

Editorial

Curve progression

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In a very important article, Hosogane and colleagues¹ report on 50 patients who had a lumbar degenerative scoliosis of more than 10° and were treated with multilevel spinal decompression for spinal stenosis and followed up for a mean of 2.8 years postoperatively (range 1–8 years). Importantly the patients were older, as their mean age at the time of surgery was 70 years (range 59–83 years). Those patients who had more substantial radiographic and clinical deformity, including a lumbar curve greater than 40°, intolerable back pain due to trunk imbalance greater than 5 cm, and/or foraminal stenosis due to the concavity of the lumbar or lumbosacral fractional curve, were treated with corrective instrumentation and fusion and were not included in this study group. Also importantly, of the 50 patients who underwent lumbar spinal decompression, 42 underwent a fenestration by either lumbar spinous process splitting technique or a conventional fenestration method, while only 8 underwent conventional laminectomy. Thus, most of the patients were treated with what can be considered a more “stable” spinal canal decompressive procedure. What did the authors find? The average progression of the lumbar curve during the follow-up period was only 3.4° (range –2° to 22°). They divided the 50 patients into 11 patients with curve progression greater than 5° and 39 patients who had curve progression of 5° or less over the follow-up time period. No preoperative or intraoperative variable reached statistical significance with respect to the risk of lumbar curve progression postoperatively between these 2 groups. There were 5 patients who required revision surgery; however, none of them required multilevel corrective fusion surgery due to scoliosis progression. The outcomes as determined by 2 validated measures were similar in the 2 groups as well; however, there were no preoperative values to allow for assessment of change over time. Hosogane et al. concluded that this type of limited decompressive surgery was a viable option in these properly selected elderly patients in order to avoid extensive lumbar spinal reconstructive procedures.

Although this retrospective review does have significant methodological flaws in the statistical realm in being underpowered while attempting to assess the many vari-

ables considered for progression risk, there is certainly some very important information to be gleaned from the study. First, patients with small degenerative lumbar scoliosis curves who have stenosis as their principle indication for surgery should be considered for stenosis decompressive surgery alone and not a large reconstruction. However, the decompression must be as little destabilizing to the spinal column as possible, preserving as much of the facets as possible, or involving various less invasive techniques that preserve both muscle and joint integrity. One must be especially cautious in performing an overly aggressive decompression at the level of a true, mobile rotatory subluxation, typically at L3–4 or L4–5. So patient selection and surgical technique are 2 of the main keys to success of this technique. Second, reoperation will always be a distinct possibility for these patients, and the 10% reoperation rate certainly is very reasonable if not less than what would be expected. Certainly caution must be placed on these conclusions since follow-up is still fairly short, and some of these patients may return in the future for further decompression and/or stabilization as the degenerative processes continue and their deformities slowly progress. However, the main point of this article is something that should be considered in all of these patients: surgeons should treat the patient’s primary problem (stenosis) and should be less concerned with prophylactic reconstruction in this age group, especially in patients with minimal radiographic deformity. Certainly the majority of articles published on extensive spine reconstructions in elderly patients have a much higher reoperation and complication rate, which makes this approach look even more appealing for those patients who fit the inclusion criteria. I congratulate the authors on reviewing this important group of degenerative lumbar scoliosis patients and ask all spinal reconstructive surgeons to keep this form of less aggressive surgical treatment in their armamentarium for those appropriate patients.

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Reference

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Response

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We greatly appreciate Dr. Lenke's insightful comments. As he points out, we retrospectively reviewed the cases of patients with degenerative lumbar scoliosis (DLS) and minimal to moderate spinal curvature who had stenosis as their principle pathology. We tried to reveal the post-operative changes in the lumbar curve after decompression surgery for patients with moderate DLS to validate this method, as the rate of perioperative adverse events has been reported to be high (more than 40%) after instrumentation surgery for adult scoliosis.³ To our knowledge, no previous study has analyzed the curve change after decompression surgery in patients with DLS. Our results revealed that the average progression of lumbar curve during the follow-up period was 1.4° per year, which was comparable to previous reports on the natural course of DLS without surgery.^{1,2}

We could not show the factors that would predict curve progression from our study comparing patients with and without curve progression. Only 10% of the patients underwent revision surgery, and none of them required reconstructive surgery. Also, there was no statistically sig-

nificant difference between the 2 groups with respect to clinical outcomes at the final follow-up, indicating that aggravation of the symptoms was tolerable even if the curve progressed.

Our study has some limitations, as Dr. Lenke pointed out. The study is underpowered and more patients are needed to assess more variables potentially related to surgical outcomes. In addition, longer follow-up is needed to evaluate the long-term influence of decompression surgery on the deformity. The effectiveness of decompression surgery observed in the present study may not apply in all types of DLS cases, because we excluded from our study patients with intolerable back pain due to trunk imbalance (> 5 cm), a large curve of more than 40°, or foraminal stenosis due to lumbar curvature. These patients may need more invasive reconstruction surgery. However, we were able to manage patients' symptoms due to spinal canal stenosis by less invasive and less destabilizing surgery, and spinal correction and fusion is not always necessary.

We again thank Dr. Lenke for his thoughtful analysis of our study and hope that our results may provide some useful information in this area.

References

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