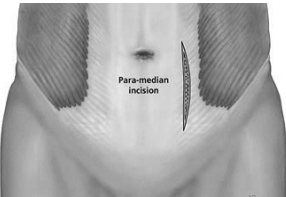


The Umbilicus and Pelvic Incidence to Inform Surgical Incisions for Anterior Lumbar Interbody Fusions via a Supine Paramedian Approach: A Radiographic Analysis

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BACKGROUND

There is a need to determine if the umbilicus corresponds to levels on the anterior lumbar spine based on pelvic incidence(PI) magnitude for guiding incision location in anterior lumbar interbody fusions(ALIFs)



METHODS

Retrospective analysis of sagittal plain films of 107 pediatric patients

Predictors: Pelvic Incidence(PI)

Outcome: Vertebral level/disc space directly posterior to the umbilicus(i.e. latitude)

Comparison Groups:

- Low PI vs middle PI groups
- Low PI vs high PI groups
- Middle PI vs high PI groups

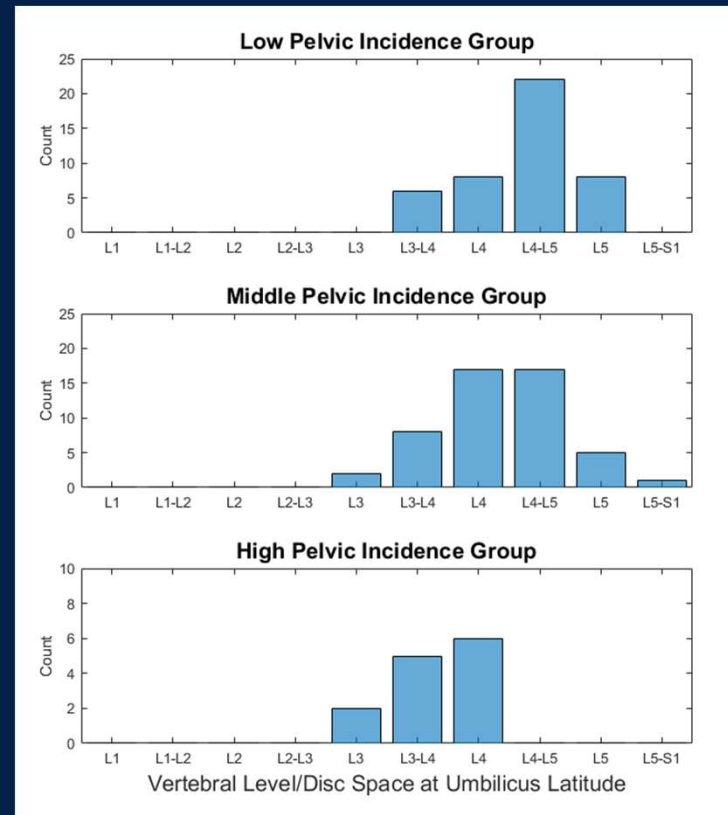
Results

- (1) The vertebral level/disc space that corresponded to latitude of umbilicus was significantly dependent on PI magnitude
- (2) Higher PI→More superiorly located umbilicus-anterior lumbar spine level
- (3) Lower PI→More inferiorly-located umbilicus-anterior lumbar spine level

DISCUSSION

For patients with low PI's, incisions extending cranial to the umbilicus will be needed to perform L3-S1 ALIFs. For patients with high PI's, incisions extending distal to umbilicus may be sufficient to access L3-S1.

The vertebral level/disc space that corresponded to latitude of the umbilicus was significantly dependent on pelvic incidence

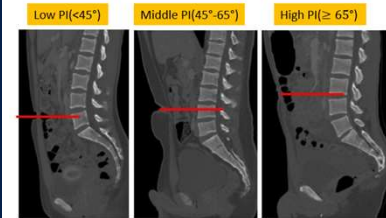


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Cohort:

- 107 Patients
- Average age 14.8 ± 2.0 years
- 62.6% Female, 37.4% Male

Pelvic Incidence Levels



Cohort Characteristics

	All (N=107)	Low PI (<45°) (N=44)	Middle PI (45°-65°) (N=50)	High PI (≥65°) (N=13)
Level	N (%)	N (%)	N (%)	N (%)
L1	0 (0%)	0 (0%)	0 (0%)	0 (0%)
L1-L2	0 (0%)	0 (0%)	0 (0%)	0 (0%)
L2	0 (0%)	0 (0%)	0 (0%)	0 (0%)
L2-L3	0 (0%)	0 (0%)	0 (0%)	0 (0%)
L3	4 (3.7%)	0 (0%)	2 (4.0%)	2 (15.4%)
L3-L4	19 (17.8%)	6 (13.6%)	8 (16.0%)	5 (38.5%)
L4	31 (29.0%)	8 (18.2%)	17 (34.0%)	6 (46.2%)
L4-L5	39 (36.4%)	22 (50.0%)	17 (34.0%)	0 (0%)
L5	13 (12.1%)	8 (18.2%)	5 (10.0%)	0 (0%)
L5-S1	1 (0.9%)	0 (0%)	1 (2.0%)	0 (0%)

Statistics

Statistic	Low PI (<45°)	Middle PI (45°-65°)	High PI (≥65°)
Median	L4-L5	L4	L3-L4
Mode	L4-L5	L4-L5 and L4	L4

