

Long-term Outcomes after Non-instrumented Lumbar Arthrodesis

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Introduction

Consistent with traditional spine surgery practices, in situ fusions with autograft, allograft, and demineralized bone matrix play an important role in acheiving arthrodesis. The purpose of this study is to assess the long-term outcomes of patients undergoing non-instrumented postero-lateral fusion of the lumbar spine.

Methods

We present 376 patients who underwent in situ, non -instrumented arthrodesis for lumbar degenerative disease over a 20-year period at a single institution (Table 1). Patients were followed for an average of 83.2 ± 65.5 months after the index lumbar arthrodesis procedure.

Table 1	
	In-Situ (%)
Patient #	376
Levels fused	1.76±0.82
ВМР	43 (11.44)
Autograft	345 (91.75)
Autograft + Allograft	31 (8.24)
Blood Loss	625±487
Incidental Durotomy	15 (3.99)
Laminectomy	348 (92.55)
Discectomy	45 (11.97)

Intraoperative characteristics of patients undergoing in situ arthrodesis due to degenerative spinal disease.

Table 2	
	In situ (%)
Total follow-up time	83.2 ±65.5
Back pain (%)	228 (60.64)
Radiculopathy (%)	217 (57.71)
Motor symptoms (%)	16 (4.26)
Sensory symptoms (%)	17 (4.52)
Bowel/bladder dysfunction (%)	3 (0.80)
Reoperation for ASD (%)	69 (18.35)
Total reoperation rate (%)	115 (30.59)
Pseudoarthrosis (%)	21 (5.59)

Postoperative characteristics of patients undergoing in situ lumbar fusion for degenerative spinal disease.

Results

The average age for these patients was $61.1 \pm$ 13.54 years, and 185 (49.2%) patients were male. Of the total 376 patients, 344 (91.5%) presented with back pain, 304 (95.9%) with radiculopathy, 20 (5.32%) with motor weakness, and 7 (1.86%) with pre-operative bowel/bladder dysfunction. An average of 1.76 ± 0.82 spinal levels were fused (Table 1). Autograft was used in 345 (91.75%) patients, while allograft was utilized in 31 (8.24%) patients. Average blood loss was 625 ± 487 milliliters. 15 (3.99%) patients experienced intraoperative durotomy during the surgery. Perioperatively, the average length of stay was $5.98 \pm$ 5.78 days. Post-operatively, patients experienced a significant improvement in back pain (p < 0.0001) and radiculopathy (p<0.0001) (Table 2). At last follow-up, 228 (60.64%) patients experienced continued or recurrent back pain, while 217 (57.71%) patients experienced continued or recurrent radiculopathy. The cumulative rate of adjacent segment disease development over time was 18.35%. The pseudoarthrosis rate was 5.59%. In total, the rate of reoperation due to nonimprovement or worsening of symptoms was 30.59%.

Conclusions

We present one of the largest cohorts of patients undergoing in situ fusion for degenerative lumbar spine disease. We also present a cohort with one of the longest follow-up times, an average of over 7 years. We show that patients undergoing noninstrumented fusion have statistically significant improved back pain and radiculopathy postoperatively. Notably, while 18.35% of patient developed adjacent segment disease, 30.6% of patients required re-operation due to recurrent or worsening symptomsduring the follow-up period.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the surgical outcomes of non -instrumented fusion; 2) Identify the role of noninstrumented fusion in the treatment of spinal degenerative disease.

References

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