Who Still Needs Traditional Growing Rods

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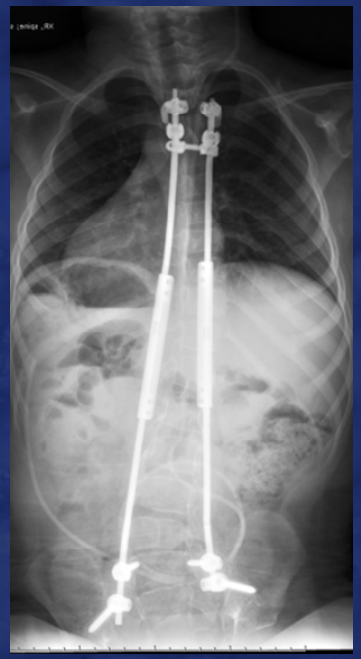

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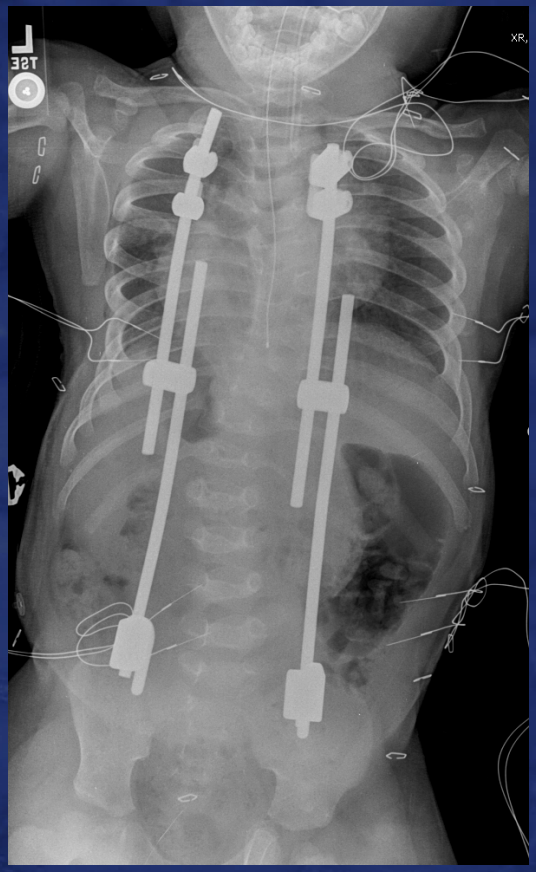
Why Use TGR when we have MCGR?

- And they're like, you know… magic right?

Too Small

- Esp very small kyphotic patient
- Need 70mm of “flat space” for the actuator
- Options:
  - Domino TGR
  - Sliding End Fixed Apex construct



Too Stiff

- How much kyphosis is too much?
- How much Cobb angle is too much?
  - Very high Cobb angle → more discrepancy between programmed and achieved length
- Upasani *Spine J 2016*
  - Risk factors for complications in TGR were young age and high kyphosis- true for MCGR also?

Cheung J Orthop Surg 2015

- Special update from a large group of MCGR users
- "…congenital scoliosis patients with unsegmented bars and adolescent idiopathic scoliosis patients who are older and larger also have increased incidence of distraction failure, as the MCGR may not be able to impart enough force to allow for lengthening."

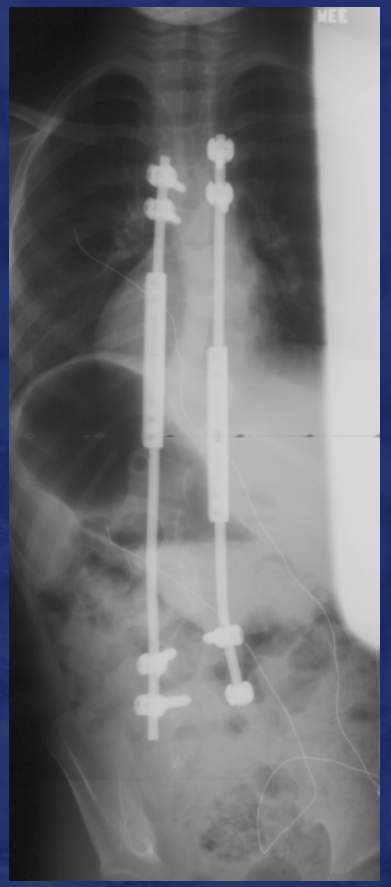
Too Late

- Conversions: How long was original TGR in place?
  - If diminishing returns already occurring

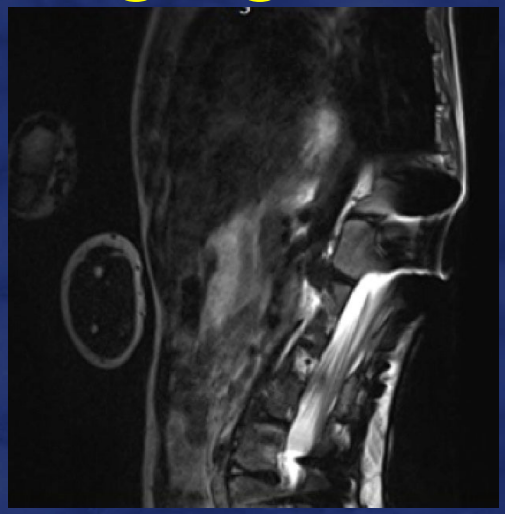
- Rolton , Keskinen *Eur J Spine 2016*
  - less achieved length conversions vs. primary
- Hosseini *Spine 2016*
  - 23 pts with 2 yr f/u, 8 conversions
  - conversion group *lost* T1-S1 (4.2 mm) height at 2 yrs

Conversions?

- Choi *JPO 2016*
  - higher rate of rod breakage in revisions
- Sawyer *#30 ICEOS 2016*
  - Higher complication rate for conversions (44% vs 26%)
- So when considering conversions, weigh the risks and benefits



Too Much Going On: Patient Requiring Frequent MRI Imaging

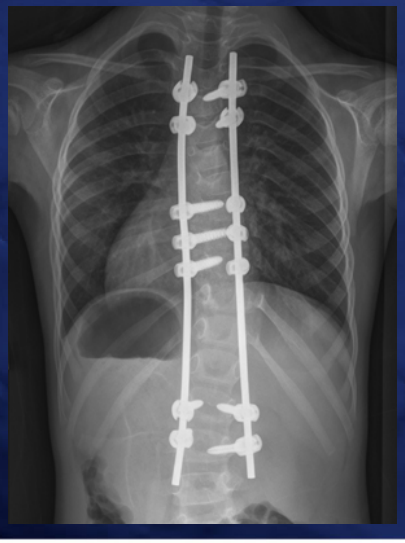


- Not a safety concern but still an imaging issue
- Intraspinal pathology, malignancy
- Skaggs et al FP#2 ICEOS 2016
  - 0% ability to interpret TL spine

- Also non MRI-compatible pacemakers ★
  - If compatible must be switched to tonic mode for each lengthening
  - Tan *JPO 2016*

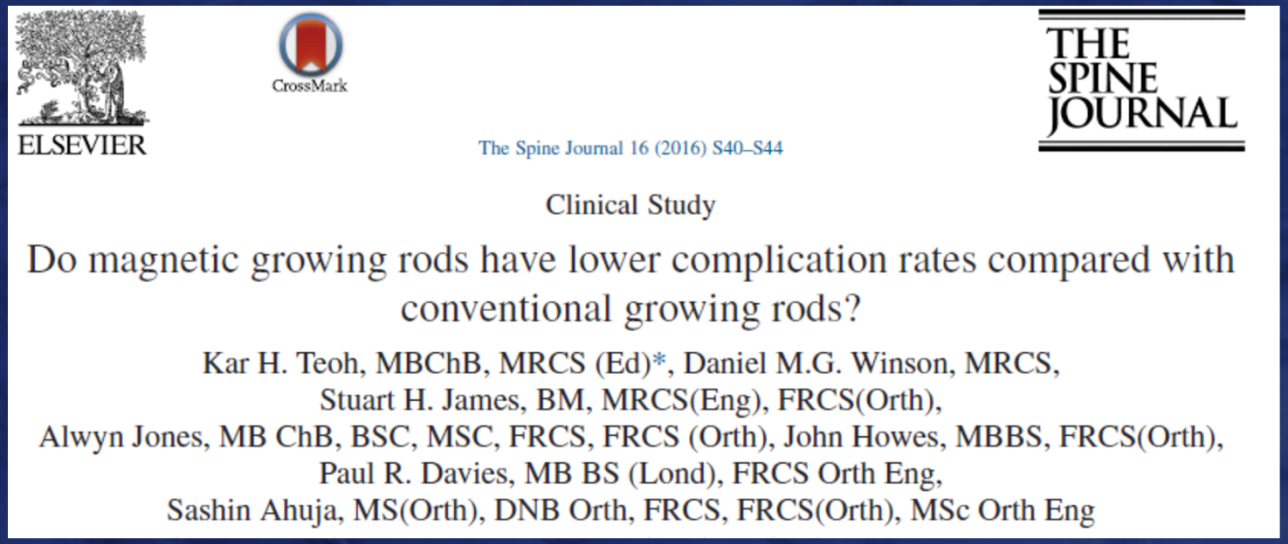
Too Big

- > 4 cm deep
- Consider alternatives



Social Issues/Cost

- Yaczici #20 ICEOS 2016
  - MCGR shows EOSQ 24 benefits in financial burden and patient satisfaction
- Can't return to clinic for frequent MCGR lengthenings
  - Self-lengthening constructs may be better options
    - Fixed apex sliding ends, modified Luque trolley
- Short duration
  - cost neutral at year 2, cost benefit year 3 (Polly 2015)



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Clinical Study

Do magnetic growing rods have lower complication rates compared with conventional growing rods?

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Paul R. Davies, MB BS (Lond), FRCS Orth Eng,
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- Retrospective case control series, 10 MCGR vs 27 TGR
- MCGR : 0.32 complication/patient/year vs. 0.15 for TGR
- Less infections but more implant complications in this series

Summary

- MCGR has definitely been a game changing addition to our armamentarium

- TGR still have a role as best indications for newer techniques are defined and technology improves


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dank je
Thank you