

## *Preface*

Spinal deformity correction remains a challenge for treating both pediatric and adult patients. Certainly, scoliosis remains the prototypic deformity that defines the field, but it is obvious that spinal deformity correction involves much more than the assessment and treatment of scoliosis. Over the past decade much knowledge has been gained and significant advances have been made for treating spinal deformity. For example, there has been an increased understanding of the importance of the sagittal plane in both pediatric and adult patients. In addition, the increased use of screw fixation with posterior osteotomies has allowed greater degrees of spinal deformity correction, and similar advances in spinal cord monitoring have allowed aggressive corrections to be performed safely, thus limiting the risk of spinal cord injury. Despite these advancements, however, there remain a number of questions and controversies that challenge surgeons treating spinal deformity.

In an attempt to further explore many of these challenges, the Executive Committee of the Harms Study Group (composed of Drs. Peter O. Newton, Randal R. Betz, Michael O'Brien, Harry L. Shufflebarger, and Jürgen Harms) coordinated the Peer-to-Peer Meeting for Advanced Spinal Deformity. This 2-day meeting is held in a roundtable format, with a panel of orthopedic and neurosurgical experts who specialize in both pediatric and adult spinal deformity. Combined, this group offers a wide variety of opinions and a breadth of expertise. The Peer-to-Peer Meeting is an interactive meeting where lively discussion and debate are encouraged to help increase the knowledge and understanding of complex problems facing spinal deformity surgeons as well as different treatment options. To accomplish this goal, each panelist presents a case to the entire panel, and a discussion of different perspectives and opinions ensues. Although the purpose of this meeting is not to dwell on basic topics, which are well understood by most of the panelists, it is clear from the discussion that even "basic" topics may be considered "advanced" when controversy exists.

The Discussion portion in this issue of *Roundtables in Spine Surgery* features six case presentations and captures the highlights from the Peer-to-Peer Meeting's panel discussion. The Discussion is organized by a series of topics and be-

gins with two case presentations that emphasize the decision-making process for choosing the levels of instrumentation and fusion for patients with adolescent idiopathic scoliosis. Selection of the lowest instrumented vertebrae remains a challenge for many surgeons who undertake this operation. Dr. Howard King and Dr. Daniel J. Sucato present cases that highlight two distinct curve patterns. Each case requires a slightly different approach for appropriately selecting the lowest level of instrumentation to achieve a lasting stable fusion.

Next, Dr. Keith H. Bridwell presents a case on revision surgery for patients who have been treated previously for adolescent idiopathic scoliosis. This discussion bridges the gap between those who only treat adolescent patients and those who only treat adult patients. It is clear that many of the early “successes” achieved with adolescent patients ultimately require revision as the patient matures to adulthood. Dr. Bridwell’s case emphasizes the need for continued follow-up and understanding of how to undertake salvage strategies for these challenging situations.

Dr. Patrick O’Leary presents a case of a complex cervical pathology in a patient with rheumatoid arthritis and cervical radiculopathy. The discussion in this case is presented from both the neurosurgical and orthopedic perspectives. Dr. Suken A. Shah shares a cervical deformity case of a child with neurofibromatosis that generated substantial discussion regarding the most appropriate treatment. Dr. Frank J. Schwab presents the final case on adult degenerative and untreated adolescent idiopathic scoliosis. This case presentation may have elicited the most interesting discussion, focusing on our current understanding for treating this specific patient population. A good deal of the discussion centers around sagittal plane alignment as well as the analysis and preoperative planning required to restore sagittal balance in this very complex deformity.

The Discussion concludes with two presentations from the Tips and Tricks portion of the meeting. Dr. Howard King discusses using three-dimensional spine models created from preoperative CT scans. He demonstrates how these may be a useful aid during both the planning and execution stages of complex deformity treatment. Then Dr. Paul D. Sponseller presents an innovative method for iliac screw fixation that reduces implant prominence and avoids the need for a transverse connector.

There are few meeting formats I enjoy more than panel discussions where I can sit among friends and colleagues and share cases with the hope of gaining further knowledge and insight from their experiences. The roundtable format provides a unique opportunity to sit with known experts and understand how they work through the decision-making process for treating complex spinal deformity. We hope this roundtable will contribute to the general understanding of spinal deformity care and look forward to continuing the peer-to-peer meeting format for years to come.

### *Acknowledgments*

I would like to thank the members of the Harms Study Group Executive Committee who helped formulate the topics for discussion, as well as Drs. Keith H. Bridwell, Michael O'Brien, Oheneba Boachie-Adjei, and Harry L. Shufflebarger, who took an active role in moderating different segments of the discussion. In addition, I would like to extend my appreciation to all faculty members for presenting their cases, both with and without complications, which were beneficial to everyone in attendance.

**Peter O. Newton, MD**