



Clinical and Radiographic Results Following the Use of Lateral Interbody Cages to Restore Lumbar Lordosis in Revision Fusion Surgery

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Introduction

- Revision lumbar surgery can be extremely challenging
- Patients with a previous fusion can present with iatrogenic flat back deformity, non-union, progressive deformity and proximal level degeneration or failure
- Those patients with a previous decompression can present with recurrent compression or stenosis of the central canal, lateral recess or neural foramen



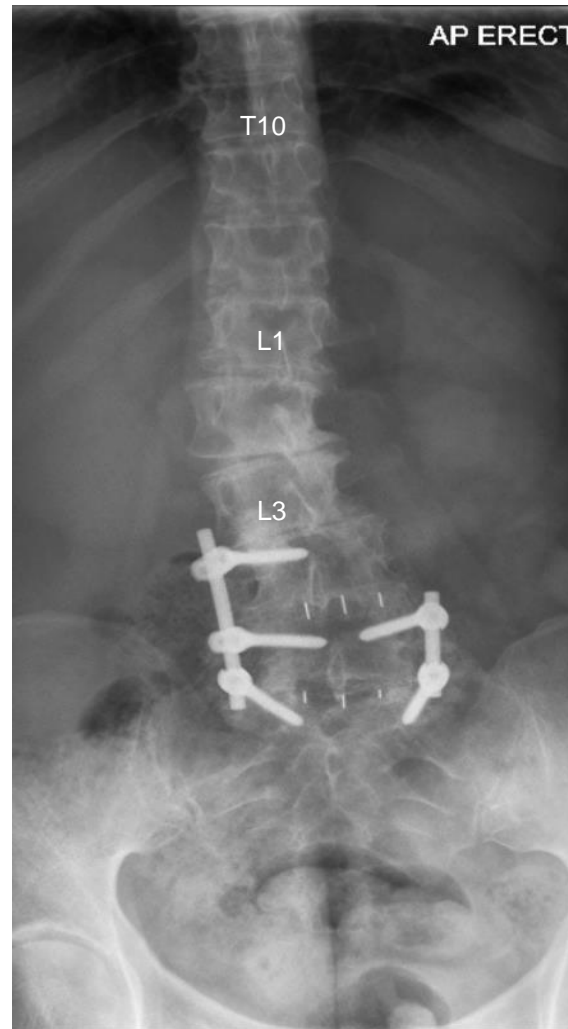
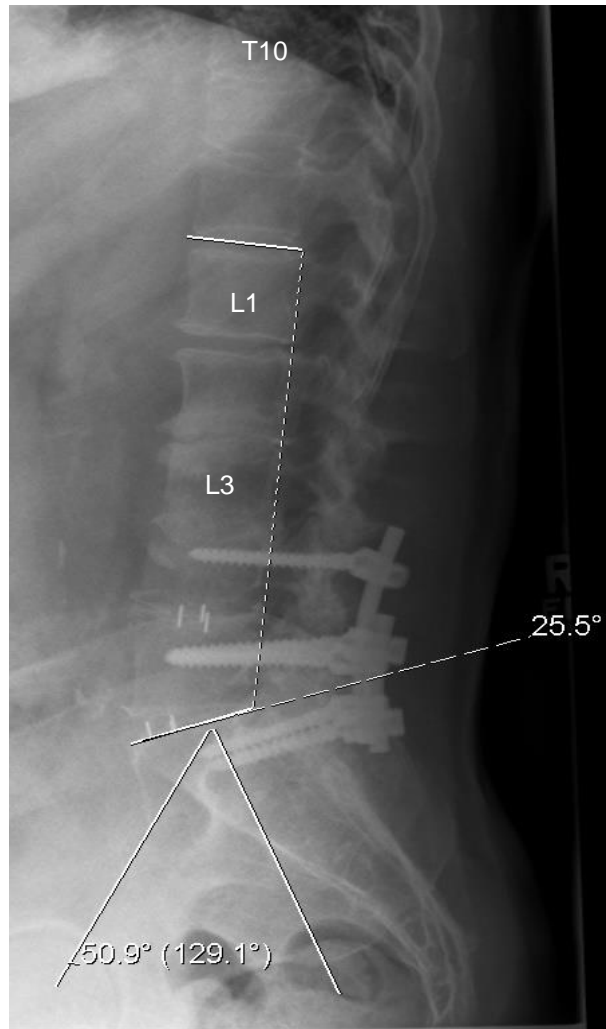


Introduction

- Traditional open approaches include direct revision decompression and extension of the fusion, sometimes with the use of posterior or transforaminal cages for interbody support
- The risk here is of nerve damage and difficulty negotiating scar tissue.
- Anterior cages carry the risk of vessel and bowel damage
- Lateral cages inserted via a minimally invasive approach can effectively indirectly decompress nerves and potentially lower complication rates. Their use also allows the maintenance or restoration of lumbar lordosis
- This poster demonstrates early outcomes in patients with previous lumbar decompression or fusion surgery undergoing minimally invasive lateral interbody cages



Case Study: 66F Back and Right Leg Pain



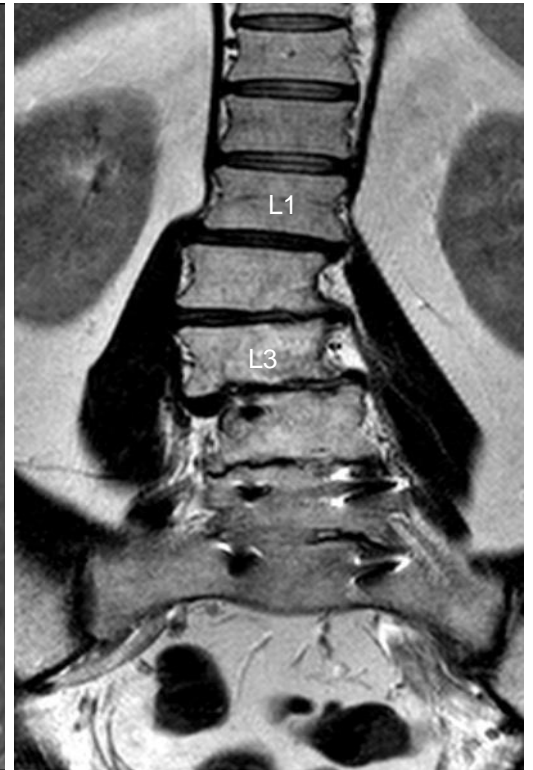
Previous L4/5 and L5/S1 TLIF for purely back pain 8 years previously

Unable to stand straight – flat back and sagittal misbalance (12cms)

Pelvic Incidence (51 degrees) and Lumbar Lordosis (25 degrees) Mismatch

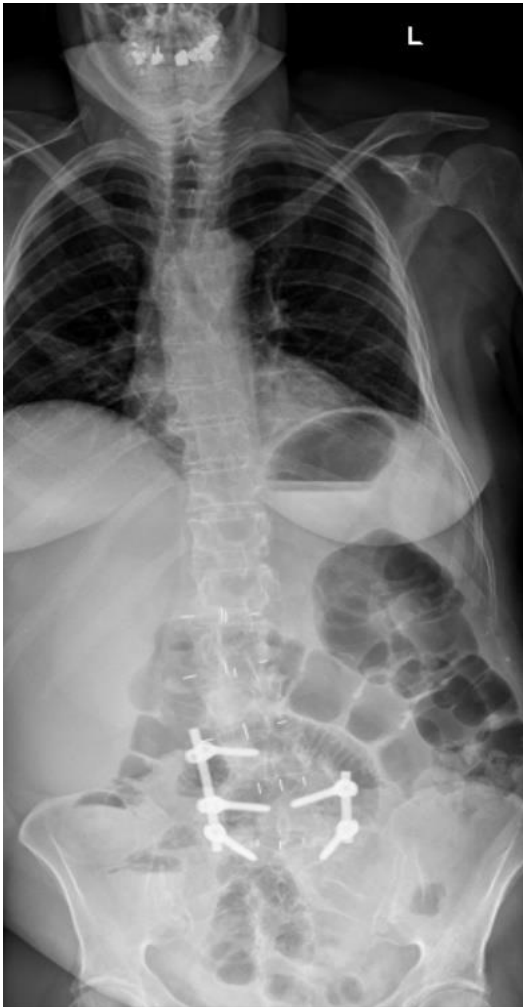


Case Study: 66F Back and Right Leg Pain



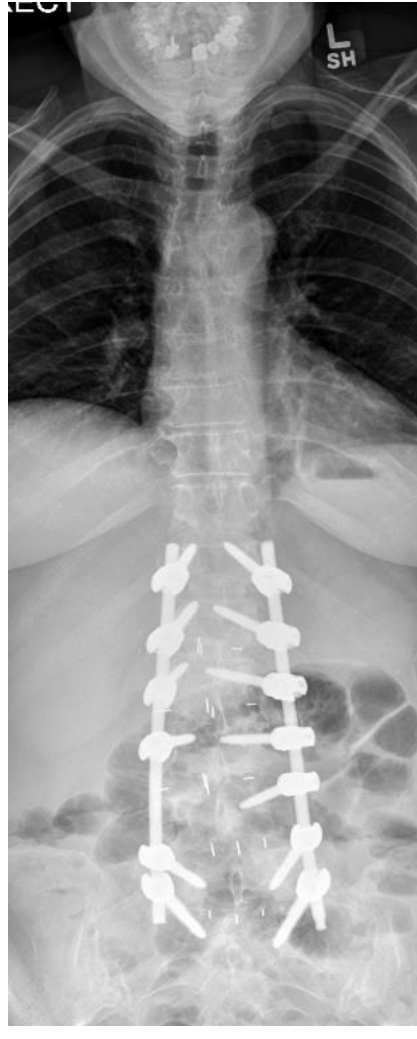
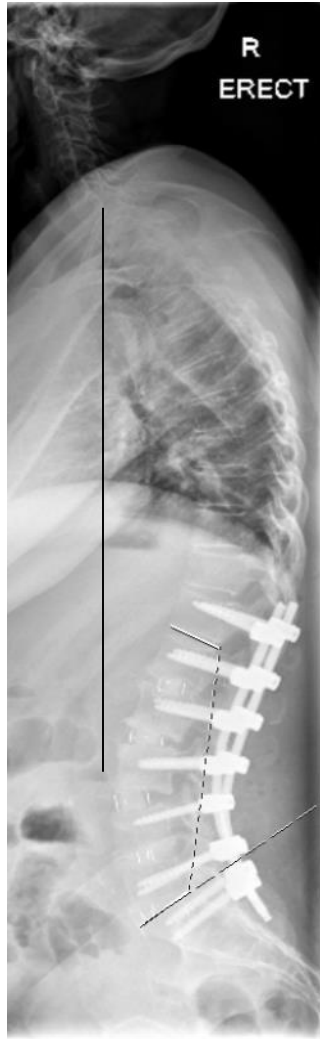
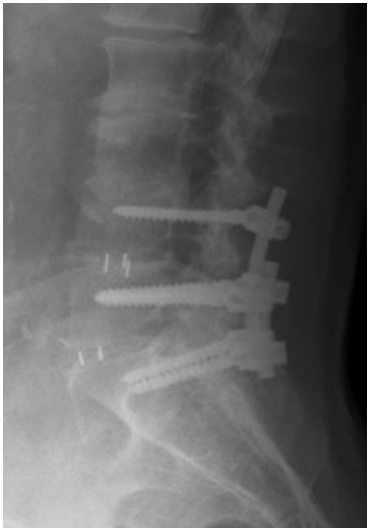


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Surgical Technique

Lateral Cages at L1/2, L2/3 and L3/4

Removal of previous metalwork

Open T12 to S1 fusion with complete facet joint release
Mersilon tape through spinous process of T11 to reduce risk of PJK

Outcome

No Complications

Post Op:

VAS leg 9/10 reduced to 0/10

Lumbar lordosis increased from 25 to 64 degrees

Sagittally Balanced



Methods

- Single surgeon case series with retrospective review of prospectively collected data
- Between January 2013 and January 2016, patients were included who had previous lumbar decompression or fusion surgery, treated with minimally invasive lateral interbody cages (K2M Ravine Retractor with Aleutian PEEK lateral interbody cages) and who had a minimum 12 month follow-up
- Complications were recorded together with the following radiographic parameters and clinical outcome scores
- Pre and post-operative radiographic parameters: Lumbar lordosis (LL), Pelvic Incidence – Lumbar Lordosis mismatch (PI-LL), Sagittal Vertical Axis (SVA) and Pelvic Tilt (PT)
- Outcome scores: VAS Back, VAS leg, EQ-5D, EQ-5D VAS, ODI



Results

- 25 patients were included - 15 cases with a previous lumbar fusion (of which 4 had a non-union), 13 cases with degenerative scoliosis, 15 cases with positive sagittal balance and 5 cases with spondylolisthesis
- A total of 49 lateral cages were inserted with 1 level in 7 patients, 2 levels in 13 patients, 3 levels in 4 patients and 4 levels in 1 patient
- The distribution of levels was as follows: L1/2 - 5 cages, L2/3 – 15 cages, L3/4 – 19 cages, L4/5 – 7 cages
- 15 cases were treated with a purely MIS technique with lateral cages and posterior percutaneous fusion. 10 cases were hybrid with an open posterior fusion
- Complications included 2 superficial and 1 deep infection (all in patients with open posterior fusions), 1 dural tear and 2 patients requiring direct decompression due to osteophytes in the neural foramen



Results

- Average post-operative parameters showed improvement of SVA from 90 to 44mm and PI-LL from 27 to 8 degrees
- Average 6 month outcome scores were: VAS back 9 to 3, VAS leg 9 to 3, EQ-5D 0.181 to 0.638, EQ-5D VAS 33 to 72 and ODI 68 to 41. These scores were maintained in those patients reaching the 2 year follow-up mark

Conclusion

- The use of multiple minimally invasive lateral cages in revision lumbar surgery is an effective surgical strategy with good early outcome measures



Disclosures

- Speaker's Bureau/Honoraria: K2M, Medtronic, DePuy, Stryker
- Advisory Board: K2M, Medtronic, Signus