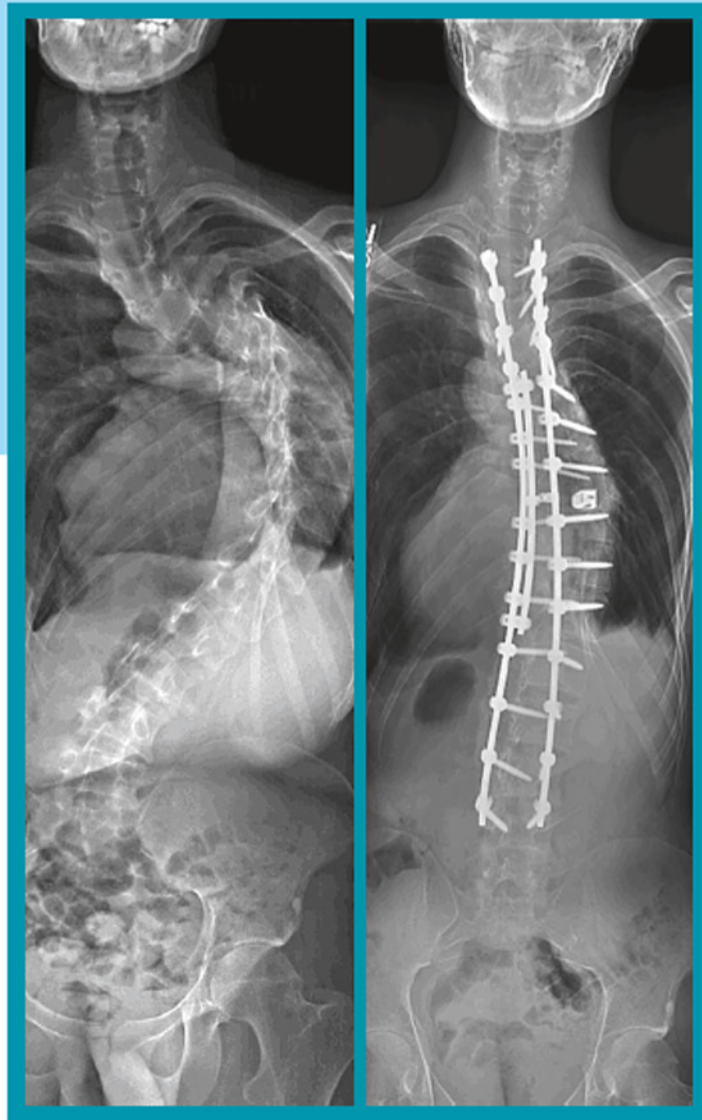
Surgery of the Thoracic Spine

Principles and Techniques

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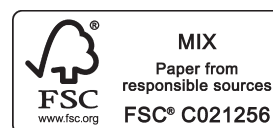
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Foreword I

This new focused textbook on the surgical management of thoracic spinal pathology highlights the new era we have entered emphasizing the evolving specialty of spinal surgery. Throughout the 20th century, spinal surgery was performed by, and education was provided by, two distinct and separate disciplines of either Neurological Surgery or Orthopedic Surgery. Traditionally, orthopedic spinal surgery emphasized care of the spinal column/vertebrae, such as performing spinal fusion for thoracic scoliosis, while neurosurgical spine surgery focused on decompression of the spinal cord and/or cervical and lumbar nerve roots for various degenerative, traumatic and tumorous conditions. However, by the start of the 21st century, the logical collaboration between the two disciplines treating similar spinal pathology began at the societal (e.g. North American Spine Society), educational (combined Ortho/Neuro spinal surgery fellowships and various spine surgery meetings), and academic (e.g. Cleveland Clinic combined Ortho/Neuro Spine program) levels. Thus, in the current era, many surgeons from either discipline who perform surgery of the spine consider themselves “Spinal Surgeons” regardless of their prior training lineage. In addition, spinal surgery has also become subspecialized with many anatomic, pathologic, and technique-based distinctions such as Cervical Spine, Spinal Deformity, and Minimally Invasive Spinal Surgery specialists who base their practice on these focused areas.

This unique educational product is a reflection of this new brand, spinal surgery, and highlights the complex anatomy, pathology, and surgical treatments involved in the thoracic spine. With this extremely thorough and detailed approach, Baaj, Kakarla, and Kim along with a talented array of contributing authors, have taken a deep educational dive into the thoracic spinal region, which has often taken a back seat, both educationally and from a research perspective, to the mobile cervical and lumbar spine regions above and below, respectively. Although biomechanically the thoracic spinal region renders more “support” than “movement,” it does provide the important structural support for the cardiopulmonary system in addition to protecting the vital thoracic spinal cord, which controls lower limb and bowel/bladder function. The 31

chapters within this book expertly describe the pathology encountered and surgical treatment options available for this intermediate region of the spinal column. Chapters covering basic Chest Wall Physiology, Biomechanics, and Anesthetic considerations are included, along with a complete list of pathologic conditions with comprehensive surgical solutions. Quality and thoroughness are accomplished with a diverse mix of spinal surgeons who truly represent the new paradigm highlighting the current symbiotic relationship of Orthopedic and Neurosurgical spinal surgery specialists. The material presented is state-of-the-art regarding the array of surgical solutions available to treat thoracic spinal pathology. Expert derived treatment algorithms are appropriately defined and illustrated.

I want to express my personal thanks to Ali Baaj, Kumar Kakarla, and Han Jo Kim and the impressive list of contributors to this textbook. I am well aware that finding time out of one’s busy clinical, academic, administrative, and personal schedules to put such a comprehensive and quality book together is extremely challenging. However, this type of dedication to the profession of spinal surgery is what will be required to improve the care of our current patients while training the future generation of spinal surgeons, who will be expected to provide an even higher level of successful surgical treatments to their patients. In this manner, *Surgery of the Thoracic Spine* is an important demonstration of the new discipline of spinal surgery and should be a standard reference for all students, trainees and practicing spinal surgeons that treat patients with thoracic spine pathology. Congratulations on a job well done!

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Foreword II

Nestled between the ever-moving cervical and lumbar regions of the spine, the thoracic vertebrae lead a relatively quiet existence. Fortified by the protective rib cage and a dense network of ligaments, the thoracic region is the Fort Knox of the spinal column, designed to protect the vulnerable thoracic spinal cord from threats both external and internal. Although the thoracic spine is largely immune to the daily wear and tear experienced by its neighbors to the north and south, it is affected by pathologies unique to its location and its function as a support essential to our upright existence.

Although it harbors the greatest number of segments in the spine, the thoracic region does not garner the same amount of attention devoted to the cervical and lumbar regions. Professional societies are dedicated to the treatment of the cervical and lumbar segments of the spine, but the thoracic region has been largely ignored. This oversight has been forever changed with the publication of this book. Drs. Baaj, Kakarla, and Kim have produced a most valuable addition to the literature by assembling contributions from experienced practitioners. Their combined experience offers a wealth of knowledge in treating this region. Beginning with a thoughtful discussion on the uniqueness of this region as it relates to pulmonary function, this book

covers everything from biomechanics to unique anesthetic considerations.

Many books have covered the topic of scoliosis; however, this book does so from the rarely considered perspective of the thoracic spine. Additional topics explored in this work include the diagnosis and treatment of spondylarthropathies, infections, and trauma—including spinal cord injury. The section on neoplasms encompasses primary and metastatic tumors, intradural extramedullary lesions, and intramedullary tumors. The book also addresses special topics relating to monitoring, navigation, and unusual pathologies, such as spinal cord herniation.

The authors and editors of *Surgery of the Thoracic Spine* have produced a comprehensive guide to the thoracic region of the spine, and this work will be part of a well-stocked library of any practicing spinal surgeon.

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Preface

We are delighted to present our work, *Surgery of the Thoracic Spine*, which focuses on pathologies and surgical techniques of the thoracic spinal cord and vertebral column. As advances are gained into better understanding of the physiology, biomechanics and conditions of each segment of the spine, we have produced a unique work dedicated exclusively to the thoracic spine.

We have attempted to address the most common pathologies affecting the thoracic spine, including degenerative, traumatic, oncologic and congenital diseases. Additionally, several chapters are dedicated to idiopathic and other deformities of the thoracic spinal column, including kyphosis and scoliosis. Emphasis is placed not only on pathophys-

iology but also on surgical technique and reconstructive strategies.

The contributors to this work bring outstanding and diverse expertise in neurosurgery and orthopedic spine surgery. We are indebted to all of them for contributing and making this text possible. We are confident that the readers, from medical trainees to practicing surgeons, will find this work valuable as they evaluate and manage patients with complex thoracic spinal pathologies.

Ali A. Baaj, MD
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