Clinical: Prosthesis

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Three-level Lumbar Total Disc Replacement

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Introduction: Some patients present with the challenge of multi-level painful disc degeneration unresponsive to non-operative care. While three-level fusion may be considered, it is not typically desirable due to the chance of pseudoarthrosis and the potential for future problems at adjacent segments. The purpose of this study was to evaluate the outcomes of three-level total disc replacement (TDR).

Methods: Six patients with three-level painful degenerative disc disease underwent TDR. None of the patients had significant facet joint degenerative changes. There were 3 males and 3 females with a mean age of 35.4 years, ranging from 25 to 55 years. The mean body mass index was 23.2 (range 25.1 to 26.8). Five patients were operated from L3 to S1 and the remaining patient from L2 to L5. The mean follow-up was 28.4 months, ranging from 9 to 60 months. ProDisc-L was used in five patients and Charite in one patient. Outcome measures used were visual analog scales (VAS) separately assessing back and leg pain. The Oswestry Disability Index was used to assess physical function.

Results: The mean VAS back pain scores improved significantly (Figure 1; p< 0.025) and there was a trend for significant improvement in leg pain (0.05< p< 0.07). Oswestry scores also improved significantly from a pre-operative mean of 48.4 to a mean of 28.4 at the most recent follow-up.

One patient had early subsidence at all three levels, but his clinical results were satisfactory so that no additional surgery was undertaken. There were no re-operations or complications.

Conclusion: This study found that patients with three-level painful degenerative disc disease improved significantly following TDR. These patients present a treatment challenge and need to be carefully evaluated for bone quality and facet joint problems. If a patient fulfills the selection criteria for TDR, multi-level replacement may be considered.