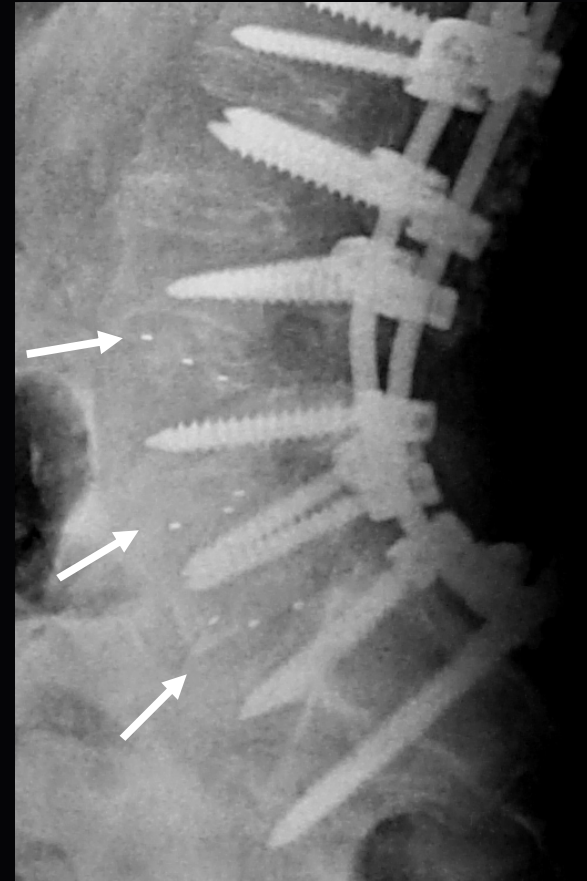


Transforaminal lumbar interbody fusion (TLIF) in revision surgery for adult lumbar and thoracolumbar scoliosis

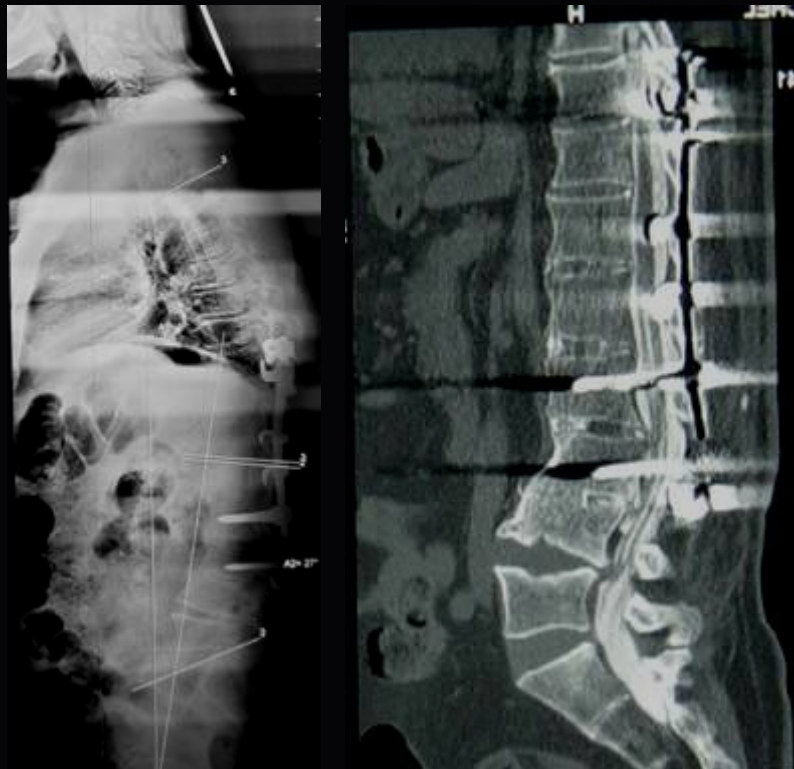


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Introduction

- Reoperation rate: 15 to 40%
- Indications for Scoliosis reoperation
 - flat back, pseudarthrosis, adjacent segment degeneration...



Radiographic Predictors of Outcome After Long Fusion to L5 in Adult Scoliosis

Karen M. Brown, MD, Steven C. Ludwig, MD,† and Daniel E. Gelb, MD†*

(J Spinal Disord Tech 2004;17:358–366)

SPINE Volume 30, Number 14, pp 1643–1649
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■ Proximal Junctional Kyphosis in Adult Spinal Deformity Following Long Instrumented Posterior Spinal Fusion

Incidence, Outcomes, and Risk Factor Analysis

R. Chris Glattes, MD, Keith H. Bridwell, MD, Lawrence G. Lenke, MD, Yongjung J Kim, MD, Anthony Rinella, MD, and Charles Edwards II, MD

SPINE Volume 27, Number 7, pp 776–786
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■ Outcome and Complications of Long Fusions to the Sacrum in Adult Spine Deformity

Luque-Galveston, Combined Iliac and Sacral Screws, and Sacral Fixation

Arash Emami, MD, Vedat Deviren, MD, Sigurd Berven, MD, Jason A. Smith, MD, Serena S. Hu, MD, and David S. Bradford, MD

SPINE Volume 32, Number 20, pp 2232–2237
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■ Complications in Posterior Fusion and Instrumentation for Degenerative Lumbar Scoliosis

Kyu-Jung Cho, MD,* Se-II Suk, MD,† Seung-Rim Park, MD,* Jin-Hyok Kim, MD,† Sung-Soo Kim, MD,† Won-Keo Choi, MD,† Kang-Yoon Lee, MD,* and Seung-Ryol Lee, MD*

Many conditions are frequently associated



Introduction

- Less reoperation risk:
 - Good postoperative sagittal balancing
 - Multisegmental instrumentation with solid pelvic fixation
 - **Circumferential fusion: ALIF, PLIF, TLIF and XLIF**

SPINE Volume 31, Number 3, pp 303–308
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■ Minimum 5-Year Analysis of L5–S1 Fusion Using Sacropelvic Fixation (Bilateral S1 and Iliac Screws) for Spinal Deformity

Kuniyoshi Tsuchiya, MD, Keith H. Bridwell, MD, Timothy R. Kuklo, MD, Lawrence G. Lenke, MD, and Christine Baldus, RN

SPINE Volume 31, Number 11, pp E314–E319
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■ Spinal Fusion After Revision Surgery for Pseudarthrosis in Adult Scoliosis

Dhruv B. Pateder, MD, Ye-Soo Park, MD, Khaled M. Kebaish, MD, Brett M. Cascio, MD, Jacob M. Buchowski, MD, Edward W. Song, MD, Michael B. Shapiro, MD, and John P. Kostuik, MD

SPINE Volume 28, Number 11, pp 1163–1170
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■ Functional and Radiographic Outcomes After Surgery for Adult Scoliosis Using Third-Generation Instrumentation Techniques

Raed M. Ali, MD,* Oheneba Boachie-Adjei, MD,† and Bernard A. Rawlins, MD,‡



The aim of our study

- **Usefulness and safety of TLIF in revision surgery for scoliosis**



Materials and Methods

- Jan 2005 and May 2007
- 23 Pts (17 women) revision surgery for adult scoliosis
 - 17 patients had flat back, 10 patients had pseudarthrosis , 5 had distal and 1 proximal segment degeneration.
 - 9 patients had more than one indication for revision surgery.
 - Age: 62y (46 to 75)



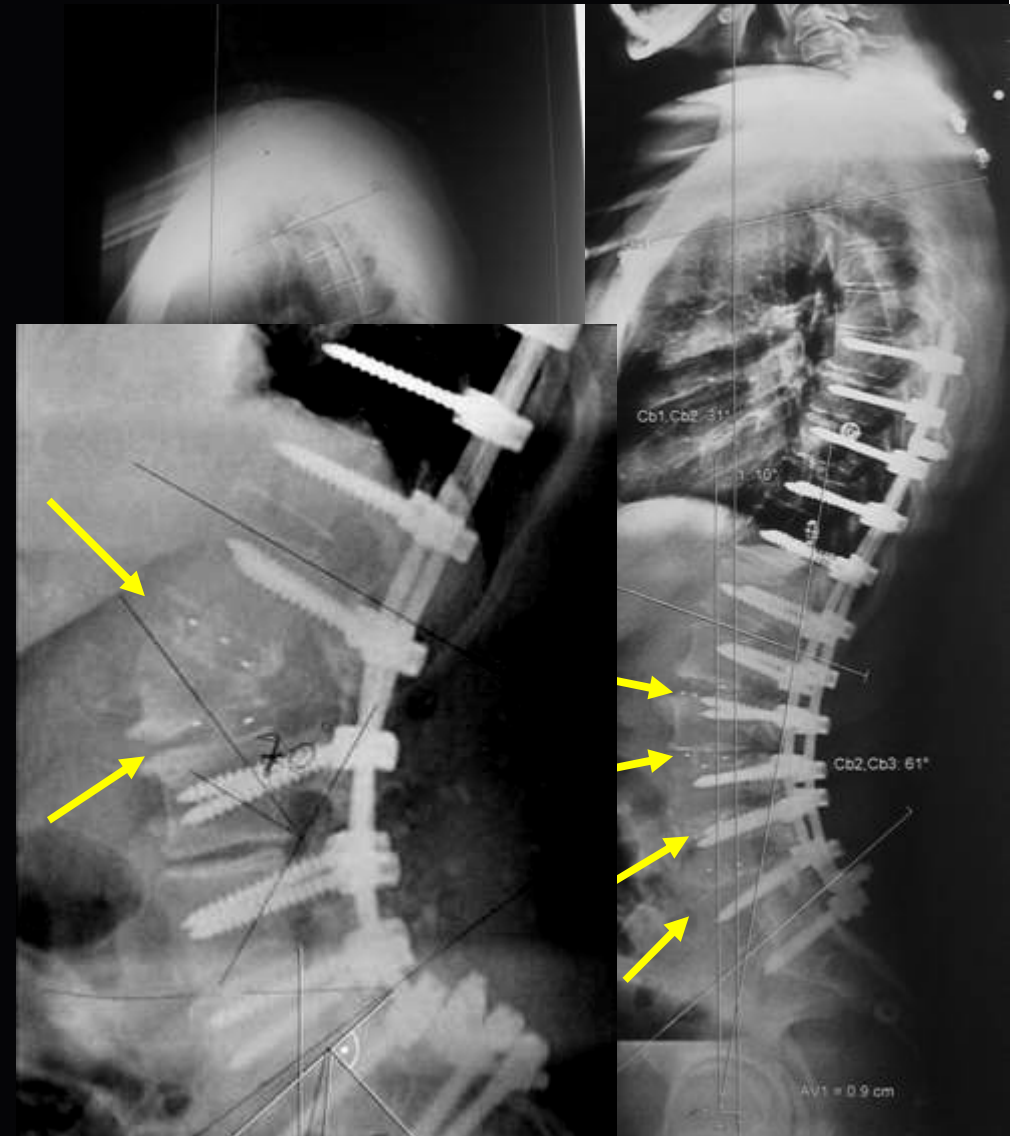
Material and method

- **Surgical technique:**
 - 1 only posterior approach only pedicular screw construct
 - Circumferential fusion by TLI F
 - Sacropelvic fixation
- 5: posterior subtraction osteotomy (PSO)
- **Previous surgery: 3.2 per patient (1 to 9)**
- **Fusion to sacrum 22 of 23 patients.**
- Mean follow-up: 24 m (12 to 42)



TLIF indications

- Fusion to **Sacrum**
(complete sacropelvic fixation)
- Lumbar (below T12)
Pseudarthrosis
- Levels of **SPO** (up to 4 cages)
- Over and Below **PSO**



Results

- Operative time: 5h50 (3 to 8).
- Operative bleeding: 2100ml (400 to 4500 ml).
- TLIF levels: 2.3 per patient (1 to 4).
- No correction loss in frontal or sagittal plane except for one patient with deep infection.
- No patient needed anterior approach

	Cobb angle frontal (°)	Cobb angle sagittal L1S1 (°)	Frontal imbalance (cm)	pelvic Incidence (°)	SVA (cm)
Preop	38,5	-29,9	2,4	54,2	8,3
Postop	28,9	-53,5	1,8	53,0	2,9
P	0,000223	3,817E-06	0,122777	0,367	0,00018

Results :complications

- One operative neurological complication partially recovered (bilateral L3 deficit)
- One deep recurrent infection: partial removal of material
- One recurrence of pseudarthrosis: rapid reoperation after one rod breakage



Discussion

- **Circumferential fusion:**
 - Decrease pseudarthrosis
 - Decrease correction loss
- **TLIF VS PLIF:**
 - No laminectomy necessary
 - One cage per level
 - Asymmetric cage more lateral
- **TLIF VS ALIF:**
 - One only approach

SPINE Volume 28, Number 20S, pp S234-S242
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■ The Pros and Cons to Saving the L5-S1 Motion Segment in a Long Scoliosis Fusion Construct

Keith H. Bridwell, MD, Charles C. Edwards, II, MD, and Lawrence G. Lenke, MD

SPINE Volume 31, Number 19 Suppl, pp S179-S184
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■ Debate: To Fuse or Not to Fuse to the Sacrum, the Fate of the L5-S1 Disc

David W. Polly, Jr., MD,* Christopher L. Hamill, MD,† and Keith H. Bridwell, MD‡

SPINE Volume 31, Number 3, pp 303-308
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■ Minimum 5-Year Analysis of L5-S1 Fusion Using Sacropelvic Fixation (Bilateral S1 and Iliac Screws) for Spinal Deformity

Kuniyoshi Tsuchiya, MD, Keith H. Bridwell, MD, Timothy R. Kuklo, MD, Lawrence G. Lenke, MD, and Christine Baldus, RN

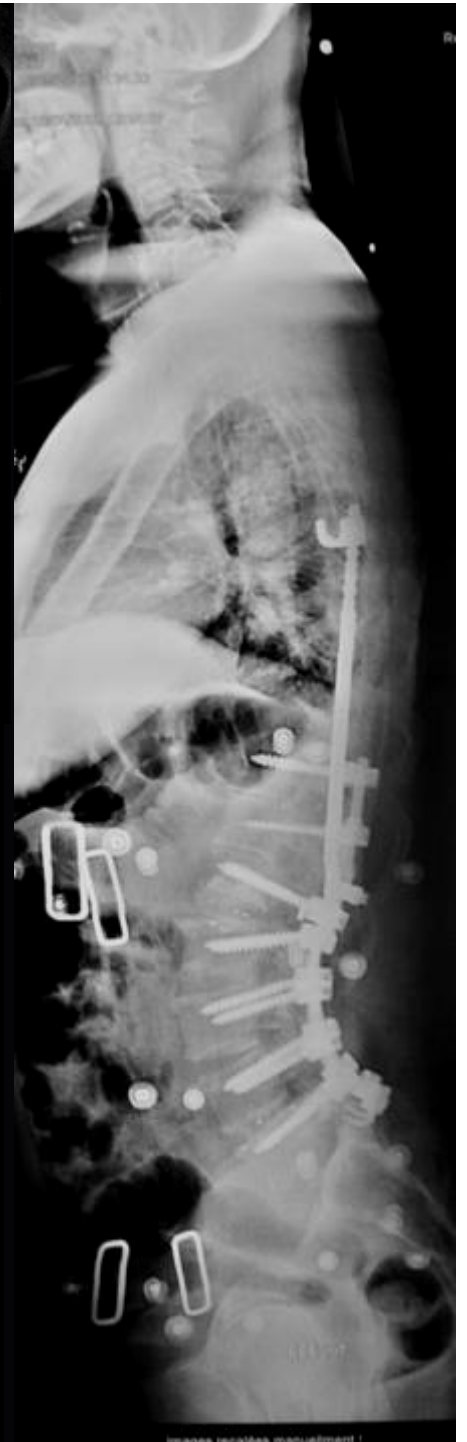
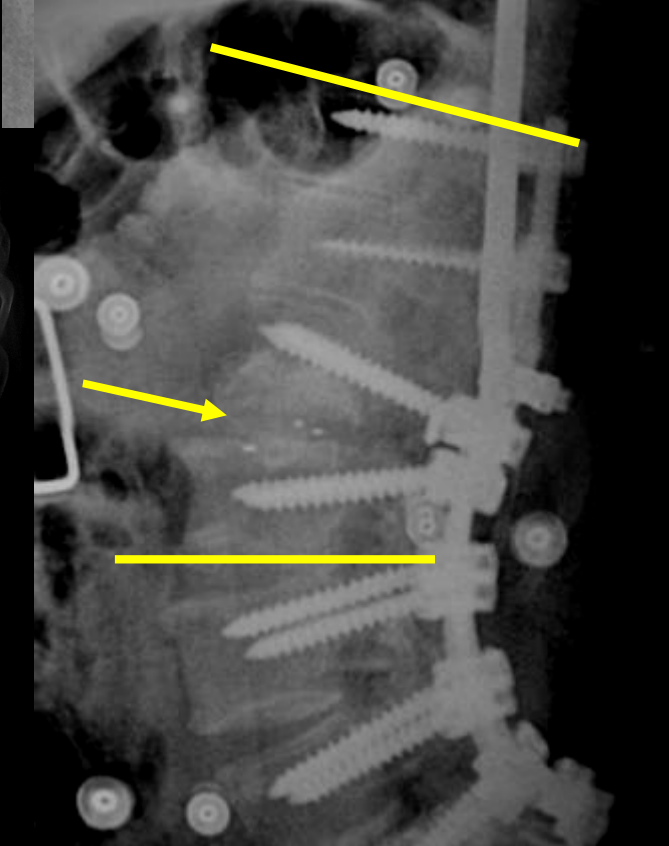
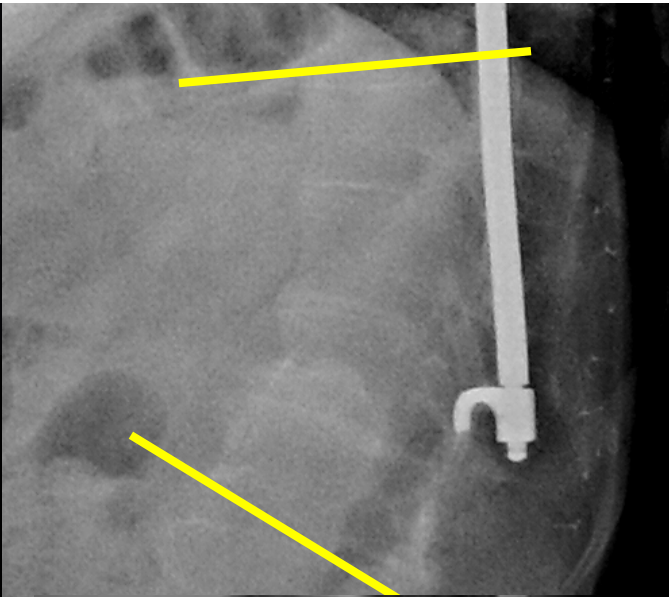
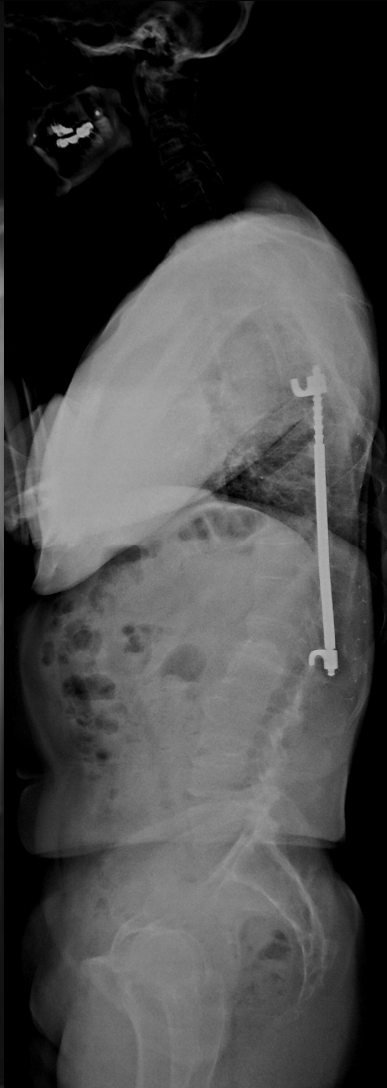


Discussion

- **Asymmetric:** at the lumbo-sacral junction when frontal imbalance is at the convex side

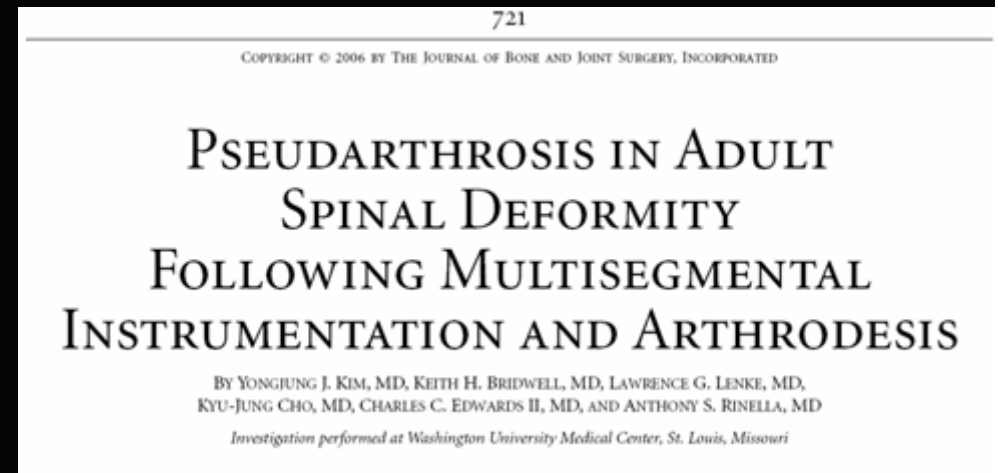


Thoracolumbar junction below T12



Limit

- Follow-up: preliminary results
 - 45% of pseudarthrosis occurs after 3 years
- Retrospective study



Conclusion

- Alternative to double approach
- High rate of fusion
- Avoid correction loss



Thank you

