Implant Complications After Magnetically Controlled Growing Rods for Early Onset Scoliosis: a multicenter retrospective review

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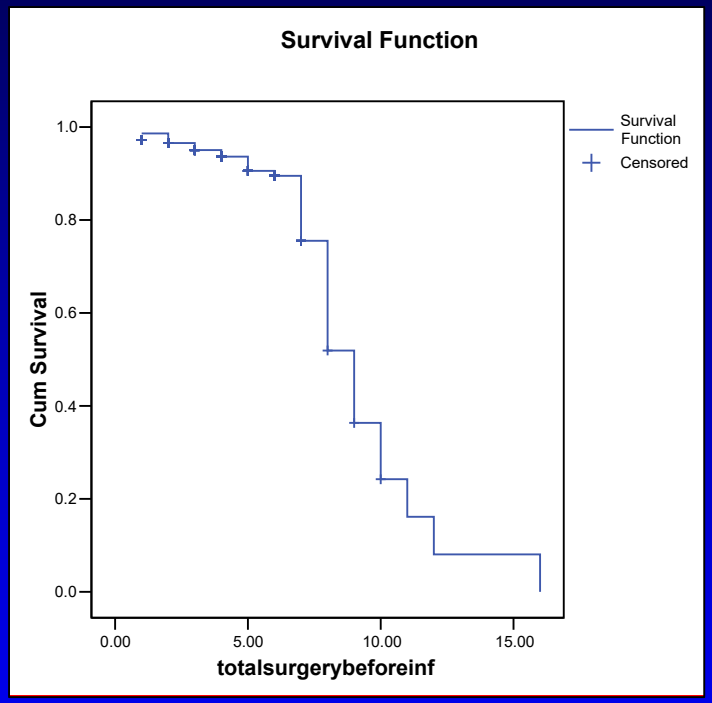
Introduction

- **Traditional growing rods have a reported wound and implant complication rate as high as 58%.**
- **More lengthening → more complications**



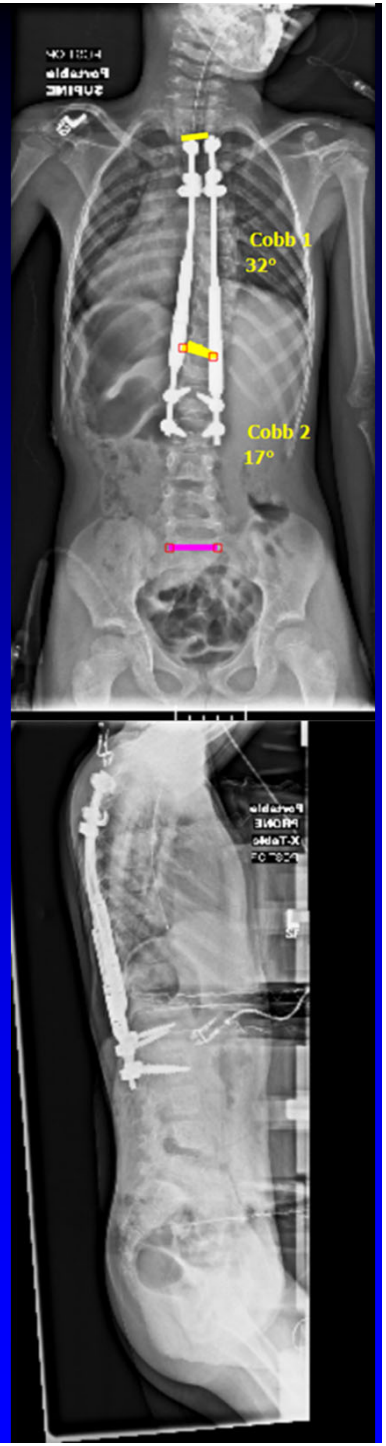
Complications of Growing-Rod Treatment for Early-Onset Scoliosis

Analysis of One Hundred and Forty Patients

By Shay Bess, MD, Behrooz A. Akbarnia, MD, George H. Thompson, MD, Paul D. Sponseller, MD, Suken A. Shah, MD, Hazem El Sebaie, FRCS, MD, Oheneba Boachie-Adjei, MD, Lawrence I. Karlin, MD, Sarah Canale, BS, Connie Poe-Kochert, RN, CNP, and David L. Skaggs, MD

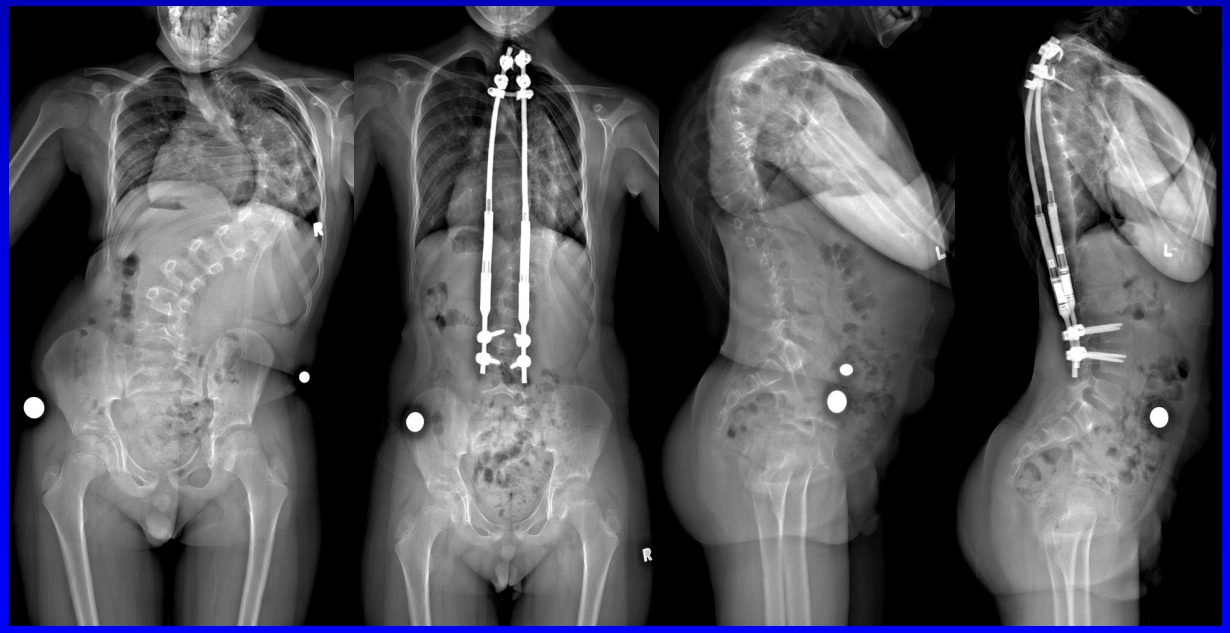
Introduction

- **Magnetic-controlled growing rods (MCGR) → non-invasive lengthening**
- **Akbarnia et al. "TGR vs. MCGR…:A case matched 2-year study" Spine Deformity 2014**
  - TGR: 73 open surgeries (56 lengthenings)
  - MCGR: 16 open surgeries (137 non-invasive lengthening)



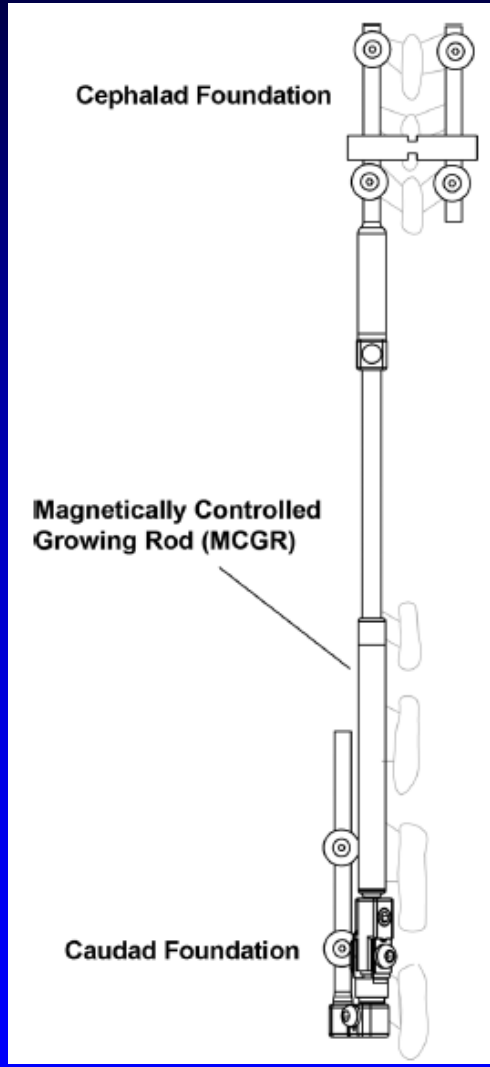
Purpose

- **Evaluate the complications (wound and implant related) associated with the magnetic-controlled growing rods (MCGR.**



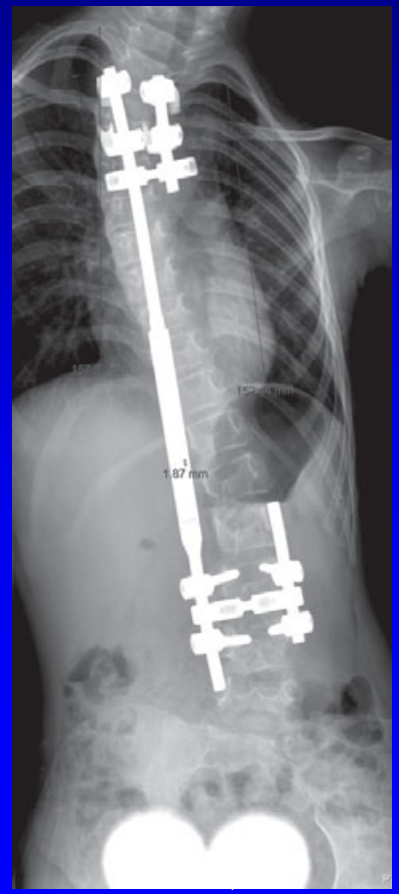
Methods

- **International multicenter retrospective study**
- **Inclusion criteria**
  - Diagnosis of EOS of any etiology
  - <11 years of age at index
  - Preop cobb >30
  - Preop thoracic spine<22cm



Results

- **54 patients met inclusion criteria**
  - 30 primary MCGR
  - 24 conversions to MCGR
- **22 M, 32 F**
- **Mean age 7.3**
- **Mean f/u 19.4 mo**
- **24 patients had 2 year f/u**
  - 16 primary, 8 conversion



Results

- **21 (38.9%) patients had at least 1 complication**
- **15 required revision surgery**
- **Wound**
  - 2 (3.7%) infections
  - 1 early (2 weeks)
  - 1 late (8 months)

Results

- **Implant Related**
  - 6 (11.1%) broken rods
  - 7 (13.0%) proximal or distal fixation-related complications

- **Broken rods**
  - 2 x 4.5 mm rods
  - 4 x 5.5 mm rods

Results

- **Implant related**
  - 6 episodes of lack of lengthening
  - 4 lengthened subsequent visits

Conclusion

- **Compared to traditional growing rods, early to intermediate follow-up results demonstrate a lower infection rate (3.7%) with MCGR.**
- **MCGR does not appear to prevent common implant related complications such as rod or foundation failures.**
- **Lack of lengthening is now a novel concern, but does not imply failed device**
- **The long term implication of this remains to be determined.**