Disclosures

S. Schelfaut: None
J. Dermott: None
R. Zeller: F; Spinevision Paradigm Spine
Background: Modern dual GR technique

- **Successful clinical outcomes**
  - Deformity control
  - Spine and thorax growth
- **Still high complication rate**
  - Hook dislodgement or screw pullout
  - Rod breakage
  - Infection
Study Purpose

- Concept of the **staged “end fusion technique”**
  (SRS, Marchetti & Faldini 1977) to **enhance stability** of the implants at the anchor sites
Patient Sample

- 15 progressive severe EOS (mean 7.8 y), modern dual GR.
- Etiology scoliosis
  - 8 syndromic
  - 4 idiopathic
  - 2 congenital
  - 1 neuromuscular
- 9 patients TWO stage (GROUP B)
  - GROUP A: 6 patients, ONE stage (medical reason)
- Mean FU 24.7 m.
- Lengthening 3.4/patient
- 4 patients final fusion
  - (without anchor change + Tibia autograft)
Methods

- 6 mm rod

Proximal anchor: 4 hooks
Distal anchor: 4 screws

First stage:
- Pairs of end vertebrae
- Instrumentation and fusion

Second stage (4m):
- Skull-femoral TRACTION
- Connection of FUSED foundations

Schelfaut S.
Results

- Improvement of scoliosis – kyphosis - SAL
- Good kyphosis control. No PJK.
Results

- Length increase/ month (p=0.2)
  - Group A: 0.6 mm
  - Group B: 1.0 mm

- Two unplanned surgeries (2/58)
  - Deep infection (1/group)

- Implant related complications
  - 3 rod breakages
  - 1 possible anchor migration (group A)
Final fusion in severe IIS

11.5Y

5x Lengthening
Same Anchors
+ Tibia autograft

12.5Y
Discussion

- Small group – Control - FU
- “Extra” 2nd stage (2/58 unplanned)
- 6 mm rod – Skull femoral traction – Brace
- Deformity correction/control - Low complication rate
Conclusion

STAGED INSERTION

Safe technique

Encouraging results

Stable anchors

Thank You!

Fig. 1. Severe EDS in a nonambulatory 7 years and 10 months old girl with spondyloepimetaphyseal dysplasia with a Cobb angle improvement from 100°/114° to 56°/57°, and a kyphosis improvement from 193° to 33° after the 2nd lengthening procedure.