

Correspondence

Adjacent segment degeneration: Time is not as important as facet preservation!

Sir—We read with interest the article by Axelsson et al. (2007) on “Adjacent segment hypermobility after lumbar spine fusion: no association with progressive degeneration of the segment 5 years after surgery”. For years, the literature has provided evidence of adjacent segment disease after lumbar fusion without regard to cause or surgical technique (Javedan and Dickman 1999, Park et al. 2004, Okuda et al. 2006). We recently reported on the cause of adjacent segment disease after posterior lumbar interbody fusion and emphasized the importance of surgical technique (Dickerman et al. 2007). Okuda et al. (2006) reported on adjacent-level disease after posterior lumbar interbody fusion, which included facetectomy. Development of adjacent-level disease is not surprising if a facetectomy is performed with the lumbar fusion. Wiltse and Spencer (1988) reported on the appropriate technique for placing pedicle screws, which involves a lateral placement of the pedicle screw to the facet joint as opposed to a direct placement through the facet complex. Degenerative changes including adjacent-level disease or spondylolisthesis has been well-reported with iatrogenic facet complex damage (Hafer et al. 1994, Schlenk et al. 2003). The lumbar facets are oriented in the sagittal plane and it is of the utmost importance when placing pedicle screws that the facet joint is spared (Hafer et al. 1994, Dickerman et al. 2007). In our retrospective analysis of patients referred to our centers for repair of adjacent level disease, we have found that the vast majority of patients have inappropriately placed pedicle screws, indirectly or directly, through the facet complex. We strongly support the comments of Axelsson et al. that adjacent segment disease may be over-reported and we find that patients with appropriately placed screws

are usually doing well 5 and 10 years postoperatively.

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Sir—The letter of Dickerman et al. includes support for most aspects of adjacent segment disease given in our article. Consideration of the problem as sequelae or a complication of fusion is rather uncommon according to the letter, which is fully in line with our opinion. We do also agree about the importance of surgical technique being careful not to include the adjacent facet joint when the upper articular processes of the proximal fused vertebra are exposed. The pedicle screws must be placed correctly so that they do not affect the mobility range of the same facet joint. This is also true of the bone graft, which, if incorrectly placed or migrating, might affect the adjacent facet complex.

On the other hand, it is our experience that in most patients with adjacent segment disease, there is no such iatrogenic reason for degeneration proximal to the fusion. As a matter of fact, this is one of the conclusions in our article and it is clearly illustrated by patient number 1 in our series. This patient was the only one with progressive degenerative findings at the 5-year follow-up. The degeneration was seen adjacent to the juxta-fused level and no surgical exposure had been done as proximally as that. Furthermore, the radiostereo-

metric measurements at the adjacent segment level revealed no changes in mobility induced by surgery in this patient.

We appreciate and agree with the comments of Dr Dickerman and colleagues. However, even with careful surgical technique and preserved mobility conditions at the juxta-fused levels, adjacent segment disease sometimes impairs the long-term outcome after fusion. In our opinion, this development represents a predisposition for multi-level degeneration in the individual patient and reflects constitutional factors rather than altered kinematics or increased load.

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