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CORR Insights®: The Oblique Anterolateral Approach to the Lumbar Spine Provides Access to the Lumbar Spine With Few Early Complications

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Where Are We Now?

The foundation of modern spine surgery comprises of three primary surgical goals: Decompression of neural elements, stabilization of instability, and

This CORR Insights® is a commentary on the article “The Oblique Anterolateral Approach to the Lumbar Spine Provides Access to the Lumbar Spine With Few Early Complications” by Mehren and colleagues available at: DOI: [10.1007/s11999-016-4883-3](https://doi.org/10.1007/s11999-016-4883-3).

The author certifies that he, or a member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

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correction of deformity. Achieving successful fusion is crucial for the longevity of many spine procedures.

The technique for spinal fusion has evolved since Dr. Fred H. Albee first described the surgery in 1911 [1]. Spinal fusion has revolved around these two main axes: Biologics (bone graft and bone graft substitutes) and biomechanics (screws, hooks, interbody cages). Despite the mountain of research on spinal fusion, there is no clear consensus on the correct surgical technique for a given pathology. Even the management of a common and straightforward problem such as a Grade 1 L4–5 degenerative

spondylolisthesis with associated stenosis likely would elicit as many opinions as spine surgeons queried.

Anterior, lateral, or anterolateral approaches to the interbody space in the lumbar spine are guided by vascular and neural anatomy. The risk-benefit profile of each approach changes drastically with differing lumbar levels from L1 to L5. This current study offers an excellent description of the authors' experience with an oblique anterolateral approach to L1–L5 levels in 812 patients. This approach may offer advantages to anterior and direct lateral transpsoas approaches with potential decreased rate of vascular and neurological injuries. The next step is challenging, but crucial to advancing spinal surgery.

This *CORR Insights*® comment refers to the article available at DOI: [10.1007/s11999-016-4883-3](https://doi.org/10.1007/s11999-016-4883-3).

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Where Are We Going?

We, as a spine-surgery community, must commit to determining when a specific procedure is appropriate and necessary for a given pathology. Does

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an L4–5 degenerative spondylolisthesis need an interbody fusion, or is a posterolateral fusion sufficient? Incremental cost-effectiveness analysis is also critical and particularly relevant when a new approach is considerably more costly. Furthermore, if the listhesis is stable, would a minimally invasive decompression alone suffice?

Nevertheless, this study is the largest series of patients treated by the anterolateral technique and creates a standard for understanding the immediate complications of this relatively new approach. Future work should be focused on the indications and clinical/radiographic outcomes as it relates to alternate surgical techniques. An interbody fusion is often performed to increase fusion rates. Most surgeons would agree that preparing the disc space for an interbody fusion is a critical step. The lateral and anterolateral approach while safer has a smaller corridor to perform a complete

discectomy. However, if fusion rates are similar compared to a traditional anterior lumbar interbody fusion, the safety profile of an oblique approach may warrant its use. It is exceedingly expensive, time consuming, and complex to answer these questions through a prospective, randomized trial. Meta-analysis of studies comparing fusion techniques can be valuable but often lack fidelity because of differences among the study approaches that they synthesize.

How Do We Get There?

Alternate study constructs through prospective national or international spine registries may be necessary to answer these “best-evidence” questions. Collaborative study design and structured data sharing between high-volume surgeons, such as the authors in this study, would allow for power-

ful, meaningful analysis of validated general health and disease specific patient reported outcome measures, and cost-effectiveness data. While this study demonstrates that the anterolateral technique can be safely performed, the indications remain expert opinion. I think that there would be substantial interest in a head-to-head “competition” between instrumented posterolateral fusions, which rarely result in neurovascular injuries, and combined oblique anterolateral interbody fusions for Grade 1 degenerative spondylolisthesis. These types of comparative studies are an important next step to more predictable and reproducible spine care.

Reference

1. Albee FH. Transplantation of a portion of the tibia into the spine for Pott's disease. *JAMA*. 1911;57:885–886.