

# **Radiological changes and perioperative complications after OLIF L4-5; Comparison with miALIF at L4-5**

**Jeon C-H, Chung N-S, Lee H-D, Seo Y-U**

**Department of orthopaedic surgery, Ajou university school of medicine,  
Suwon, South Korea**

# OLIF vs. miALIF

- OLIF seems very similar to that in miALIF.
- OLIF L2-5 is to perform DLIF through miALIF approach, while OLIF L5-S1 is to perform miALIF in the DLIF position.



# Study hypothesis

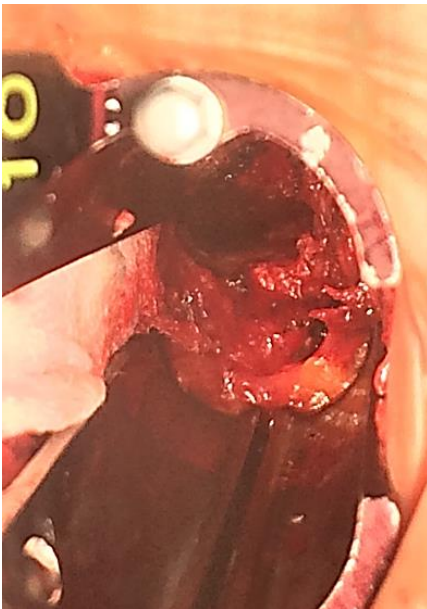
- Is OLIF a meaningful progress from miALIF?

# Study objective

- To compare the early radiological result and perioperative complications between OLIF and miALIF at L4-5 segment

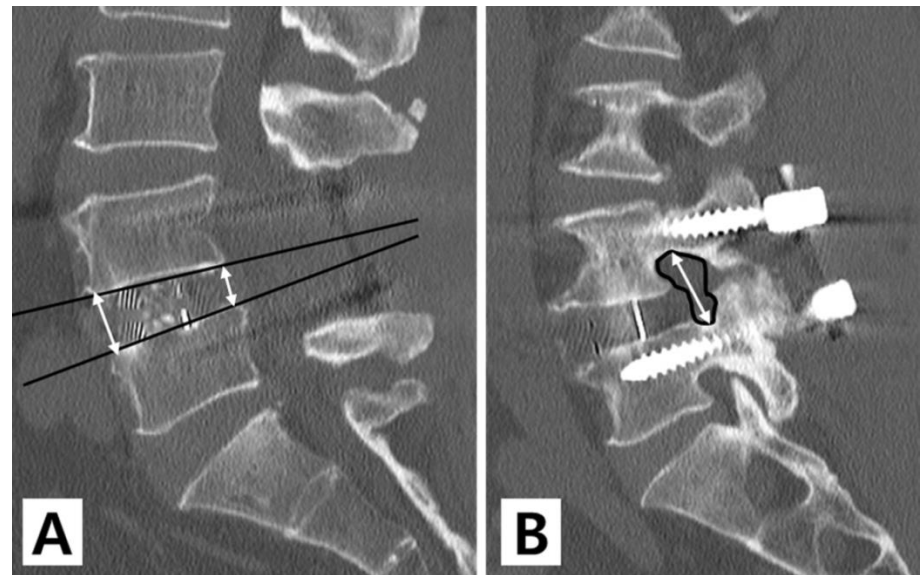
# Materials and Methods

- Retrospective case-control study
- OLIF including L4-5 (N = 48) vs. miALIF including L4-5 (N = 55)



# Materials and Methods

- Radiological measurements: anterior/posterior disc heights,  
coronal/sagittal disc angle,  
foramen height/cross sectional area (CSA)  
cage subsidence  
at the preop and postop 3-month F-U

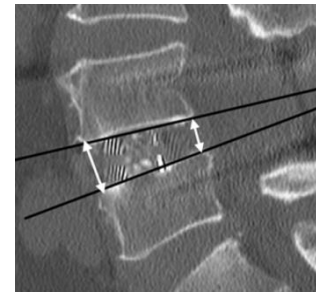


# Results

## ■ Demographics

	OLIF	miALIF	<i>P</i>
N	48	55	
Age	64.6 ± 10.9	61.9 ± 9.5	0.210
Male gender	14 (29.8)	18 (32.7)	0.819
Body mass index (m/kg <sup>2</sup> )	23.9 ± 3.4	24.5 ± 2.9	0.342
Bone mineral density (T-score)	-1.21 ± 0.98	-1.14 ± 1.02	0.627
Smoking	13 (27.1)	12 (21.8)	0.467
Bodily pain (VAS)	6.2 ± 1.9	6.5 ± 1.8	0.741
Oswestry disability index	32.6 ± 7.9	30.8 ± 8.4	0.843
Preoperative diagnosis			0.062
Spondylolisthesis	12 (23.4)	18 (37.8)	
Spinal stenosis	9 (19.1)	11 (20.0)	
DDD with instability	4 (8.5)	7 (13.3)	
Adjacent segment pathology	7 (14.9)	8 (8.9)	
Degenerative deformity	16 (34.0)	11 (20.0)	

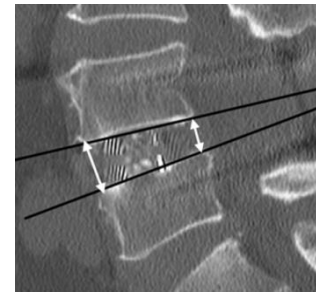
# Results



- Radiological results

	OLIF	miALIF	<i>P</i>
Disc height - anterior (mm)			
preoperative	7.4 ± 2.7	7.1 ± 3.1	0.782
postoperative 3-month	12.1 ± 4.9	8.7 ± 2.5	0.000*
$\Delta_{\text{postop 3-month - preoperative}}$	4.5 ± 3.2	2.4 ± 2.1	0.025*
Disc height - posterior (mm)			
preoperative	3.6 ± 1.9	4.9 ± 3.5	0.131
postoperative 3-month	8.1 ± 1.9	6.5 ± 4.1	0.040*
$\Delta_{\text{postop 3-month - preoperative}}$	4.5 ± 2.4	1.5 ± 4.3	0.010*

# Results



- Radiological results

	OLIF	miALIF	<i>P</i>
Disc angle - AP (°)			
preoperative	4.7 ± 4.6	2.8 ± 2.6	0.148
postoperative 3-month	3.1 ± 2.5	2.4 ± 1.9	0.370
$\Delta_{\text{postop 3-month - preoperative}}$	-1.6 ± 3.4	-0.4 ± 3.3	0.275
Disc angle - lateral (°)			
preoperative	10.0 ± 9.5	9.7 ± 8.6	0.907
postoperative 3-month	10.9 ± 4.4	9.2 ± 5.8	0.334
$\Delta_{\text{postop 3-month - preoperative}}$	0.9 ± 8.9	-0.5 ± 7.1	0.610



# Results



	OLIF	miALIF	<i>P</i>
Foramen height - right (mm)			
preoperative	11.6 ± 4.2	12.4 ± 4.2	0.599
postoperative 3-month	15.9 ± 3.4	15.5 ± 4.1	0.761
Foramen height - left (mm)			
preoperative	10.2 ± 4.9	11.0 ± 4.6	0.720
postoperative 3-month	15.6 ± 4.8	14.3 ± 4.7	0.442
Foramen CSA - right (mm <sup>2</sup> )			
preoperative	40.1 ± 24.1	46.9 ± 23.9	0.404
postoperative 3-month	80.6 ± 31.7	75.4 ± 30.3	0.618
Foramen CSA - left (mm <sup>2</sup> )			
preoperative	34.4 ± 20.5	43.3 ± 25.2	0.262
postoperative 3-month	71.4 ± 21.3	64.4 ± 17.4	0.266

# Results

- Perioperative complications

	OLIF	miALIF
Surgical site infection	0	0
Incisional hernia	0	0
Peritoneal injury	0	0
Ureteral injury	0	0
Neurological symptoms		
Spinal nerve injury	0	0
Psoas weakness	0	0
Quadriceps weakness	0	0
Thigh numbness	2	0
Thigh pain	3	0
Sympathetic symptom	2	3
Vascular injury		
Major vessel injury	0	0
Segmental artery bleeding	3	1
EBL > 300 cc	1	0

# Conclusions

- OLIF is more effective than miALIF and as safe as miALIF.
- ALIF to OLIF is a meaningful technical advance.

# Disclosure

- Nothing to disclose