



Tethering in the very young?

Stefan Parent, MD, PhD

**Academic Pediatric Spinal Deformity
Chair of CHU Ste-Justine**

Disclosures

- Depuy Synthes spine (a, b),
- Canadian Institutes of Health Research (a),
- Scoliosis Research Society (a),
- POSNA Biomet Spine Research Grant (a),
- Natural Sciences and Engineering Research Council of Canada (a),
- Orthopedic Research and Education Foundation (a), Setting Scoliosis Straight Foundation (a),
- Medtronic (b),
- EOS-Imaging (a, b, d, e) and Royalties
- Spinologics (c)

- (a) Grants/Research Support
- (b) Consultant
- (c) Stock/Shareholder
- (d) Speakers' Bureau
- (e) Other Financial Support

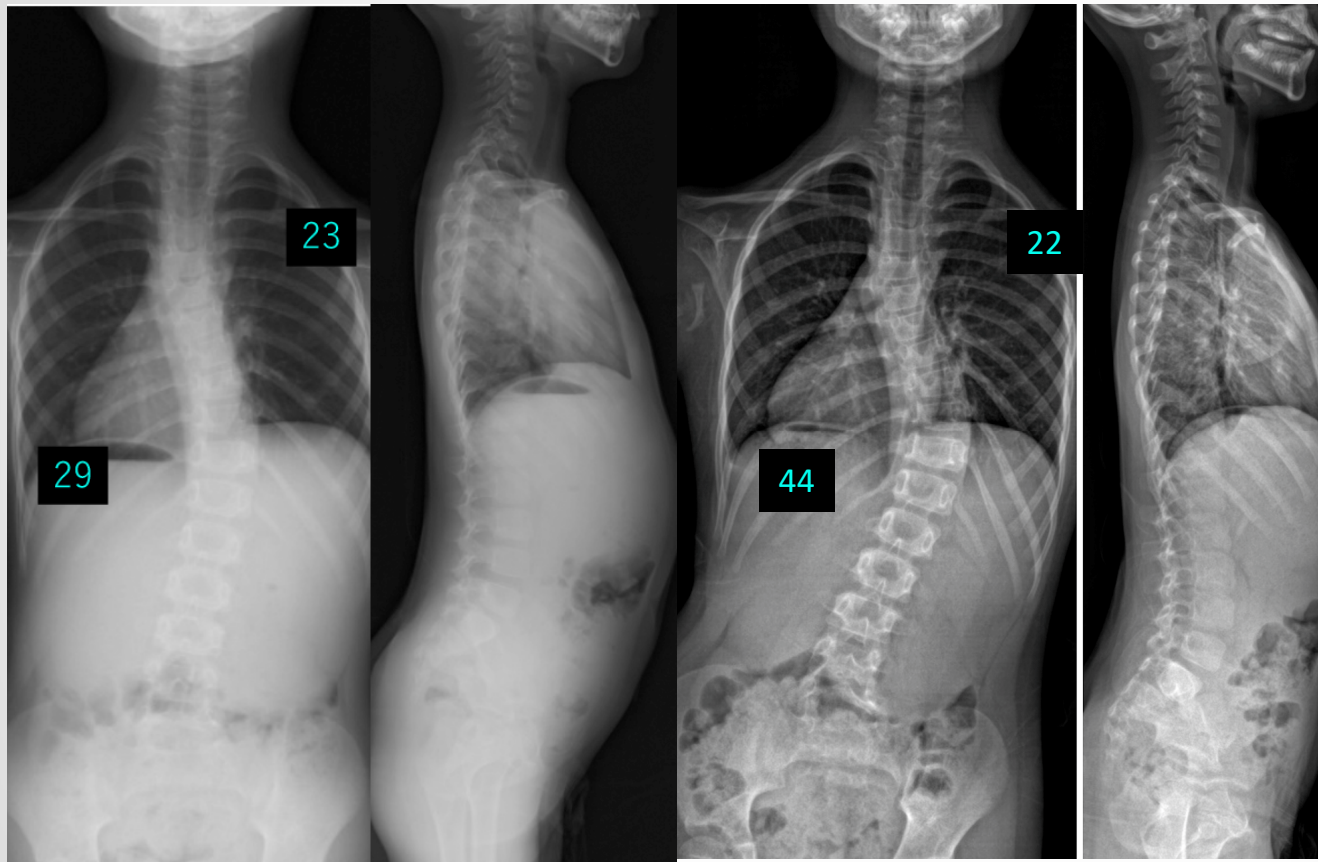
Introduction – OFF-LABEL PROCEDURE

- Vertebral body tethering (VBT) is a relatively new procedure
- THIS IS AN OFF-LABEL USE of a posterior-based instrumentation system
- Aim: use residual growth to correct scoliosis progressively
- Therefore: Need GROWTH!!!
- This presentation will focus on younger patients with open Tri-radiate cartilages



9 year old female
69 degree right thoracic curve

Male Scoliosis with Upper Limb Deficiency



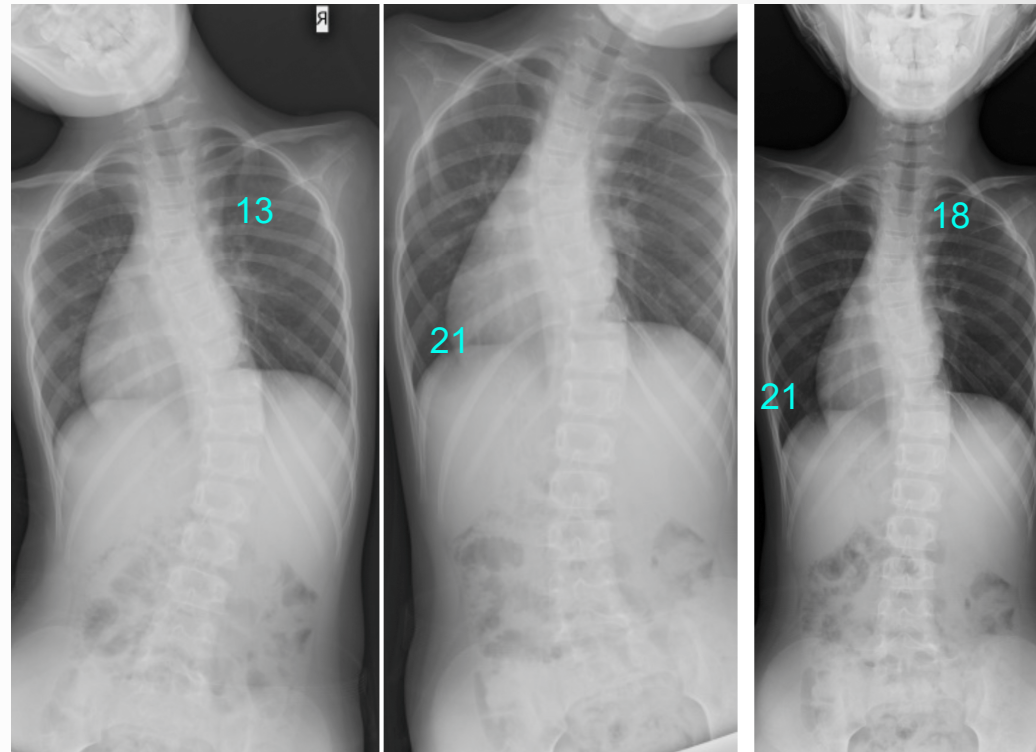
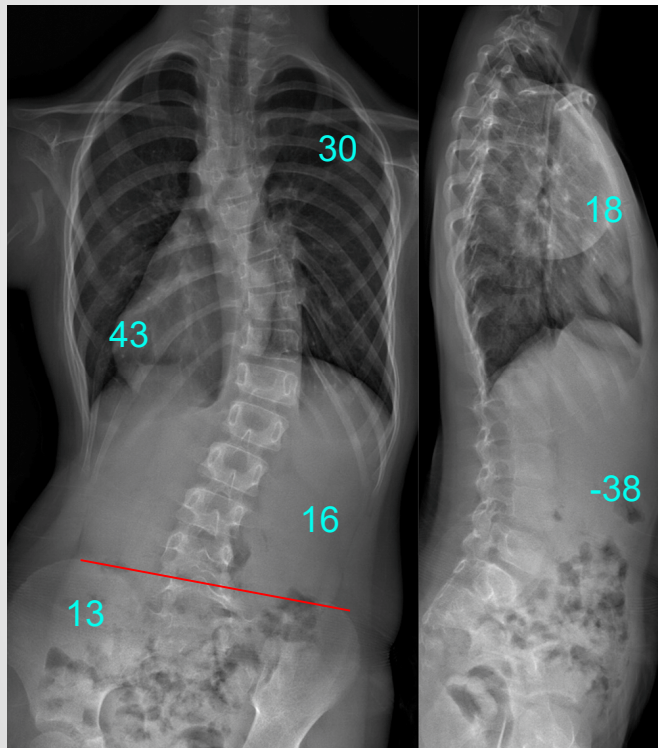
Alternative cast & brace treatment for 2 years 9 months.
Scoliosis progressed from 29 degrees to 46 degrees.

At 1st visit (6+11)

December 2015 (9+8) Height 130.1cm, BW 24kg

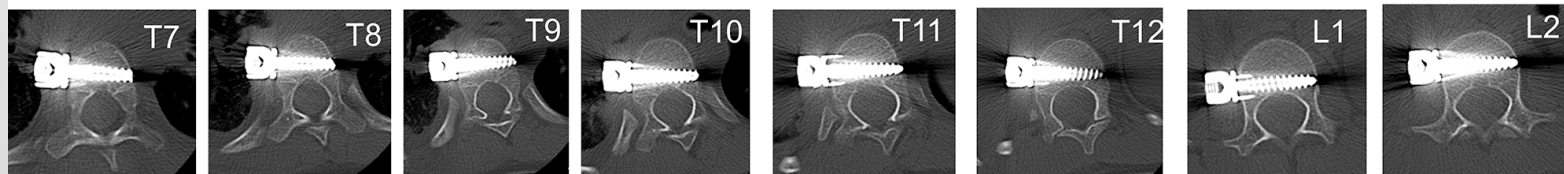
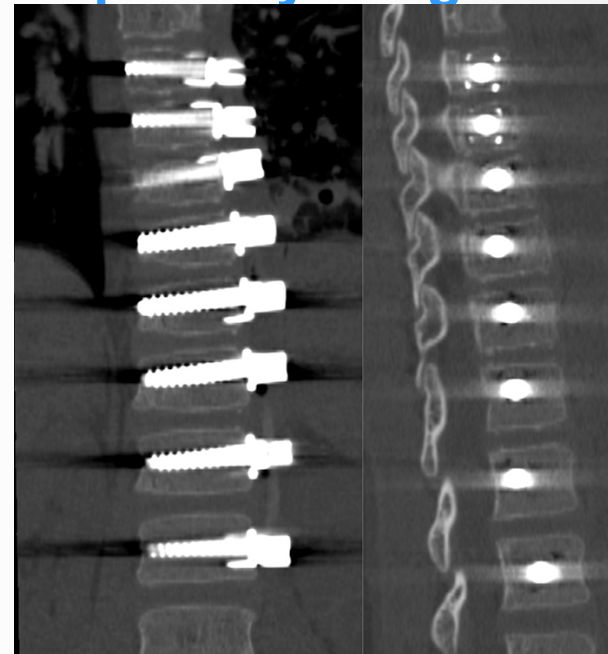
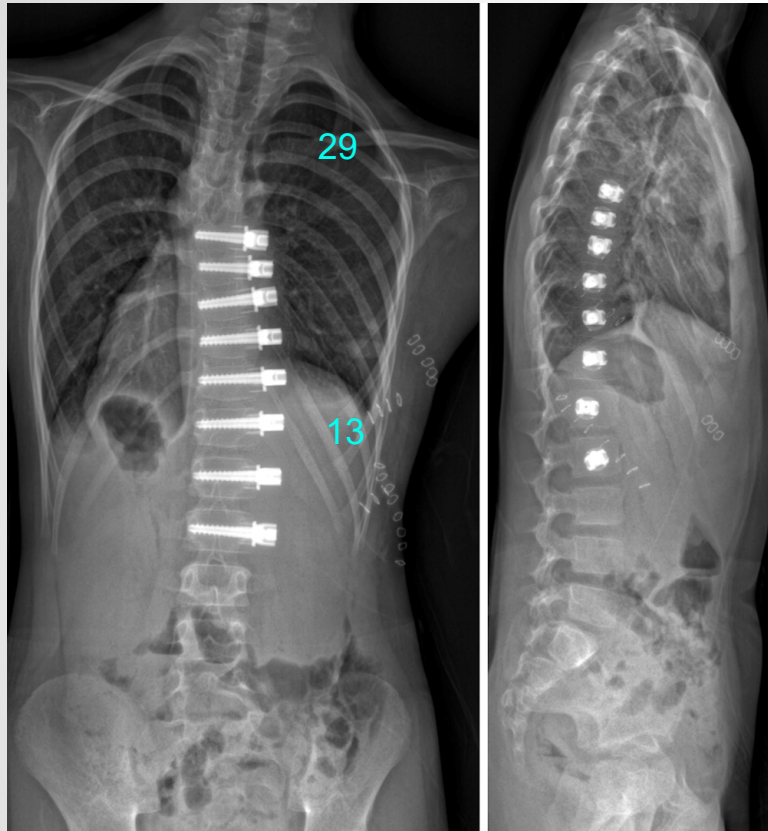
Preop. Evaluation (05/25/2018)

10+1, Height 133 cm, BW 24 kg



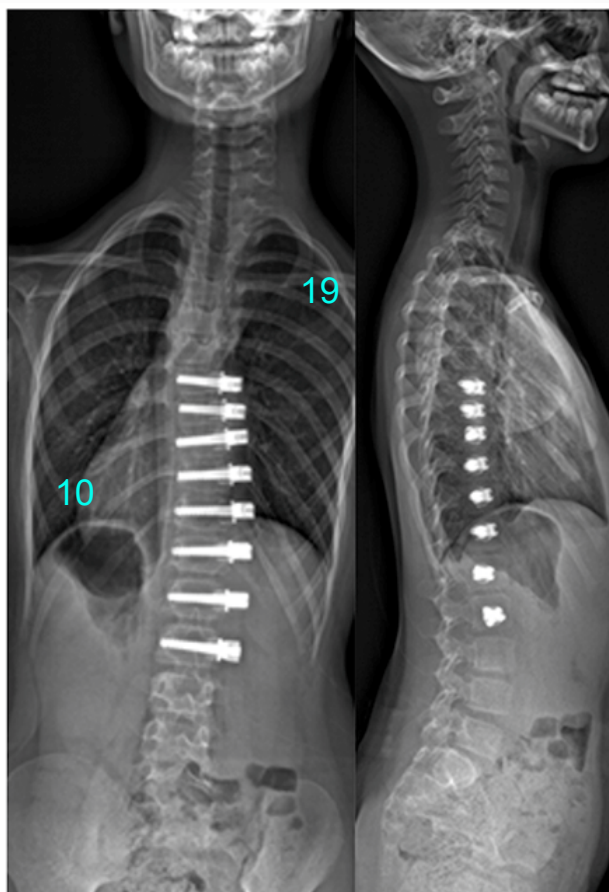
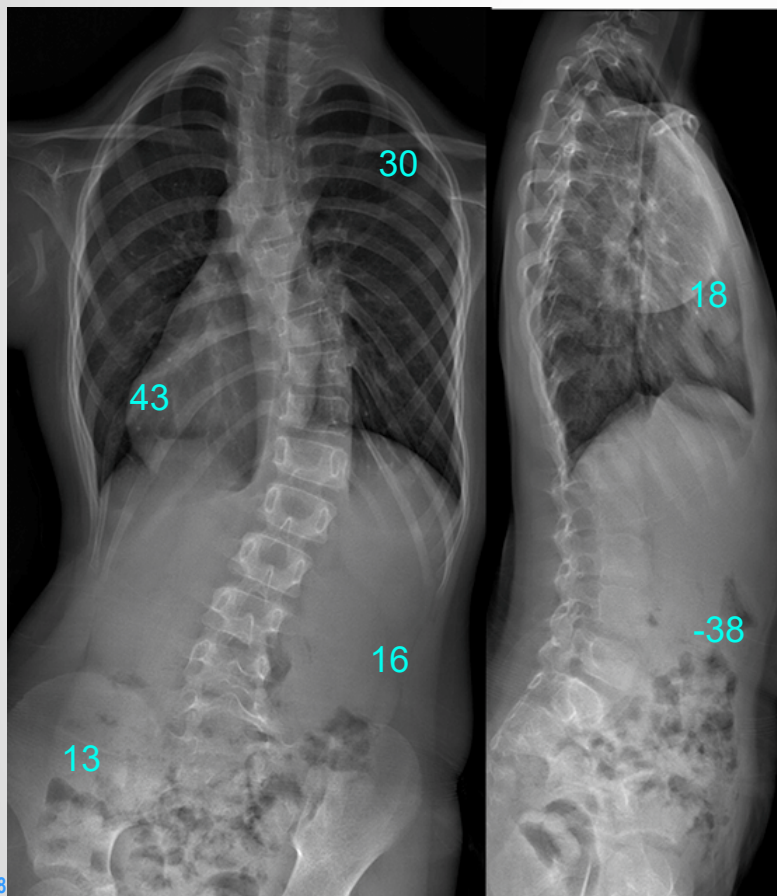
Surgery: June 15, 2016

Postop. X-ray Images & CT Images



Preop.

Postop. 3 months

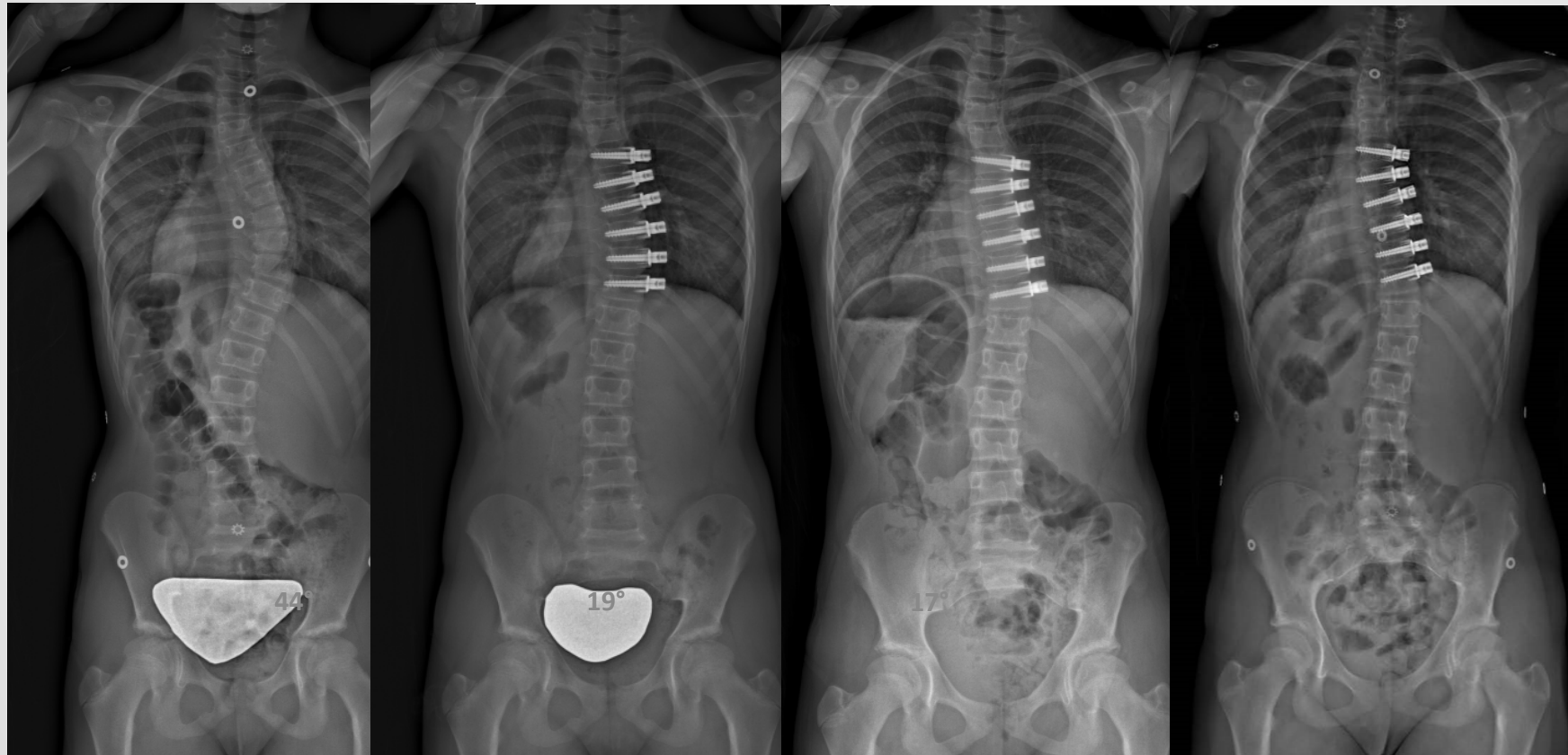


Pre-Op

3 Months

14 Months

24 Months

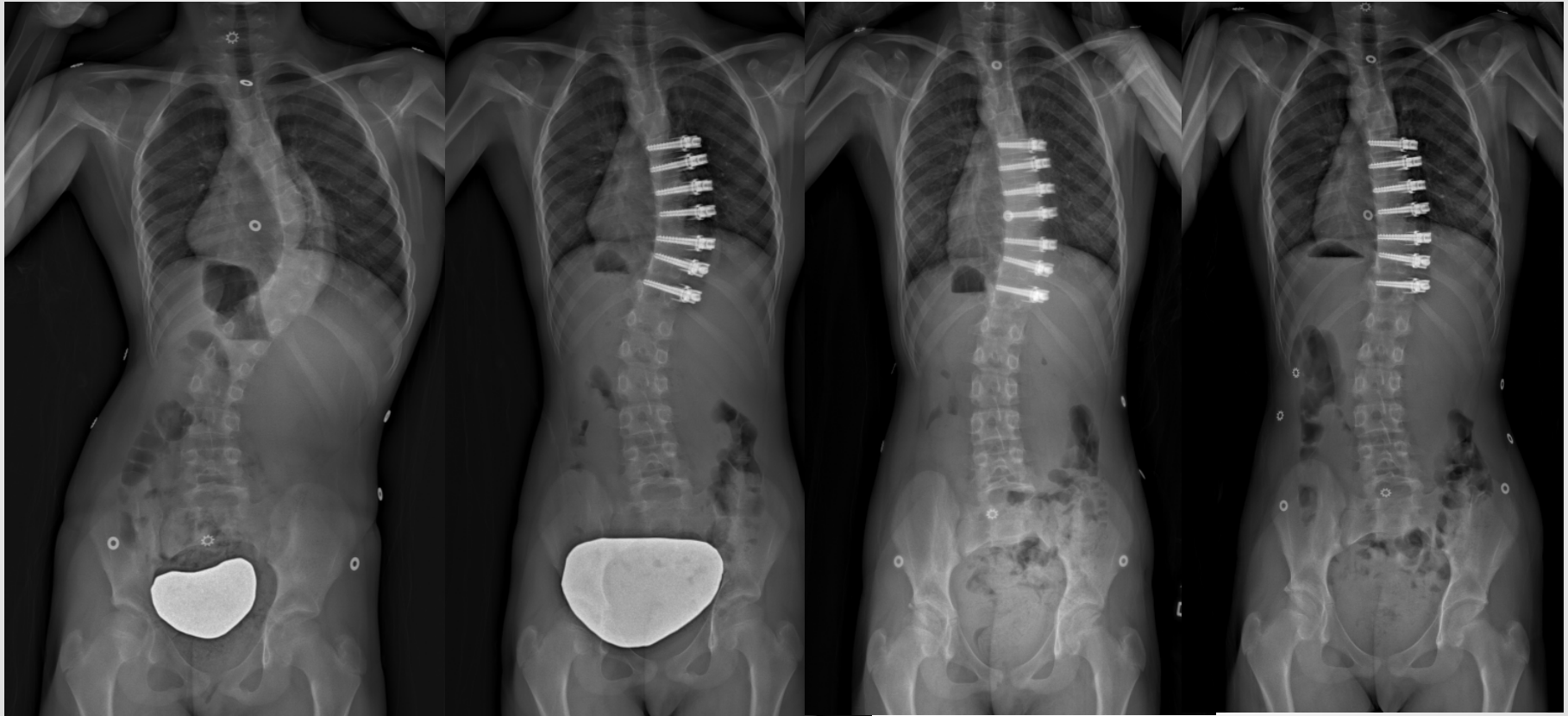


Pre-Op

4 Months

12 Months

19 Months



66°

35°

24°

22°

Pre-Op (27 Months)



31°

1 Month post-op revision



24°

Pre-Op



40°

10 Months



24°

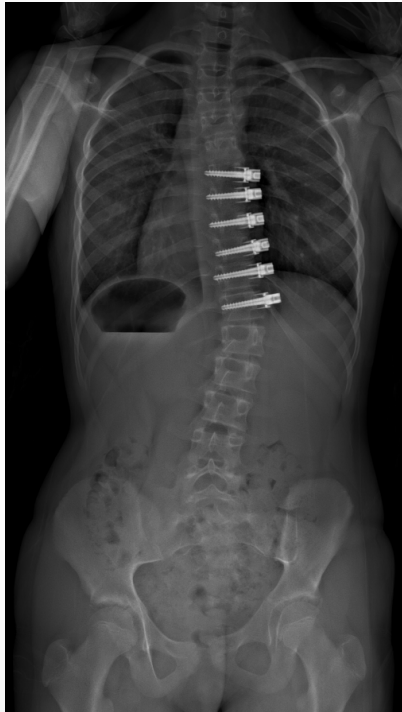
12 Months



26°

Revision Surgery

Pre-Op
(15 Months)



27°

2 Months
(post-op revision)



23°

Current indications

- AIS, Lenke 1A, 1B preferred (1C possible)
- 40° - 70°
- Pre-menarchal
- Risser 0 or 1
- Open TRC preferred
- Older than 8-9 years or > 30 kg
- Patients and families are told this is EXPERIMENTAL

Benefits

- Less blood loss
- Shorter hospitalization
- Retaining spine flexibility
- Potential to correct spine without fusion

Limitations

- Over-correction
 - Risk greater for smaller curves that are younger
- Patients are told that there will be at least one other surgery to remove material
- No long-term outcomes
 - Don't know what the impact on the disk will be
- Is it really better than bracing/traditional surgery
 - If you are considering growth preservation methods, this is certainly an option

Acknowledgements



CHU Sainte-Justine
Research Center

Mother and Child
University Hospital Center

Université 
de Montréal



IRSC CIHR
Instituts de recherche en santé du Canada Canadian Institutes of Health Research

MENTOR

Fonds de recherche
Santé
Québec 

