

Novel Minimally Invasive "Rocking" Technique for Complete Anatomic Reduction And Monosegmental Fusion For Lumbar Spondylolisthesis Of Grade 2 And Above

Vasudeva Rao Rajakumar Deshpande MCh; Akshay Hari MBBS; Viralkumar M Vasani; Murali Krishna M.Ch.; Ankit Sharma Fortis Hospitals limited, Bengaluru, India

Introduction

Reduction of higher grades of spondylolisthesis remains a surgical challenge. We present our results using a novel minimally invasive "Rocking" technique which consistently achieves complete anatomic monosegmental reduction.

Methods

A cohort study consisting of a total of 41 consecutive patients over a period of 7 years. Patients with varying grades of lumbar spondylolisthesis (Meyerding: 32 grade II, 9 grade III) were treated with operative reduction via minimally invasive transforaminal lumbar interbody fusion (MIS TLIF) using the "Rocking" technique. The clinical outcomes were measured using the Visual Analog Pain Scale (VAS) and the Revised Oswestry Disability Index (ODI) for low back pain/dysfunction scoring.

Methods (Continued)
Radiological parameters of
Grade (Meyerding), Pelvic
Incidence (PI), Lumbar
Lordosis (LL), Disc Space
Angle (DSA), Pelvic Tilt (PT)
and Sacral Slope (SS) were
assessed to measure the
radiological outcomes. These
were prospectively reviewed
for each patient for a
minimum of 2 years.

Results

At most recent follow-up, 94% of patients were pain free. There were two patients (6%) who had moderate pain (which corresponded to higher grade of listhesis), but all showed an improvement in pain scores (p < 0.05). Mean VAS improved from 6.8 (SD 1.3) preoperatively to 1.4 (SD 1.2) and mean ODI score improved from 55.9 (SD 12.3) preoperatively, to 23.8 (SD 14.2) at 2-year follow-up. Good fusion achieved in 97% of the patients (Bridwell grade 1 & 2) with implants in-situ at 2 years follow up. 100% complete reduction of all grades of spondylolisthesis was achieved. The overall sagittal profile improved dramatically. No major perioperative complications encountered.

Conclusions

Minimally invasive monosegmental transforaminal lumbar interbody fusion for listhesis reduction using this "Rocking" technique is effective in the treatment of various grades of spondylolisthesis with excellent correction of overall sagittal profile, along with avoidance of inclusion of healthy adjacent segment into the fusion construct.

Learning Objectives

By the conclusion of this session, participants should be able to:

- 1. Consider reduction of higher grade of spondylolisthesis
- 2. Understand minimally invasive "Rocking" technique for complete reduction of spondylolisthesis
- 3. Maintaining sagittal balance by overall reduction of lumbar lordosis.

References

- Bourghli A, Aunoble S, Reebye
 O, Le Huec JC: Correlation of
 clinical outcome and spinopelvic
 sagittal alignment after surgical
 treatment of low-grade isthmic
 spondylolisthesis. Eur Spine J
 20:663-668, 2011
- Hanson DS, Bridwell KH, Rhee JM, Lenke LG: Correlation of pelvic incidence with low- and high-grade isthmic spondylolisthesis. Spine 27:2026–2029, 2002
- Hari A, Krishna M, Rajagandhi S, Rajakumar DV: Minimally invasive transforaminal lumbar interbody fusion-indications and clinical experience. Neurol India 64:444-454, 2016
- Transfeldt EE, Mehbod AA:
 Evidence-based medicine
 analysis of isthmic
 spondylolisthesis treatment
 including reduction versus fusion
 in situ for high-grade slips.
 Spine 32:S126-129,2007







