

Clinical Outcome of Transspinous Approach in Comparison With Conventional Laminectomy for Lumbar Degenerative Stenosis

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Introduction

The surgical techniques including the spinous process-splitting laminectomy (1, 2), the chimney sublaminar decompression (3), the Marmot operation (split-spinous process laminotomy) (4), and the transspinous lumbar decompression (5) can be useful alternatives to conventional decompression surgery for lumbar canal stenosis through preservation of posterior supporting structures and satisfactory recovery rates. We aimed to evaluate the efficacy of the transspinous approach compared with the conventional laminectomy in degenerative lumbar spinal stenosis with or without disc herniations.

Methods

Clinical data of the 198 patients, operated between the dates of April 2011 and June 2015 for degenerative lumber spinal stenosis, was analysed retrospectively. Patients were classified into two groups according to the type of surgery either conventional laminectomy (Group I; 101 patients) or the transspinous approach (Group II; 97 patients) (Video 1). Clinical outcome between the groups were assessed by comparing the length of inpatient hospital stay, postoperative pain, rate of postoperative neurologic deficit and complication, and extent of decompression.

Results

33 patients in Group I and 23 patients in Group II underwent lumbar decompression with discectomy. Multi-level lumbar decompression was performed in 57 patients of Group I and in 47 patients of Group II. At postoperative pain evaluation, excellent, good, and fair outcomes were achieved in 77.4%, 16.9%, and 2,7% in Group I and 79%, 18.9%, and 2.2% in Group II, respectively. Satisfactory neurological decompression and symptom relief were achieved in 93% of these patients. Satisfactory decompression by means of increase in both mean spinal anteroposterior diameter and crosssectional area were measured for transpinous approach (Figures 1 and 2) when compared with the conventional laminectomy group. No statistically significant differences were identified in the rates of complications or length of inpatient hospital stay.

Figure 1. Lumbar stenosis as demonstrated by magnetic resonance imaging. Preoperative sagittal (A) and axial (B) magnetic resonance images demonstrating lumbar spinal stenosis at the L4-L5 level



Figure 2. Preoperative (A and B) and postoperative (C and D) computed tomography images of the patient with lumbar stenosis at the L4-L5 level. Adequate decompression of the canal was achieved by undercutting the lamina via transspinous decompression



Conclusions

Compared with conventional laminectomy, transspinous decompression technique is an equally effective and minimal invasive technique in the treatment of degenerative lumbar stenosis with or without disc herniation.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of transpinous technique, 2) Compare the efficacy of the technique with the conventional approach 3) Identify an effective treatment for degenerative lumbar stenosis.

References

1. Watanabe K, Hosoya T, Shiraishi T, Matsumoto M, Chiba K, Toyama Y: Lumbar spinous process-splitting laminectomy for lumbar canal stenosis. Technical note. J Neurosurg Spine 2005;3(5):405-408

2. Watanabe K, Matsumoto M, Ikegami T, Nishiwaki Y, Tsuji T, Ishii K, Ogawa Y, Takaishi H, Nakamura M, Toyama Y, Chiba K: Reduced postoperative wound pain after lumbar spinous process-splitting laminectomy for lumbar canal stenosis: a randomized controlled study. J Neurosurg Spine 2011;14(1):51-58

3. Lin SM, Tseng SH, Yang JC, Tu CC: Chimney sublaminar decompression for degenerative lumbar spinal stenosis. J Neurosurg Spine 2006;4(5):359-364

4. Cho DY, Lin HL, Lee WY, Lee HC: Split-spinous process laminotomy and discectomy for degenerative lumbar spinal stenosis: a preliminary report. J Neurosurg Spine 2007;6(3):229-239

5. Jayarao M, Chin LS: Results after lumbar decompression with and without discectomy: comparison of the transspinous and conventional approaches. Neurosurgery 2010;66(3 Suppl Operative):152-160



