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...
Introduction

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

### Table: Cobb angle and SVA

<table>
<thead>
<tr>
<th></th>
<th>Cobb angle frontal (°)</th>
<th>Cobb angle sagittal L1S1 (°)</th>
<th>Frontal imbalance (cm)</th>
<th>pelvic Incidence (°)</th>
<th>SVA (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preop</td>
<td>38,5</td>
<td>-29,9</td>
<td>2,4</td>
<td>54,2</td>
<td>8,3</td>
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<tr>
<td>Postop</td>
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</tbody>
</table>
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
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