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Interspinous Ligamentoplasty in the Treatment of Degenerative Spondylolisthesis
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Objective: Pseudoarthrosis and adjacent segment degeneration still have been problems after fusion surgery. To overcome these complications, many dynamic stabilization methods have been developed. This study was conducted to elucidate the long-term result on the effectiveness of interspinous ligamentoplasty (ILP) to treat degenerative spondylolisthesis.

Methods: Consecutive surgeries with decompression and ILP for 23 patients were performed at one institution by two surgeons between 2001 and 2002. A mean follow-up period was 64.6 months (range: 60-77). All the patients had symptomatic spinal stenosis, radiological instability, and grade 1 spondylolisthesis at L4-5 level without foraminal stenosis and deformity. Clinical outcomes were evaluated by Visual Analog Scale (VAS) for back and leg pain and the Oswestry disability index (ODI). Radiological measurements were done with segmental lordosis, total lumbar lordosis, posterior disc height, anterior slippage, angular motion, translational motion, and facet degeneration grade. 18 control patients who had undergone bilateral laminotomy alone were also enrolled.

Results: In clinical results, 22 of 23 patients returned to their active daily lives. Postoperative symptomatic instability was less common in the ILP group compared with the control group (4.3% vs 27.8%). The mean postoperative VAS leg score and back score at the final follow-up was significantly improved as well as the mean postoperative ODI score in both groups. However, mean ODI improvement was significantly greater in the ILP group (29.3% vs 16.6%, p=0.049). In radiological analysis, segmental and total lordosis were significantly increased in the ILP group. In both groups slippage was increased, disc height was decreased, and angular motion was maintained, but translational motion is decreased with statistical significance in the ILP group while increased in the control group. Radiological instability was three in the ILP group and nine in the control group, which showed statistically significant difference (p=0.016).

Conclusions: Interspinous ligamentoplasty is a good option for the treatment of the patient with grade 1 degenerative spondylolisthesis requiring surgery. It is less invasive and effectively stabilizes the unstable spine with relatively small incidence of postoperative instability. Interspinous ligamentoplasty provides satisfactory clinical and radiological results during the long-term follow-up.