OLIF as a Revision Solution
Following Posterior Lumbar Decompression Surgery

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Background and Objectives

Background

- **Revision surgery following a posterior lumbar decompression** is challenging and at risk of complications, especially through the previous posterior approach.
- **Revision surgery with the lateral approach** can be an effective and safe procedure for this condition

Objectives

- To **evaluate the clinical, radiographic outcomes, and complications following OLIF, when performed as revision method** in patients who had previously undergone posterior lumbar decompression surgery

Methods

- Retrospective study

Included Subjects

- Revision surgery with OLIF at the same level after posterior lumbar decompression
- December 2014 to March 2021
- Complete follow-up data for at least 1 year

Outcome Variables

- Visual analog scale of back (VASB) and leg pain (VASL)
- Plain radiograph and computed tomography (CT) scan
  – Disc height, foraminal height, segmental angle, lumbar lordosis, cage subsidence, and bony fusion grading
- Perioperative complications

Results

Demographic data

Characteristics	N = 24 (25 levels)
Male/female ratio	11/13
Age (years)	70.4±7.3
Body mass index (kg/㎡)	25.8±2.2
Charlson Comorbidity Index (CCI)	0.7±0.9
Current smoking status (Yes:No)	1:23
Mean follow up period (months)	28.1±21.2
Duration of symptom (months)	10.1±4.9
Prior operation level, N (%)	
L2-3	1
L3-4	7
L4-5	16
L5-S1	1
Type of prior decompression surgery	
Discectomy	5
Unilateral laminectomy (or laminotomy)	9
Bilateral laminectomy (or laminotomy)	11

Clinical and radiographic outcomes

	Preoperative	Postoperative	P-value*
VAS for back pain	6.2±2.1	1.3±1.8	< 0.005
VAS for leg pain	7.4±1.2	1.3±2.0	< 0.005
DH-A	9.4±4.2	15.0±3.3	< 0.005
DH-M	6.9±3.1	11.5±2.4	< 0.005
DH-P	4.7±2.5	7.4±2.0	< 0.005
FH	13.7±3.6	17.4±3.3	< 0.005
SL	12.1±7.4	18.0±8.1	< 0.005
LL	37.3±15.7	46.5±11.9	< 0.005

†Abbreviations : DH-A, M, P (Disc height anterior, middle, posterior); FH (Foraminal height); SL (Segmental lordosis); LL (Lumbar lordosis)

‡All results included in the table were expressed as mean±SD

Results

Additional outcomes and complications

Outcomes	N = 24 (25 levels)
Postoperative length of stay (days)	10.1
Cage subsidence	
> 2mm	5
< 2mm	10
Fusion grading	
I	15
II	10
III	0
IV	0
Complication	
Sympathetic chain injury-related symptoms	2
Intraoperative (dural tear, nerve root injury, etc.)	0
Wound-related (infection, dehiscence, etc.)	0
ASD during F/U period	1
Fusion failure	0

† Abbreviations : ASD (Adjacent segment degeneration)

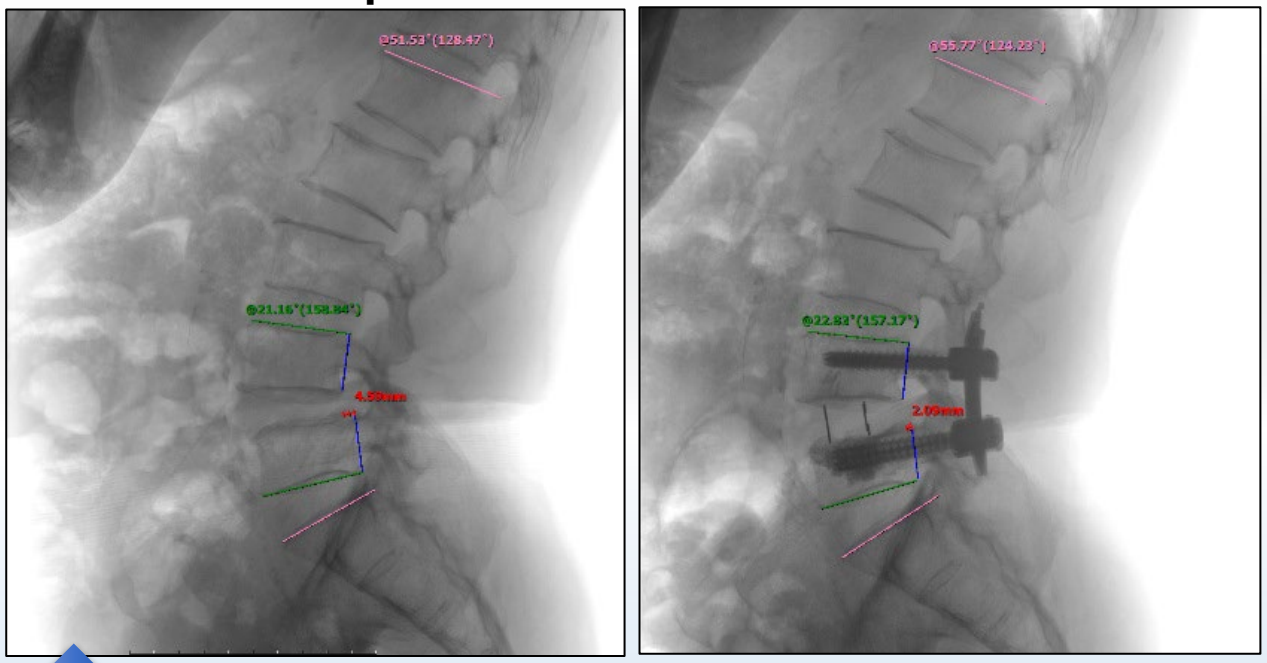
‡ All results included in the table were expressed as mean±SD

M/78; Failed Back Surgery Syndrome; S/P Hemilaminectomy Lt. L4-5, 12 yrs ago

Revision with OLIF L4-5 with PPS

(MRI) Foraminal decompression and cross-sectional area expansion indirectly by effect of ligamentotaxis after OLIF

Preop. **After OLIF**



Improvement of segmental angle, lumbar lordosis and partial reduction of spondylolisthesis

Discussion

- **Revision surgery with OLIF** significantly improved clinical and radiographic outcomes for patients with previous posterior lumbar decompression surgery, with low complications.
- Advantages included minimal blood loss, short hospital stay, low complications, and high fusion rates.

- **Further comparative studies** with conventional revision surgery are required.

Conclusion

OLIF can be performed as an effective and safe minimally invasive procedure for revision surgery in patients who previously underwent posterior lumbar decompression surgery.

Thank you

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