

Management of Lumbar Adjacent Segment Disease (ASD) with Lateral Lumbar Interbody Fusion

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Introduction

Adjacent segment disease is a known complication of lumbar spine fusion (6-39%) and requires additional fusion procedure. However, dissection through a previous scar entails the risk of dural tear and poor wound healing for posterior approach. Anterior approach is not feasible at all levels. Lateral lumbar interbody fusion (LLIF) has gained popularity for its minimally invasive approach and has gradually expanded its indications. We present largest case series till date on management of ASD with exclusive LLIF.

Methods

We performed a retrospective chart analysis of all the patients who underwent lateral interbody fusion (LLIF) since 2006 and identified 55 patients specifically treated with LLIF for adjacent level disease. We evaluated the outcome based on the segmental and regional lumbar lordosis. Statistics were done using SPSS 22.

Results

In our 55 patients, average age was 63.0 ± 9.7 years old with mean follow up of 13.7 ± 17.0 months. The average blood loss was 116.3 ml (range, 5-500ml). 42% of the patients were obese and 12% were smoker. There was significant intervertebral disc height restoration from a mean preoperative value of 8.6 ± 2.6 mm to 12.3 ± 2.2 mm at last follow up ($p < 0.001$). There was significant reduction of VAS value of low back by 61.9% ($p = 0.004$) and leg pain by 55% but latter was not statistically significant. With regards to complications, 1 patient had subsidence and 3 had pseudarthrosis. 6 patients developed radiological ASD during follow up but one required fusion for symptomatic disease.

Conclusions

Although there is ligament and muscle preservation, we still encountered six radiological ASD with only one requiring fusion which is better than literature. There was significant improvement in VAS scores from pre-operative status. There is good disc height restoration and improvement in leg pain which eventually translates to better patient satisfaction. LLIF is a feasible alternative to manage ASD.

Learning Objectives

1. Adj segment disease is an expected long term complication
2. LLIF is a good alternative to posterior or anterior approach
3. LLIF preserves all posterior structures and decreased our incidence of ASD
4. Higher patient satisfaction in our series was noted

References

Minimally invasive lateral interbody fusion for the treatment of rostral adjacent-segment lumbar degenerative stenosis without supplemental pedicle screw fixation.

Wang MY, Vasudevan R, Mindea SA. J Neurosurg Spine. 2014 Dec;21(6):861-6. PMID: 25303619