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The Treatment of Secondary Thoracic Insufficiency Syndrome of Myelominingocele by a Hybrid VEPTR "Eiffel Tower" Construct with S-Hook Iliac Crest Pedestal Fixation

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10 pts myelominingocele, age 4 yrs at sugery
Avg f/u 5.75 yrs (2 - 11.5 yrs)
Unilateral VEPTR hybrids 8 pts, bilateral 2 pts

"Eiffel Tower" Construct

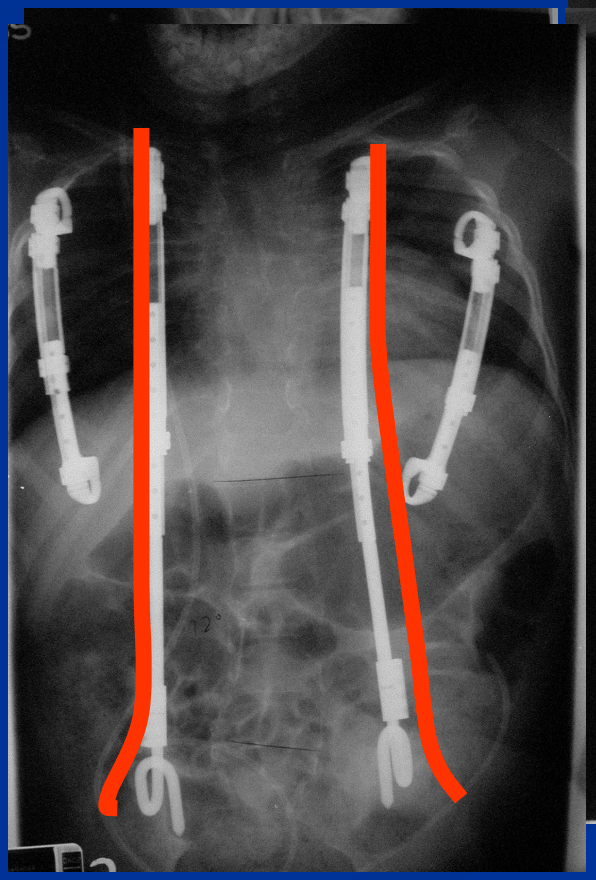
Six pts

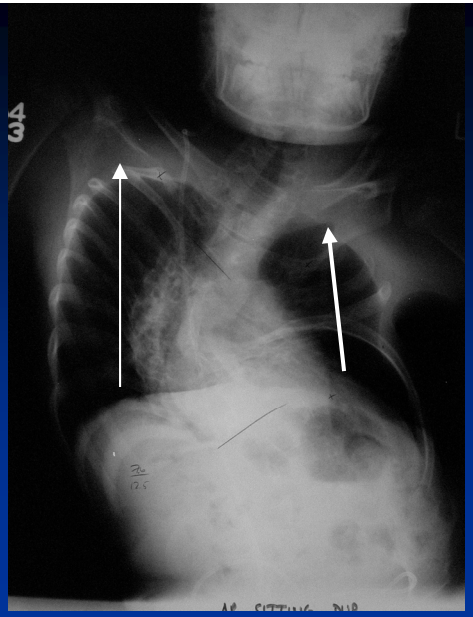
-Flexible Lumbar Kyphosis 43° (+ marionette sign)

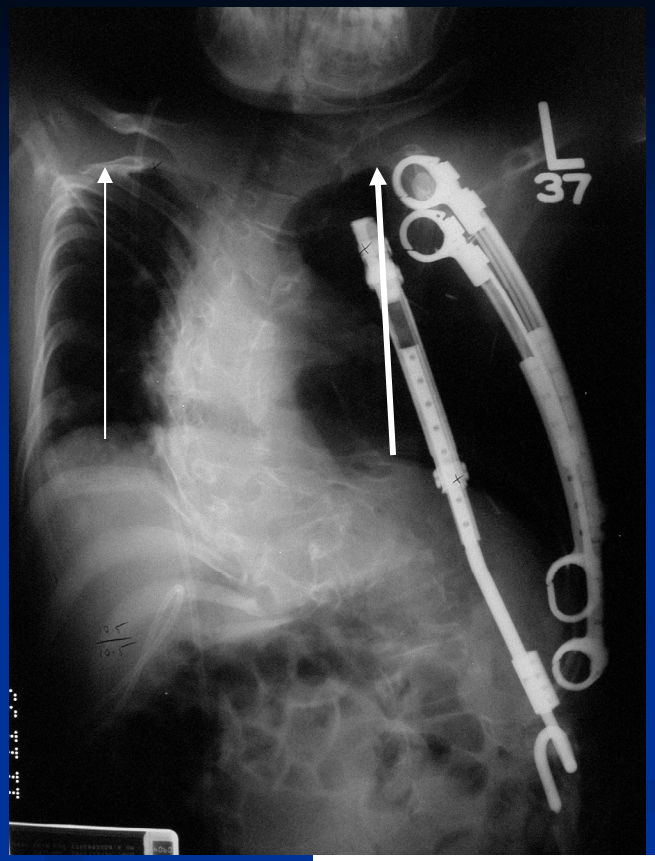
-Secondary thoracic insufficiency

-decrease of the kyphosis to 26°

-All resolved their marionette signs with hybrid treatment



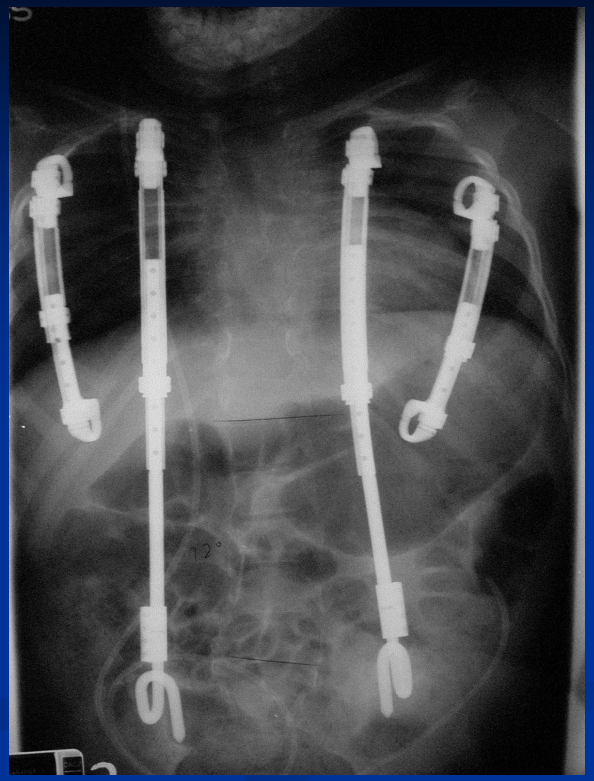


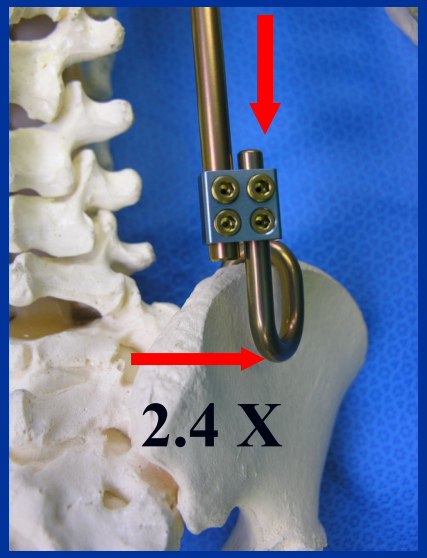


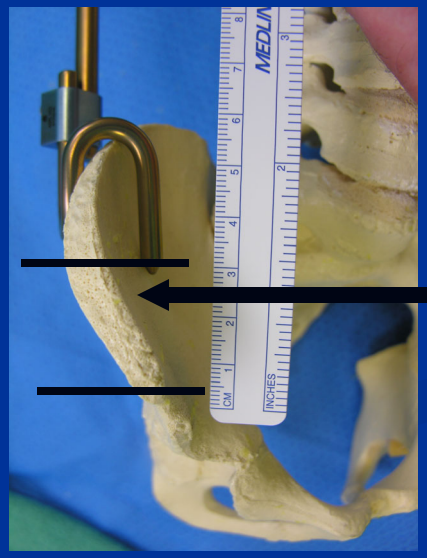
- Scoliosis 73º , f/u 46º
- SAL 66% , f/u 83%
- T spine height increased 5.8mm/yr.

- Pelvic obliquity improved from 34˚ to 11˚
  - Lever arm 2.4 X equivalent level "pedicle screw "
- Gradual asymptomatic distal S-hook migration was 24 mm

  (safe zone 39 mm)
  - Unilateral S-hooks migrated 8.4mm/yr
  - Bilateral S-hooks 7.4 mm/yr







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Complications

- 3 s-hook fractures
- 2 rib cradle migrations
- 1 acute s-hook reseatment
- 1 skin slough
- 4 wound infections, treated with debridement
- No spinal infections.
- One pt died of respiratory failure unrelated to surgery.

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Conclusions

- Secondary thoracic insufficiency syndrome is addressed by correction of the lumbar kyphosis
- Scoliosis is controlled
- This is a powerful means to correct pelvic obliquity
- Spine infection appears be avoided because the central skin scarring in myelominingocele is not violated.

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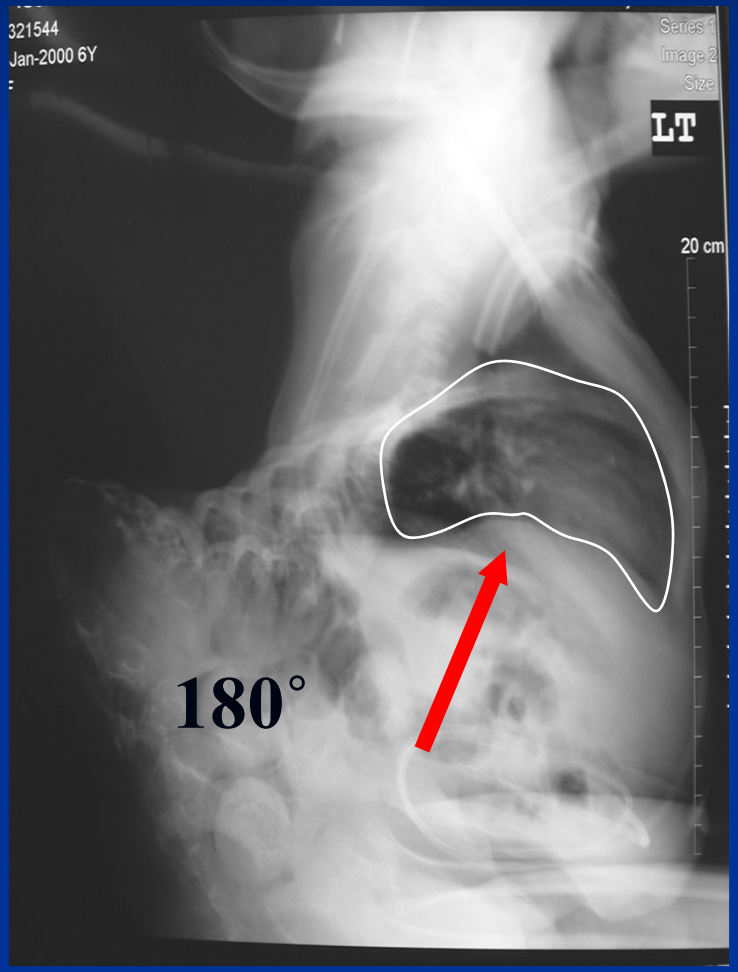
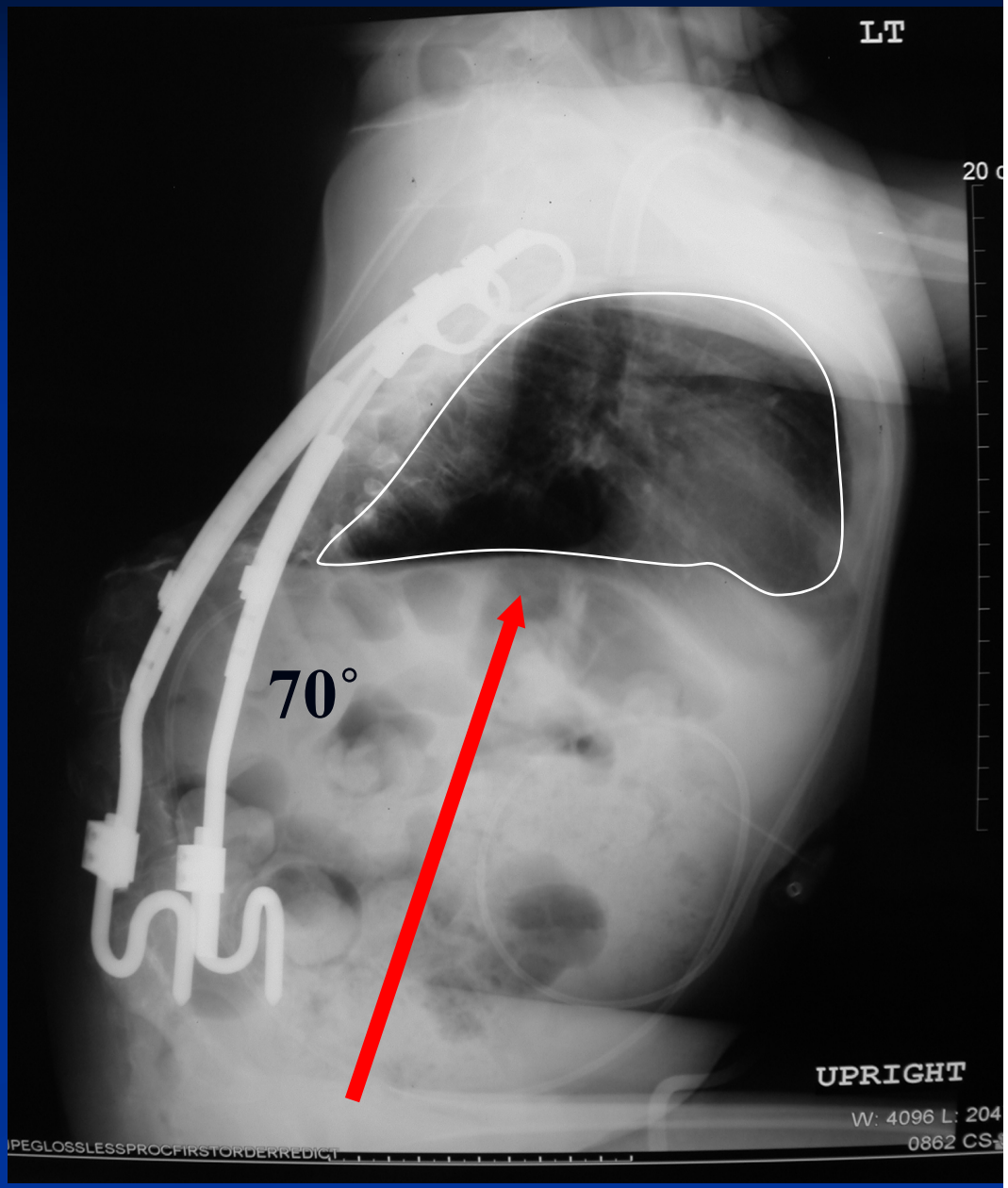
Gibbus?



18 month f/u



Thank You!

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