

Does correction of lumbar lordosis affect restoration of sagittal balance in 1-3 segment short lumbar fusion?

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Introduction

- It is critical to make sufficient correction of lumbar lordosis in order to achieve restoration of sagittal imbalance in adult spinal deformity.
- However, surgeons do not pay attention to create sufficient correction of lumbar lordosis in short segment lumbar fusion.
- Hypothesis: Correction of lumbar lordosis in short segment lumbar fusion might affect sagittal vertical axis.

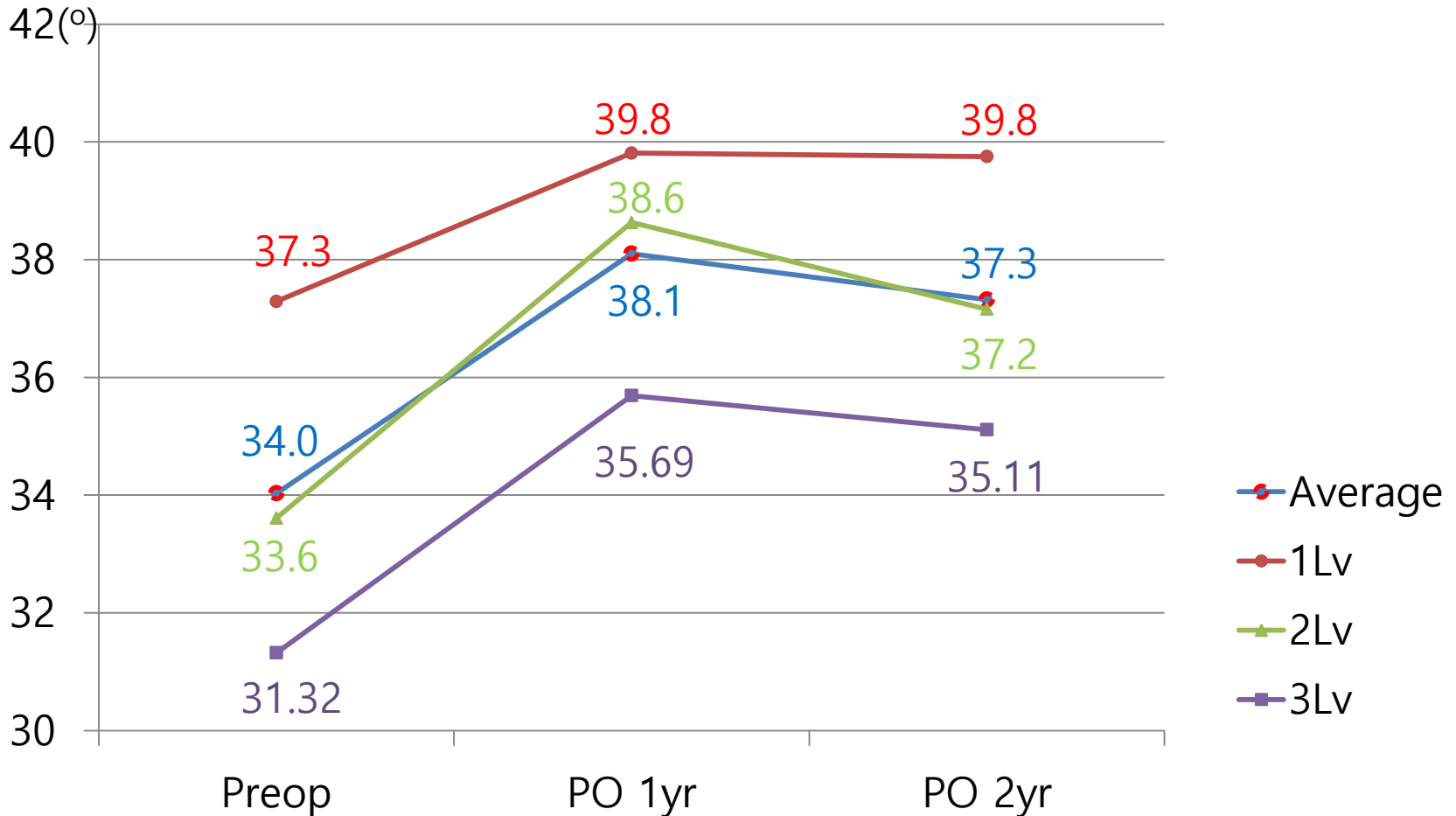
Materials & Methods

- Retrospective study (50 patients): TLIF w/ pedicle screw
- 15 degree lordotic angle cages: for achieving higher lumbar lordosis.
- Fusion segments: mean 2.0 ± 0.78
 - 1 segment fusion: 15 patients
 - 2 segment fusion: 20 patients
 - 3 segment fusion: 15 patients

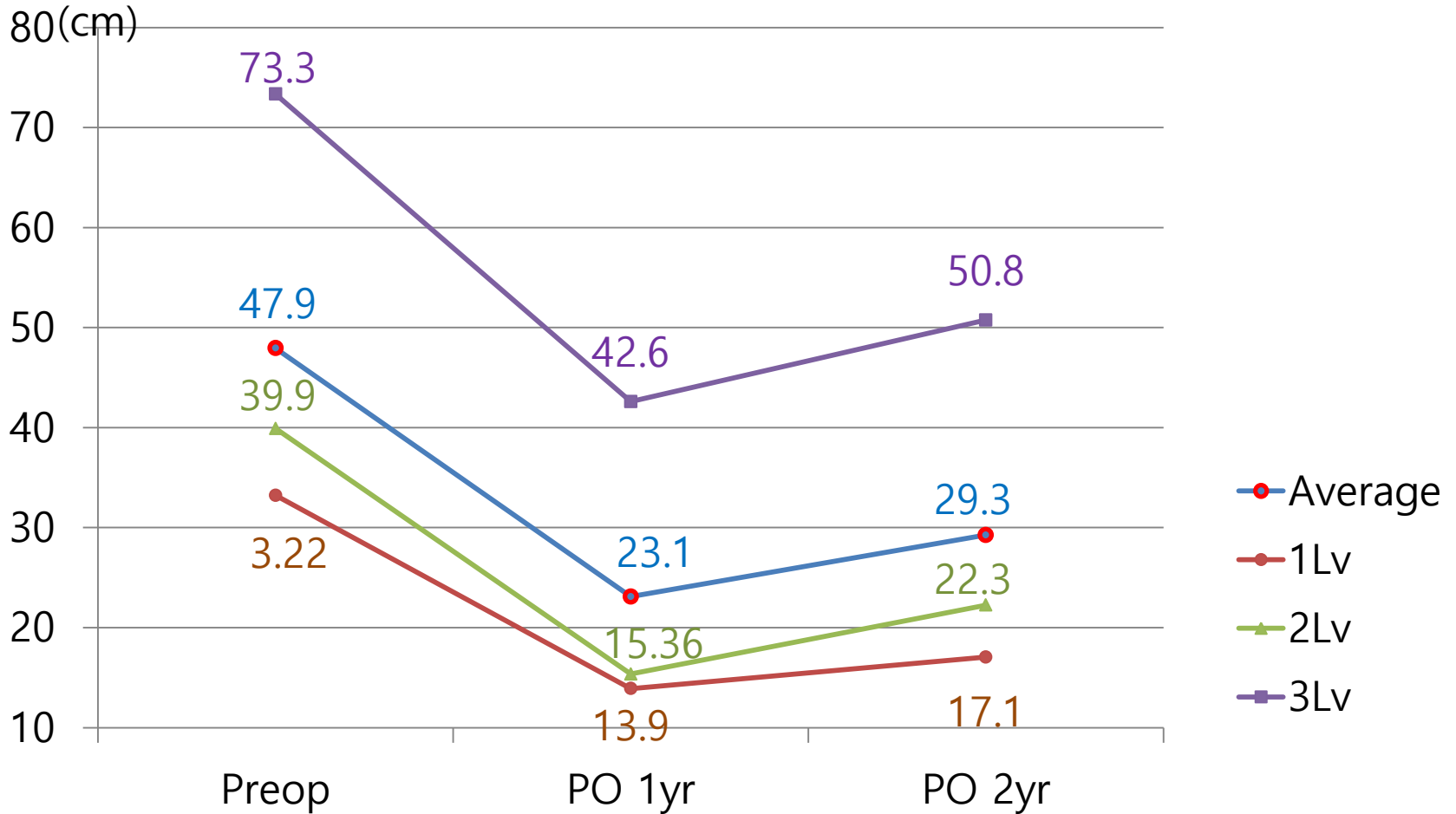
Demographic & Clinical Data

Characteristics	
Age	64.28 (range 22-85)
M:F (N=50)	34:16
Preop Dx.	
Degenerative spinal stenosis	27
Degenerateive spondylolisthesis	19
Spondylolytic spondylolisthesis	3
Adult degenerative lumbar scoliosis	1

Change of Lumbar Lordosis



Change of Sagittal vertical axis



Correlation Coefficient: **Average**

- **The correlations** between lumbar lordosis and SVA were statistically significant at **PO 1yr** and **PO 2yr**.

	Preop	PO 1yr	CC	PO 2yr	CC
Lumbar lordosis(°)	34.03	38.10	-0.41 (<0.01)	37.32	-0.35 (0.01)
SVA(mm)	47.93	23.10		29.25	

Correlation Coefficient **1 Level**

	Preop	PO 1yr	CC	PO 2yr	CC
Lumbar lordosis (°)	37.29	39.81	<i>-0.37</i> <i>(0.18)</i>	39.75	<i>-0.19</i> <i>(0.49)</i>
SVA(mm)	33.22	13.91		17.1	

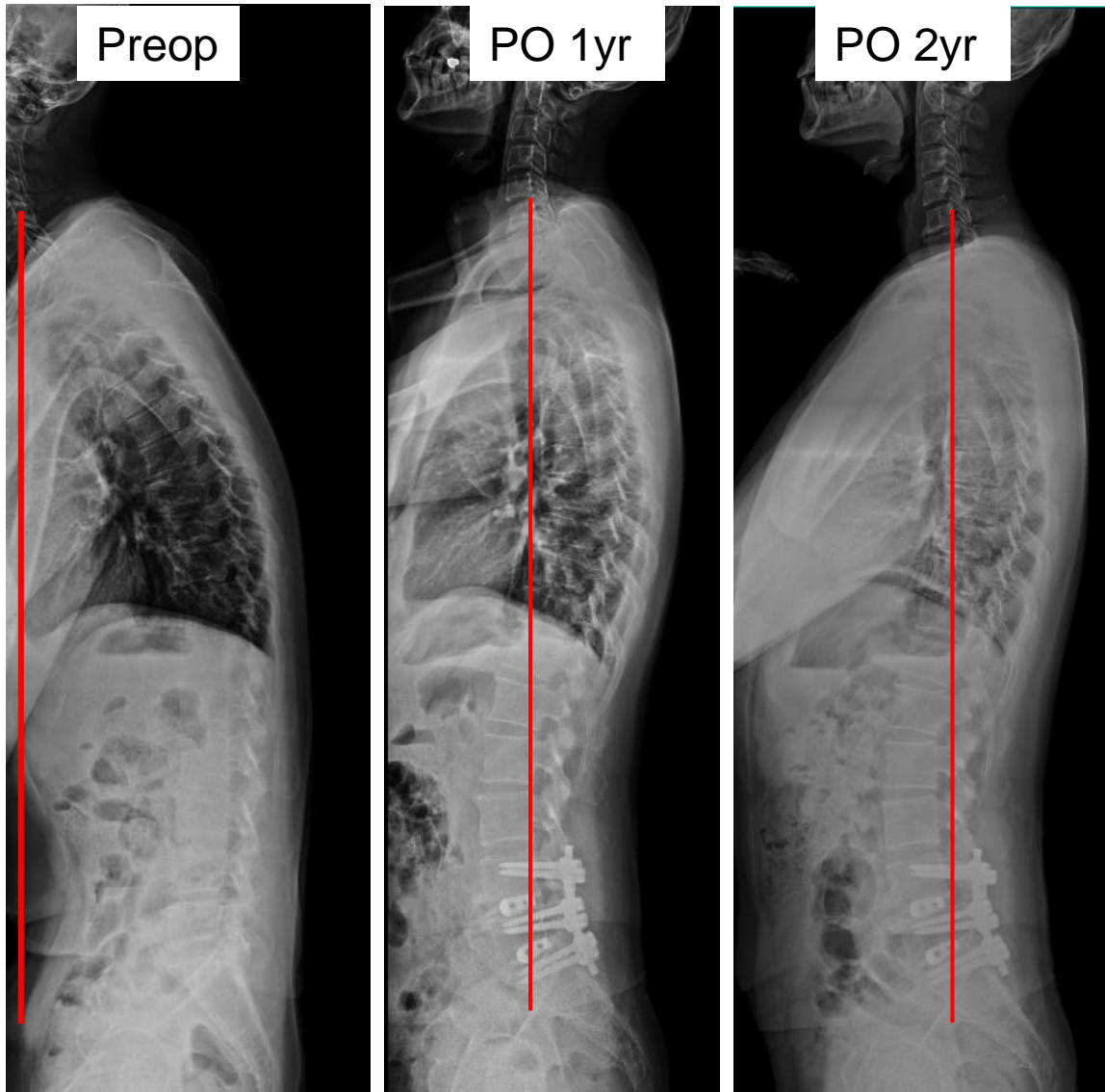
Correlation Coefficient **2 Level**

	Preop	PO 1yr	CC	PO 2yr	CC
Lumbar lordosis (°)	33.61	38.63	-0.30	37.16	-0.33
SVA(mm)	39.91	15.36	(0.20)	22.26	(0.16)

Correlation Coefficient **3 Level**

	Preop	PO 1yr	CC	PO 2yr	CC
Lumbar lordosis(°)	31.32	35.69	-0.59	35.11	-0.55
SVA(mm)	73.34	42.60	(0.02)	50.75	(0.04)

Case (41/M)



	Pre	1yr	2yr
LL(°)	15.4	29.3	27.2
SVA(mm)	156	20.2	21.9

Conclusions

- Transforaminal lumbar interbody fusion using **15° cages** achieved correction of **lumbar lordosis and sagittal balance**.
 - The correlations between **lumbar lordosis and SVA** was **statistically significant at PO 1yr & 2yr**.
 - It is important to get as **more correction of lumbar lordosis as possible even in 1-3 segment short lumbar fusion**.
- * Disclosure: None of the authors has any potential conflict of interest.