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Complications of VEPTR instrumentation for progressive spine deformities in young children without rib fusion. A review of 30 cases

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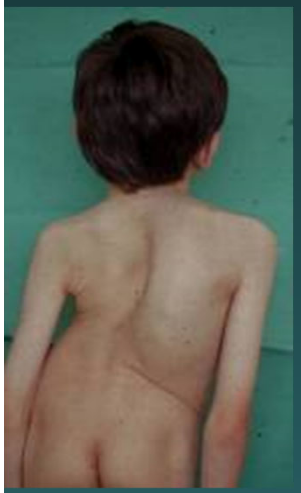
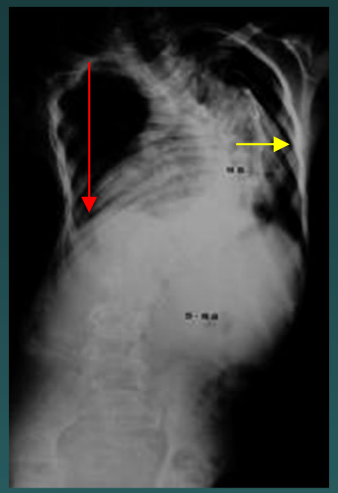
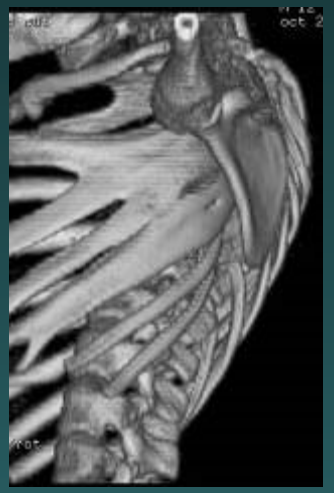
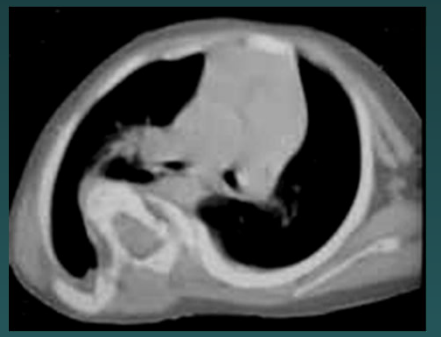
INTRODUCTION

Lung growth cannot proceed normaly in a constrictive chest

These patients may develop "thoracic insufficiency syndrome"

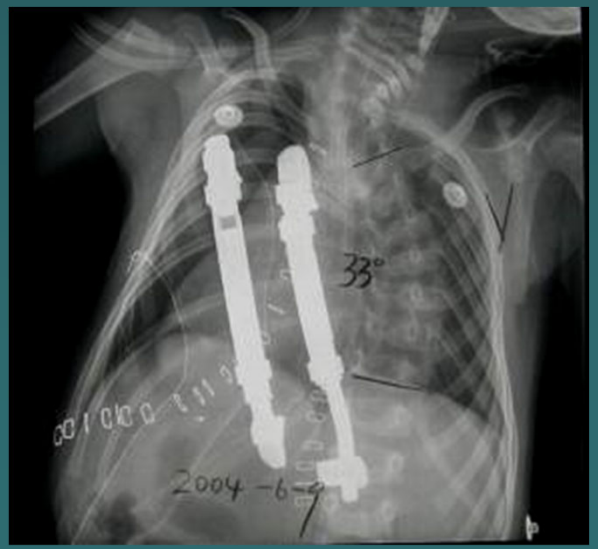
Fusion performed at an early age will result in a short spine

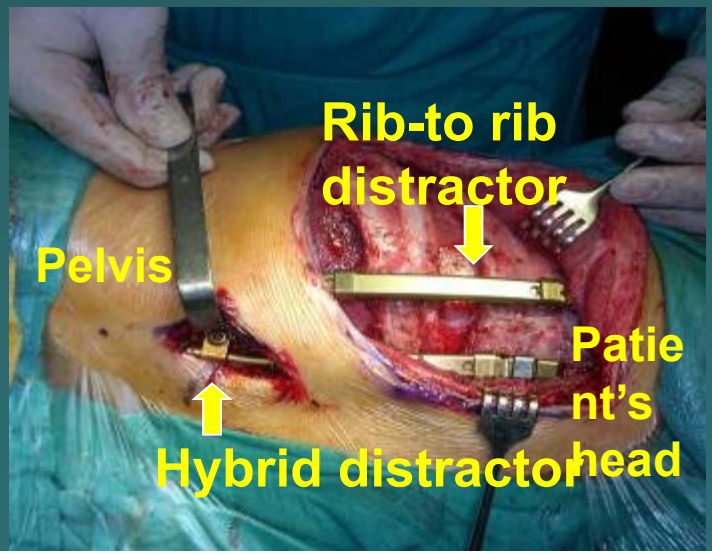
A short spine could lead a restrictive pulmonary capacity and shortened life span

INTRODUCTION

- The goals of surgery in young children : correct the deformity, obtain optimal thoracic volume and respect the growth of the spine

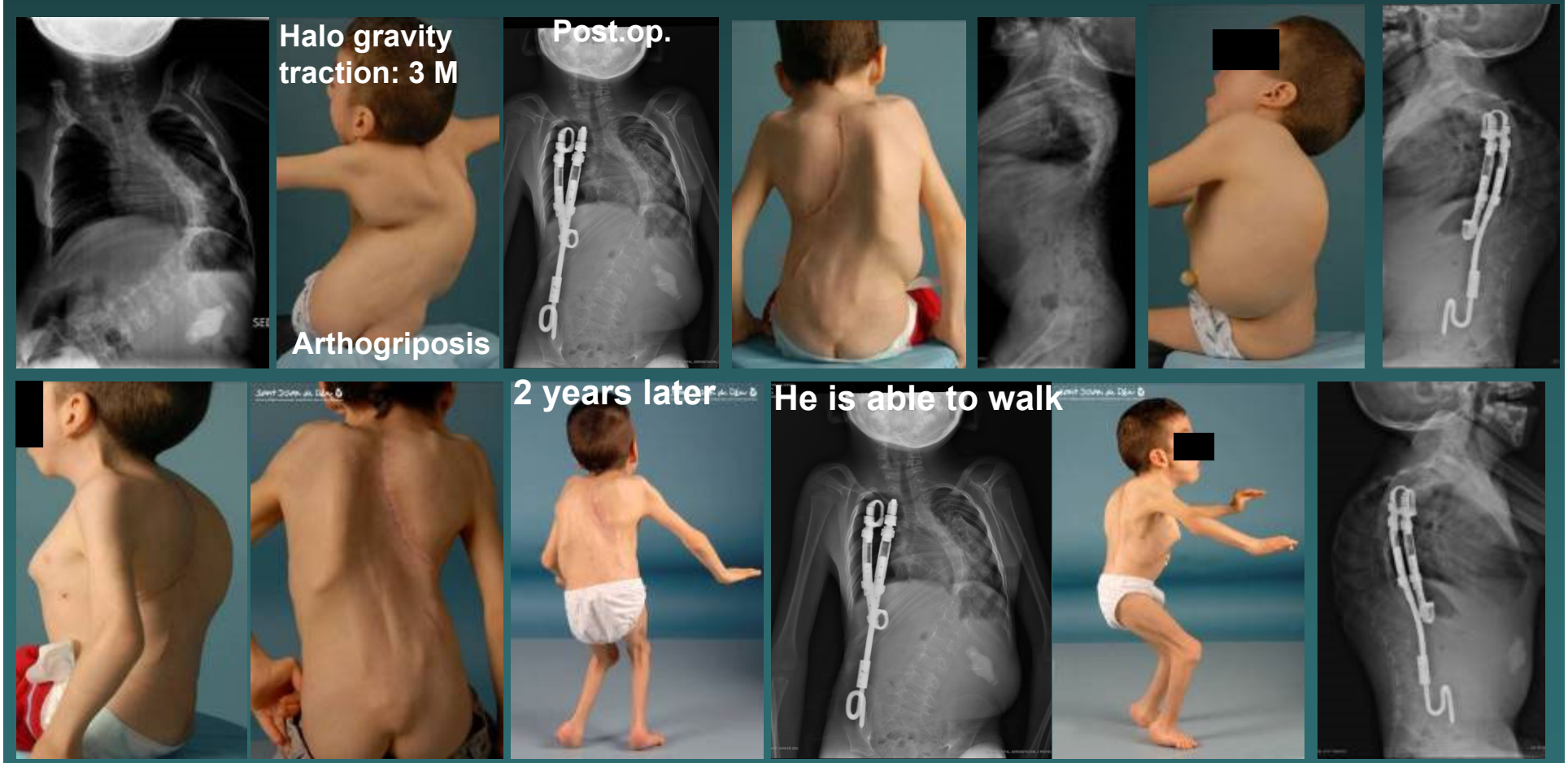
- VEPTR:Expansion thoracoplast: lengthening the constricted hemithorax through an opening wedge thoracostomy





Material and Methods

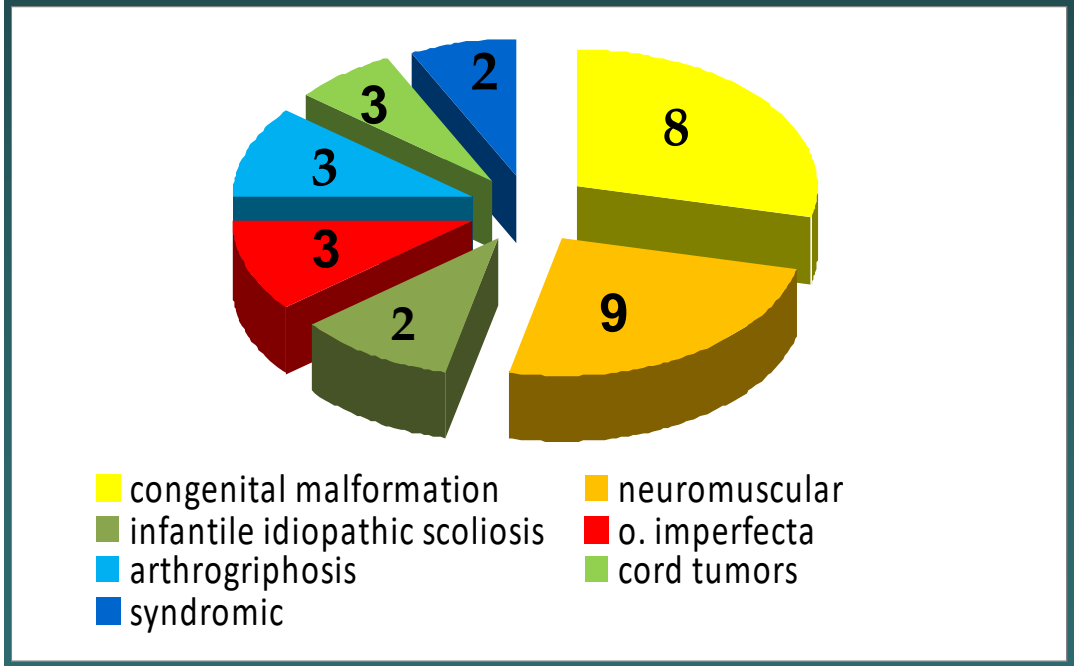
Retrospective clinical and radiographic study of 30 patients afected of E.O.S. without rib fusion treated with VEPTR between June 2004 and April 2009



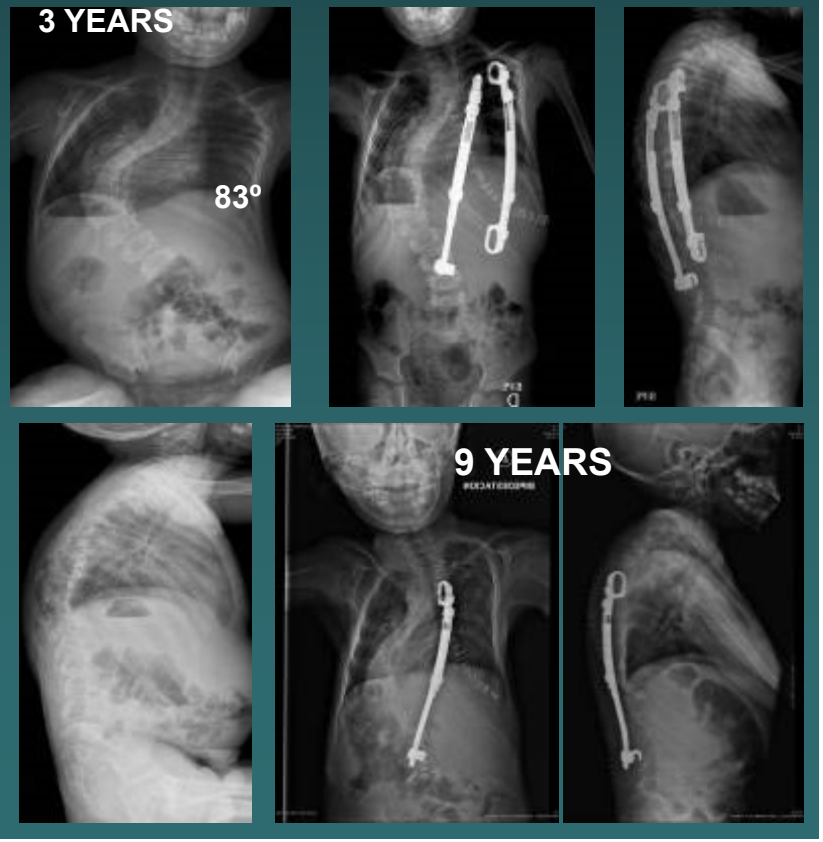
RESULTS

Etiology :

9 cases neuromuscular, 8 cases congenital, 3 cases I.I.S., 3 cases arthrogriphosis, 3 cases osteogenesis imperfecta, 2 cases cord tumors, 2 cases syndromic scoliosis



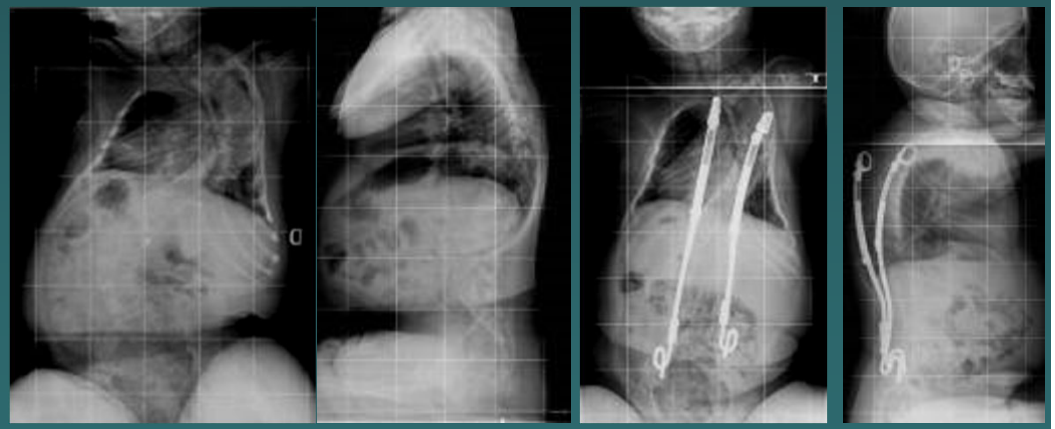
Osteogenesis imperfecta



RESULTS

- 30 patients ♂ 13 ♀ 17
- Follow up from 2 years to 6 years
- Age at surgery 2.8 -12 years (6.7 years)
- Five cases halo/ chair before operation
- Preoperative curve degree 50º/114º (78º)
- Postoperative curve degree 37º-79º (55º)

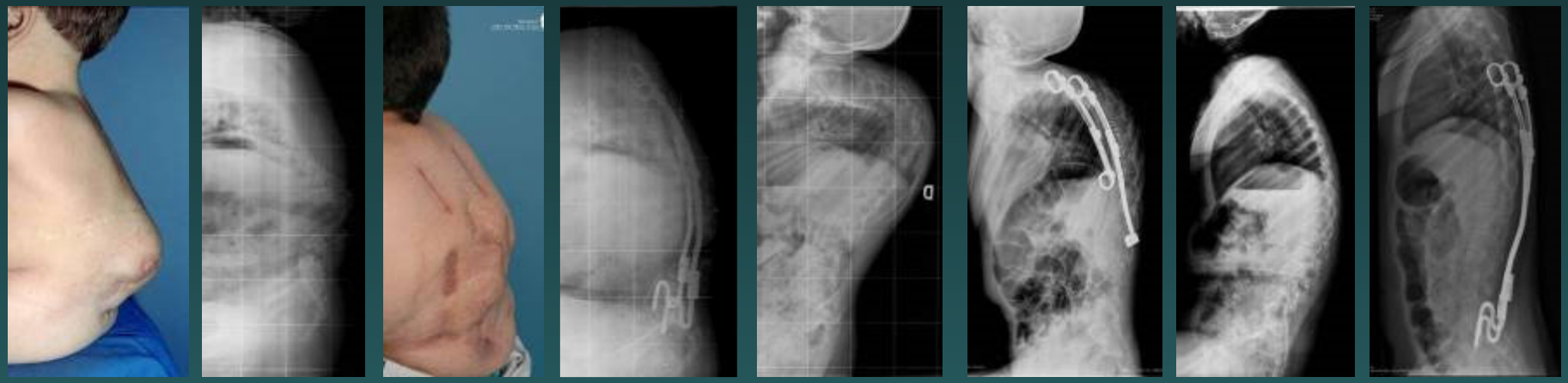
Congenital scoliosis without fuse ribs



S.M.A. type II. VEPTR from pelvis to upper ribs

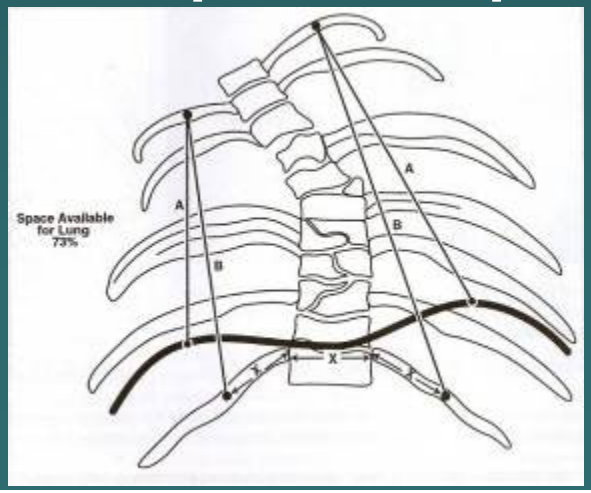
RESULTS

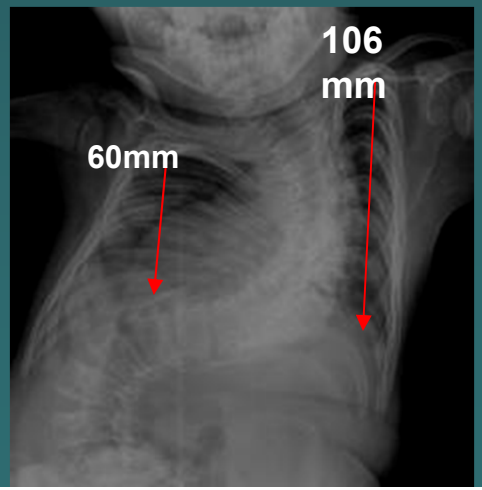
- 9 patients had a preoperative kyphosis 70º-100º (66º)
  Postoperative kyphosis 31º-73º (42º)

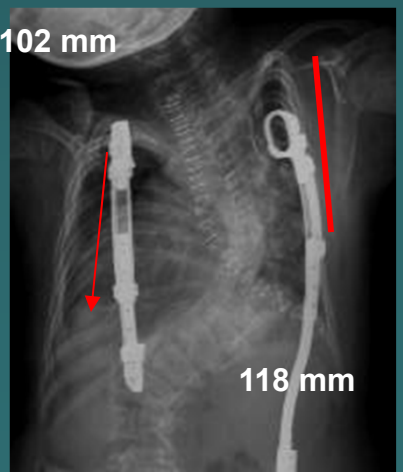


- Preoperative space available for the lung 57% - 97% (54%)

Postoperative space available for the lung 0%-63% (22%)







COMPLICATIONS

- **Major complications:** 5 patients (16.66%)

1 Patient died six months after surgery (cardio-respiratory arrest)

4 Cases developed skin sloughs, all required implant removal (two of theses cases were treated with growing rods six months later)

- **Minor complications:** 5 patients (16.66 %)

1 Acute infection distal anchorage requiring debridement + ATB

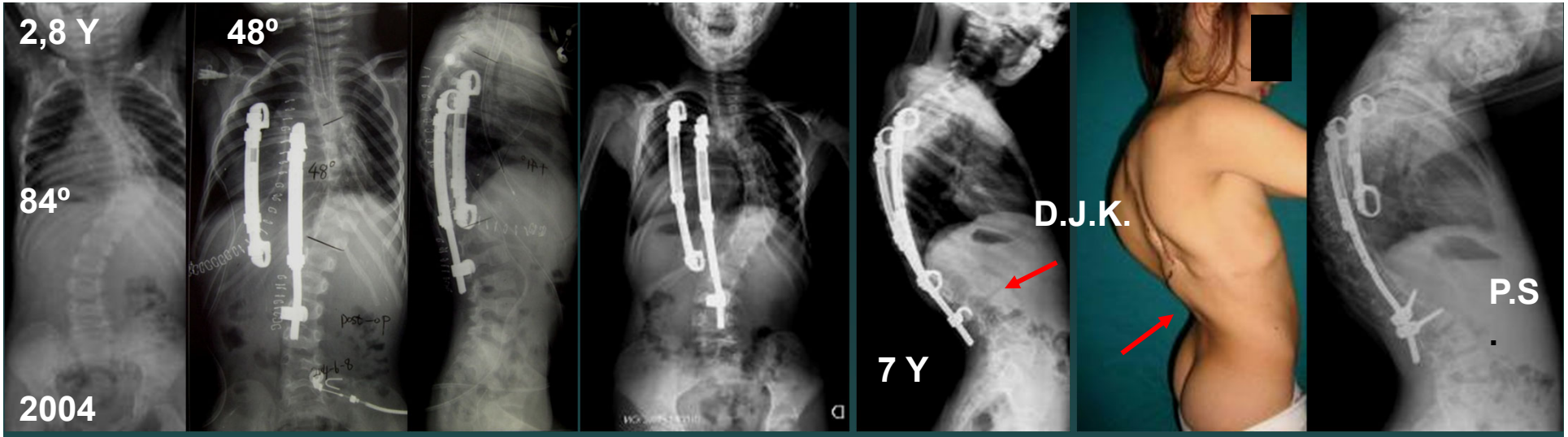
1 Distal junctional kyphosis (requiring distal pedicle screws)

2 Rod breakages

1 Distal hook dislodgement (revision surgery)

1 Iliac hook pelvic migration without clinical consequences


Marfan Syndrome
3 Y
Hook dislogement
Hook was resettled
Infantile Idiopathic Scoliosis
5 Y
Skin slough + infection hybrid devise removed. 6 months later growing rod



COMPLICATIONS.Infant.Idiop. Scol. 2,8 years old, 84º. 4 years later distal junctional kyphosis. VEPTR was changed with 2 distal P.S. to correct. One year later "broken cradle rod". The hybrid devise is changed.

CONCLUSIONS

- **Even the complication rate was high (17 % of major and 17% of minor complications), when chest deformity is severe and in very young children, VEPTR represent an alternative to growing rods for early onset scoliosis**

Infantile Idiopathic Scoliosis + cardiopathy. VEPTR