VEPTR for Myelokyphosis. Technique and Results

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Disclosures

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- Board Member: CWSDRF

Congential Gibbus Deformity Associated with Myelodysplasia

- Uncommon (8-21%)
- Challenging
- Frequent skin breakdown
- Secondary thoracic insufficiency

Classification

- Flexible paralytic
- Congenital rigid (most common)
- Kyphoscoliosis

Banta and Hamada. JBJS, 1976

Natural History

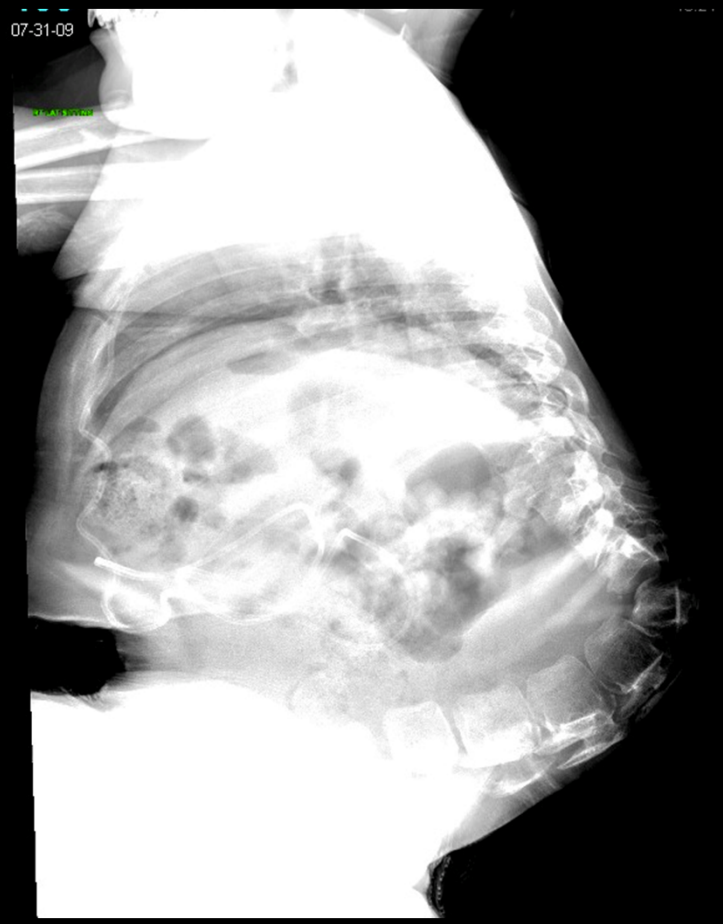
- Progression of 8-10°/year
- Skin breakdown
- Sacral sitting
- Inability to lay on back
- Urinary retention
- Secondary thoracic insufficiency syndrome

Surgical Solutions

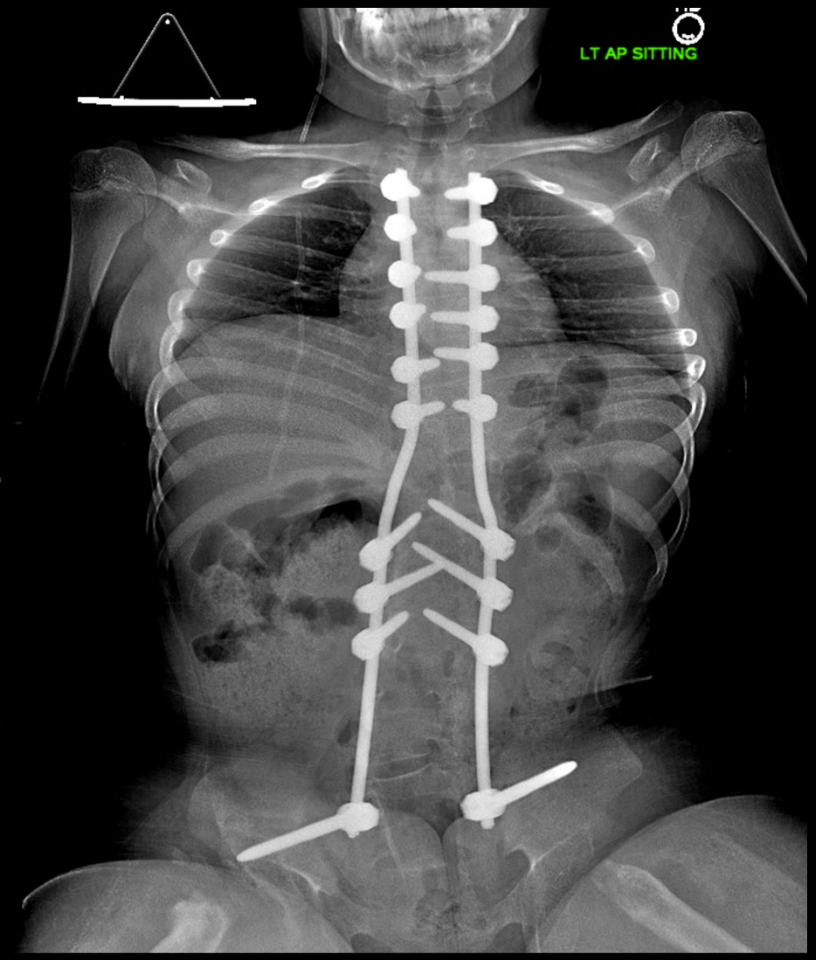
- Kyphectomy?
- Early fusion?
- Skin flaps?
- All have poor outcomes, short trunk height and frequent complications

Can We Avoid End Stage Gibbus Deformity?

- Difficult surgery
- Large blood loss
- Skin breakdown
- Sacral sitting
- High complication rate
- BIG surgery!

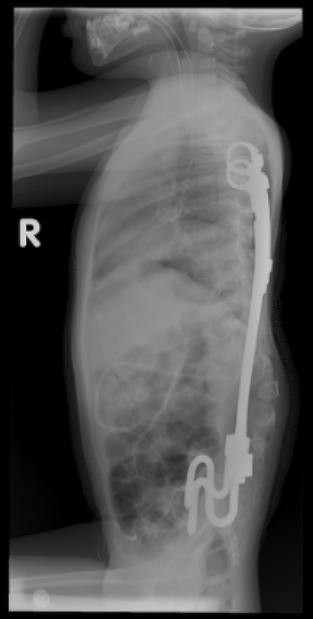


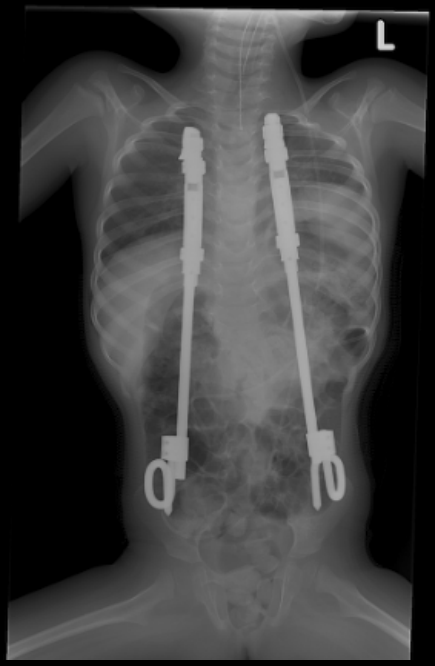
Post-op Multilevel VCR age 14



Are there Growth Friendly Options?

18 month old child with kyphosis of Myelodysplasia



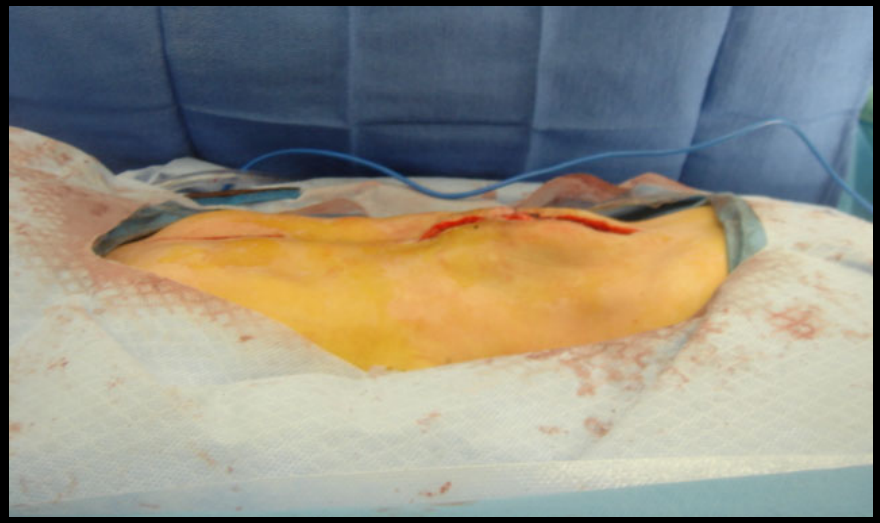


Smith et al; JBJS, October 2010

Intra operative

Prior to VEPTR insertion

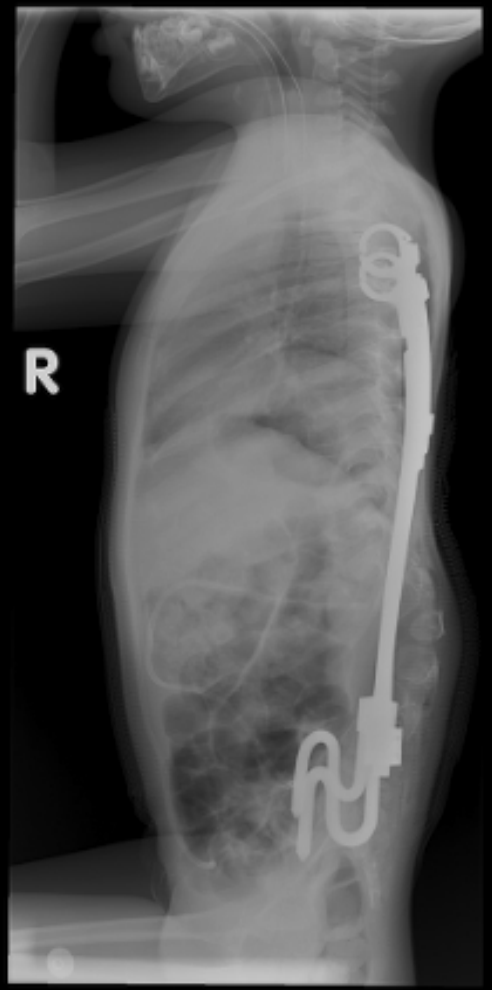
Skin expanders in place

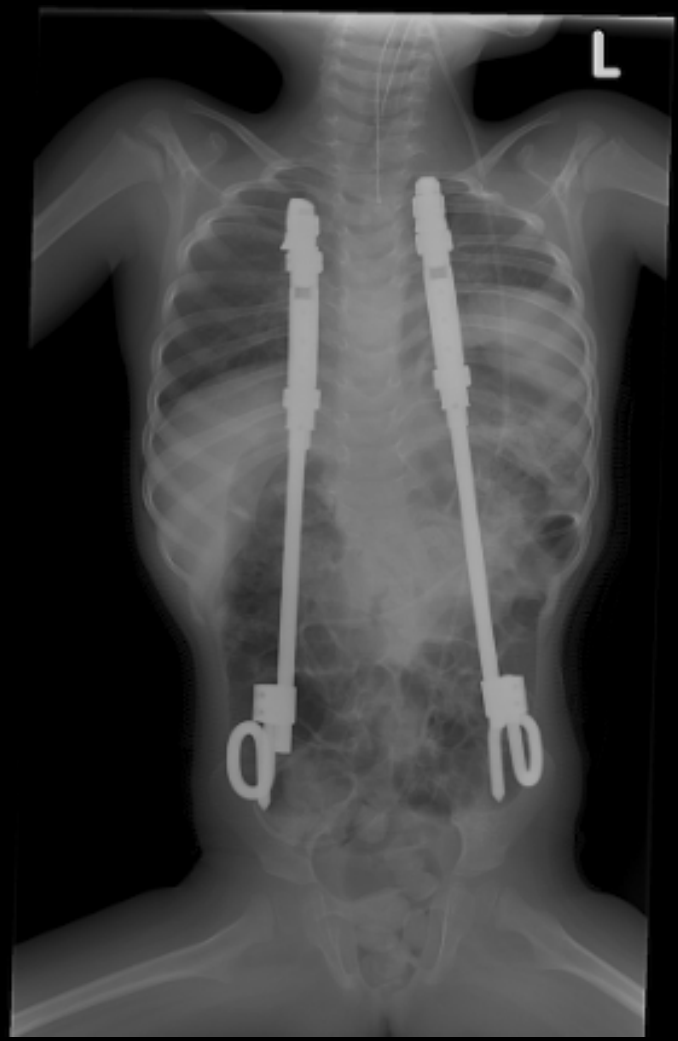


Post VEPTR insertion

No vertebral resection

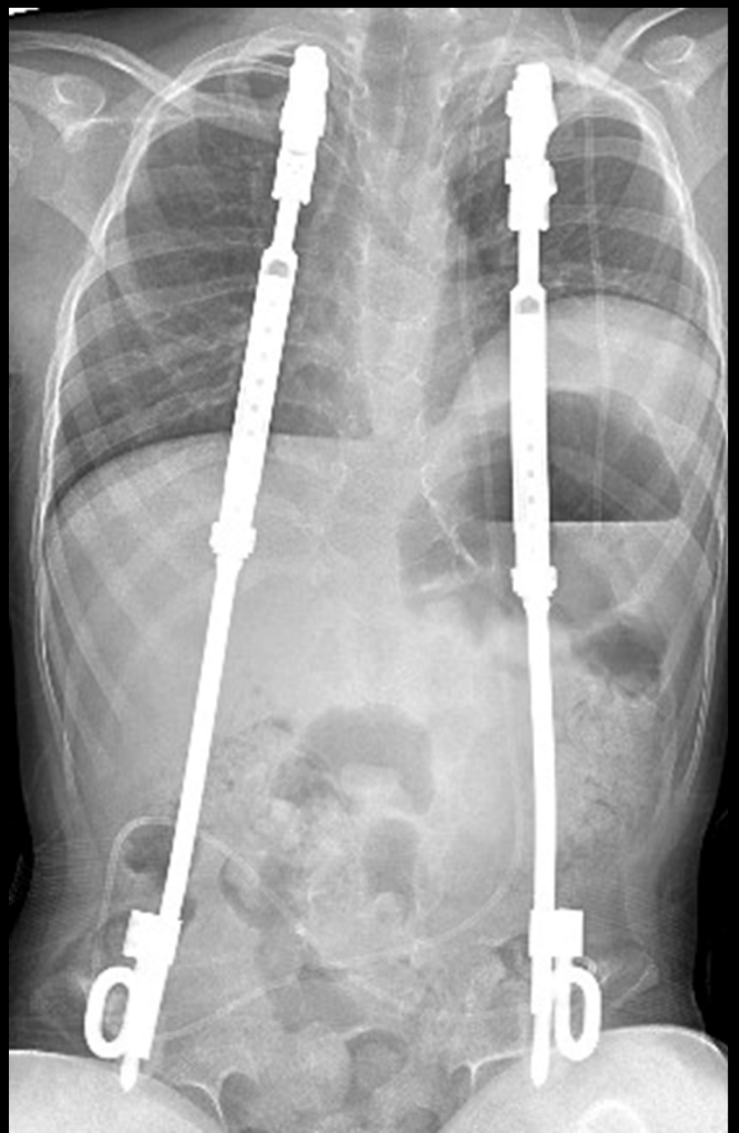
1 Month Post-op





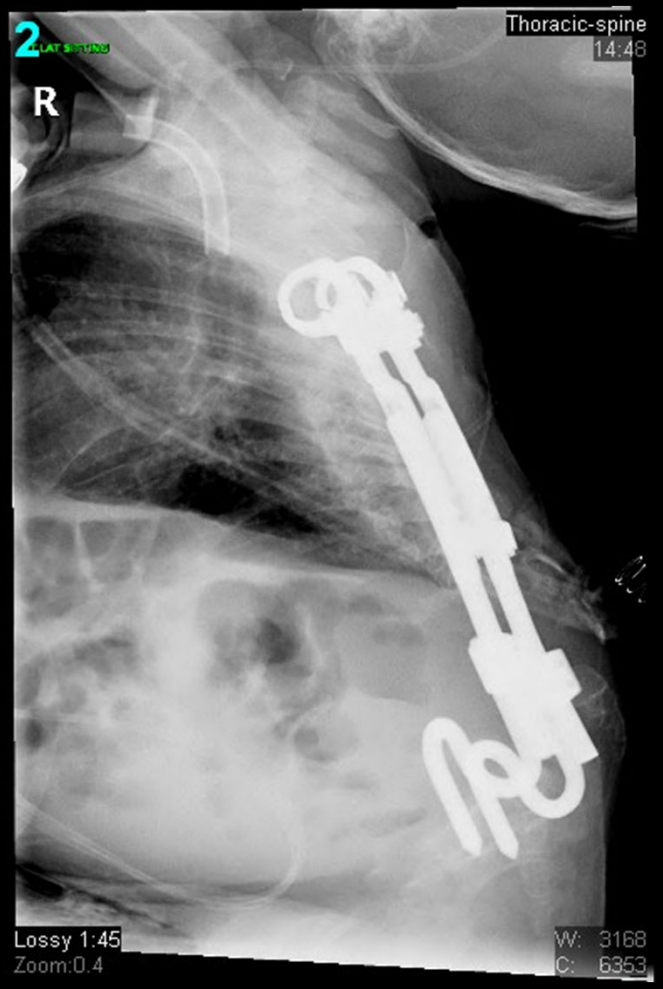
2 years after initial implant and expansions

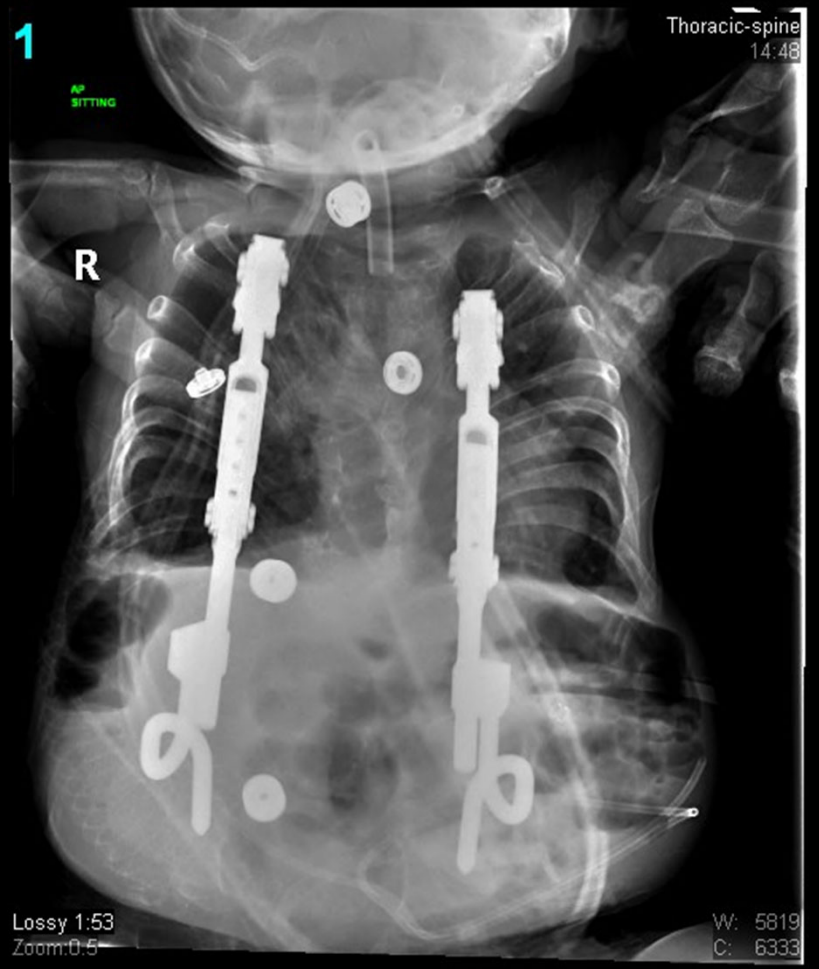
4 Year follow-up after exchange to VEPTR 2 Devices



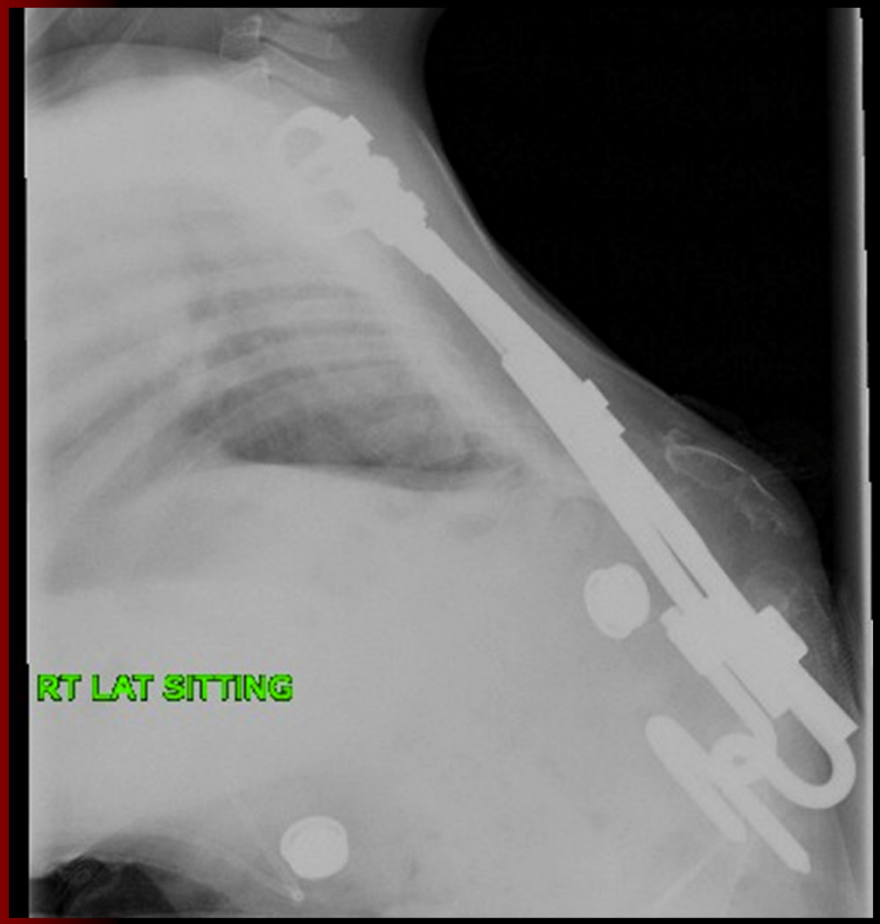
18 Month old boy with Spina Bifida and severe gibbus deformity. Trach dependent

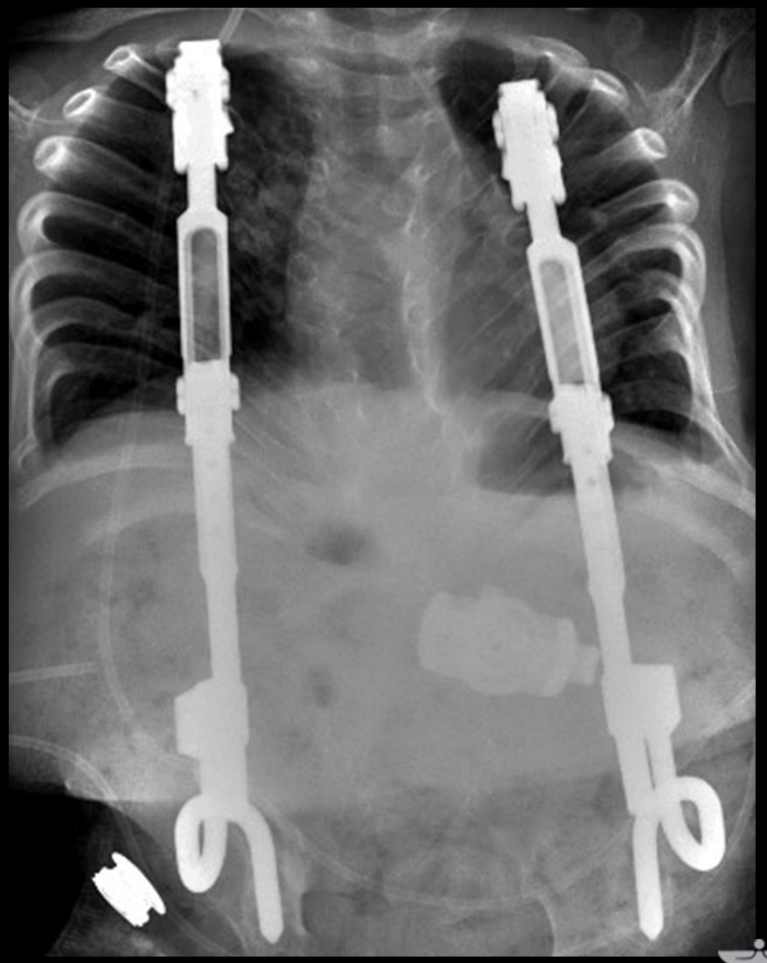
1 month post op. Weaning off ventilator!





18 months/2 expansions from initial implant. Off Ventilator altogether





Results for Gibbus Correction

- 4 Patients
- Pre-Op Gibbus: 114° (105-154°)
- Post-Op Gibbus: 52° (36-80°)
- Complications: 2
  - Dural leak after expansion
  - Infection after initial implant, resolved with debridement and antibiotics

Discussion: VEPTR Gibbus technique

- Advantages:
  - Avoids the poor midline skin
  - Avoids early fusion and short trunk
  - Preserves sitting posture on ischium rather than sitting on the sacrum due to 2° lumbo-sacral kyphosis
  - Surprising flexibility of the gibbus deformity when done early

VEPTR in Myelokyphosis: Conclusions

- Early results promising
- Recommend *early* intervention
- Better than early fusion/kyphectomy
- Growth sparing
- Complications acceptable to date

Thank you