Results from interbody fusion

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The authors present a series of 27 patients treated with the presacral axial lumbar interbody fusion (AxiaLIF, TranS1, Inc.) procedure over 2 levels. This prospective, nonrandomized study detailed the results and complications of this surgical procedure. All cases involved the L4–5 and L5–S1 levels, and all were supplemented with same-day posterior stabilization surgeries. A calcium phosphate graft with bone marrow aspirate was used in the disc spaces in the attempts at fusion.

The stated advantages of this anteroposterior surgery are preservation of the musculature, the anulus fibrosis, and the anterior and posterior longitudinal ligaments. Satisfactory short-term radiographic and clinical outcomes were achieved. At 24 months, significant improvements were measured using the Oswestry Disability Index (40% reduction) and visual analog scale for back pain (50% reduction).

There were many problems with this surgery, mostly related to poor fusion rates. There was a single bowel perforation, and 5 additional spinal revision surgeries were needed (18%). Spinal complications included broken rods in 15%, rod detachment in 11%, radiolucency around the rod in 84%, and cephalad rod migration into the L3–4 disc space in 24%. Solid 2-level fusion was detected in 8% of the patients. Analyzing spinal alignment, statistically significant decreases (p < 0.001) were observed in disc space heights and in lordosis compared with the preoperative imaging studies.

The authors describe “disastrous” radiological results in their conclusions. I agree that these results are completely unacceptable. Unfortunately, with many stabilizations to the sacrum, 2-year follow-up may not be long enough to detect all of the fusion failures, which are often not fully seen until between 2 and 5 years. I commend these authors on the forthright reporting of their 2-year clinical and radiographic outcomes. (http://thejns.org/doi/abs/10.3171/2012.3.SPINE12206)

Disclosure

The author reports no conflict of interest.

Reference


Response

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We thank Dr. Heary for his editorial comments. The editorial enhances the importance of the data presented in our article in which we analyzed AxiaLIF results exclusively from 2-level cases. It is important to distinguish 2 totally different procedures that are performed via the same surgical approach: the L5–S1 and the L4–L5/L5–S1 AxiaLIF. The first procedure is quite new but is relatively well established in the literature. The first clinical report dates from 2006, in which Dr. Pimenta (a coauthor of the present article) was a coauthor and contributed to the development of this new technique. The second procedure was later developed as an extension of the original one.

For both procedures, our study and others have shown that this surgical approach has been safely performed in sparing neural structures. The problems for an adequate L4–5 fixation seem to start in achieving a good route and positioning of the axial rod and also in preventing micromotion and radiolucency in the cancellous vertebral bone. There are very few results of a 2-level procedure in the literature. Despite a 5-year study that reported a complication rate of 1.8% for 2-level procedures, a disproportionate number of problems were observed in our study and in that by Lindley et al., in which 6 of 10 patients had complications (mostly pseudarthrosis), in contrast to 10 of 58 patients who had undergone the 1-level procedure.
The midterm follow-up presented in our article still is insufficient to finish the discussion. However, as well discussed in the letter “Complications in spine surgery: honesty is the best policy,”2 coauthored by Dr. Heary, “disastrous” results must be written and published because “convenient memory loss” is natural and “often leads us to tip the risk/benefit ratio scale toward surgery.”

References


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