The Early Results of VEPTR Instrumentation for Severe Chest Wall Deformity

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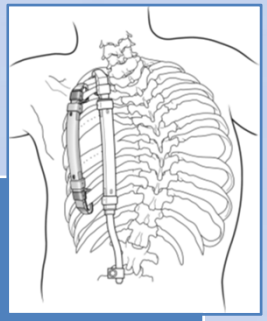
Introduction

- Early Onset Scoliosis (EOS) is generally diagnosed after birth and often occurs with congenital vertebra anomalies and severe deformities in the chest wall.
- Chest wall deformity can lead to a reduction in lung capacity and affect respiratory functions.

Introduction

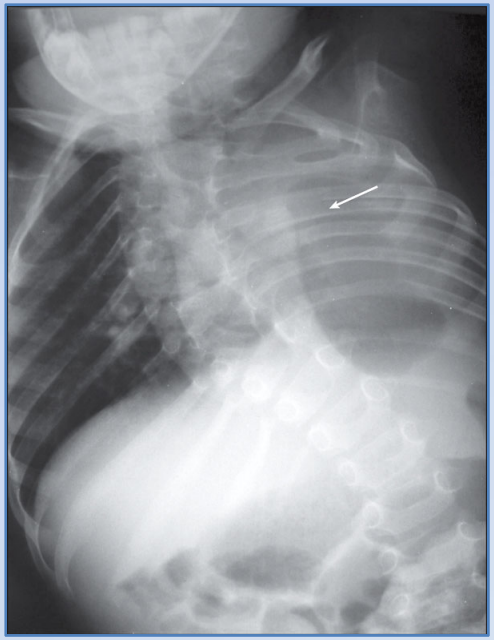


- A Vertical Expandable Prosthetic Titanium Rib (VEPTR) implant is designed to correct chest wall deformity in young patients whose lung capacity is at a critical stage of development.
- In this study we evaluate the early results of VEPTR implants in 3 EOS patients with severe chest wall deformity.

Background

VEPTR

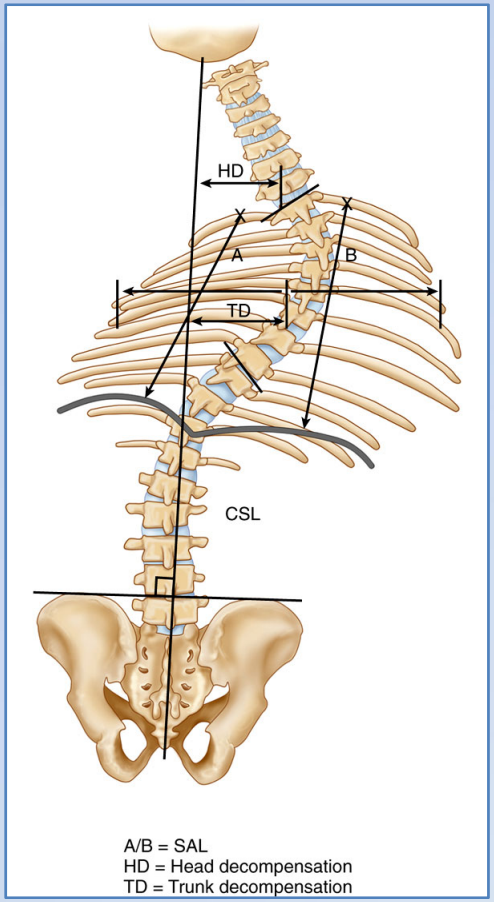
- The application and evaluation of VEPTR instrumentation for severe chest wall deformity in EOS patients.



Methods

Cobb angle, coronal balance and space available for lung (SAL) and patient compliance of 3 infantile EOS patients with severe Thorasic Insufficiency Syndrome were evaluated.

3 EOS patients (2 female, 1 male) with severe chest wall deformity and congenital vertebra and rib anomalies received VEPTR implants.



Methods

- Mean age at the time of operation was 39 months (20 - 45).
- Patients with substantially reduced single or bilateral lung capacity, extreme scoliotic deformities and coronal imbalance were chosen for the operation.
- Postoperatively cobb angle, coronal balance and SAL were evaluated.
- Distractions were scheduled every 6 months following the operation.

Results

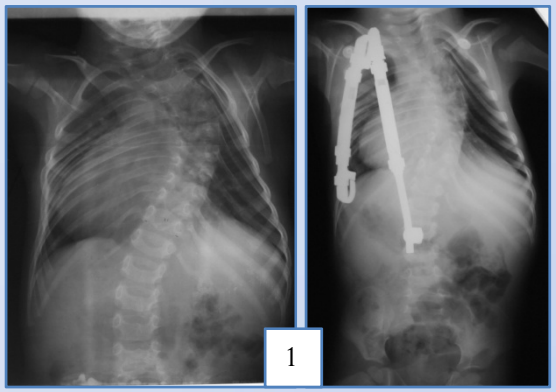
Preoperative AP thorasic cobb angle was 79.7° (65-97),

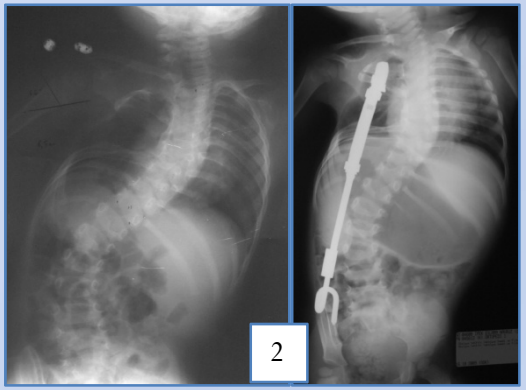
Early postop angle was 60° (46-62).

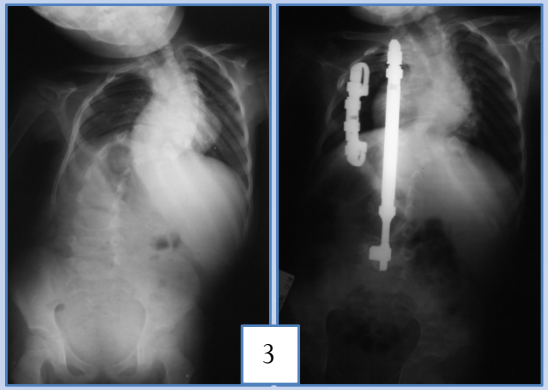
A significant improvement in coronal balance and SAL were recorded.

Patient compliance was good.

Results

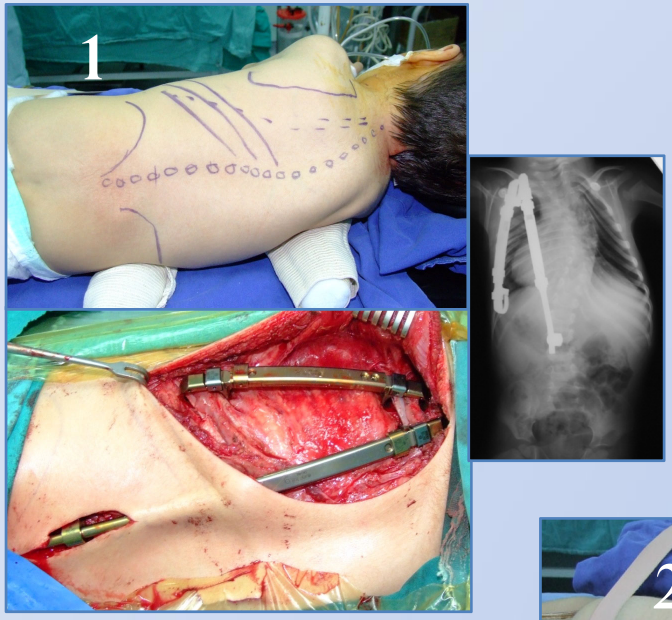


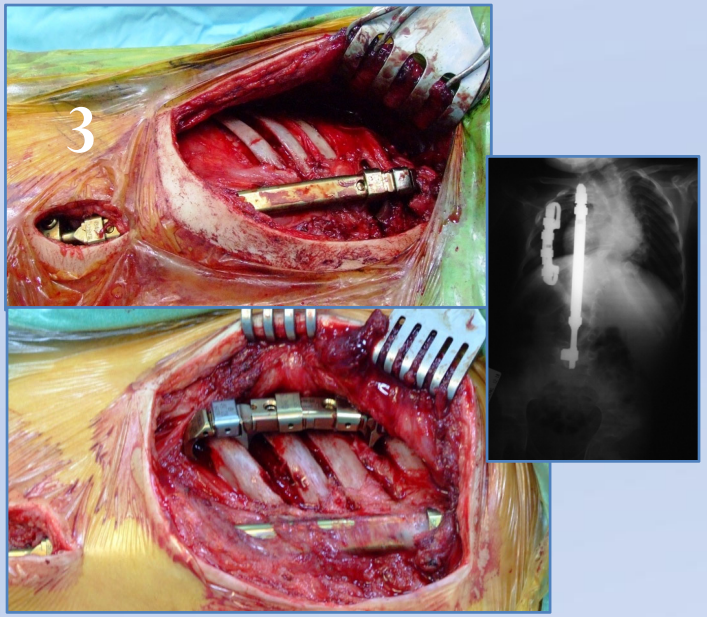


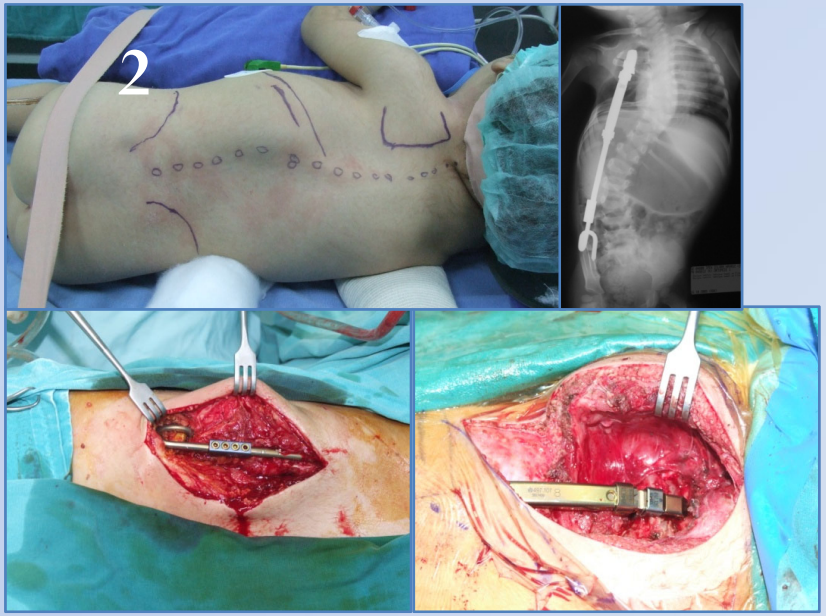


No	Gender / Age (month)	Follow-up (month)	Cobb(°) Preop / Postop	SAL(cm):Preop-Postop / Surgery
1	Male / 29	6	(T2-T11) 65 / (T3-T12) 46	10/11 -10.5/11 - Left Hybrid VEPTR (rib to lamina)
2	Female / 20	6	(T1-T11) 90, (T11-L4) 67 / (T1-T11) 75, (T11-L4) 56	7.5/9 -7.5/9 - Left Hybrid VEPTR (rib to iliac)
3	Female / 45	13	(T2-T11) 97 / (T2-T11) 63	6/9.5 -7.5/9.5 - Left Hybrid VEPTR (rib to rib + rib to lamina)

Results







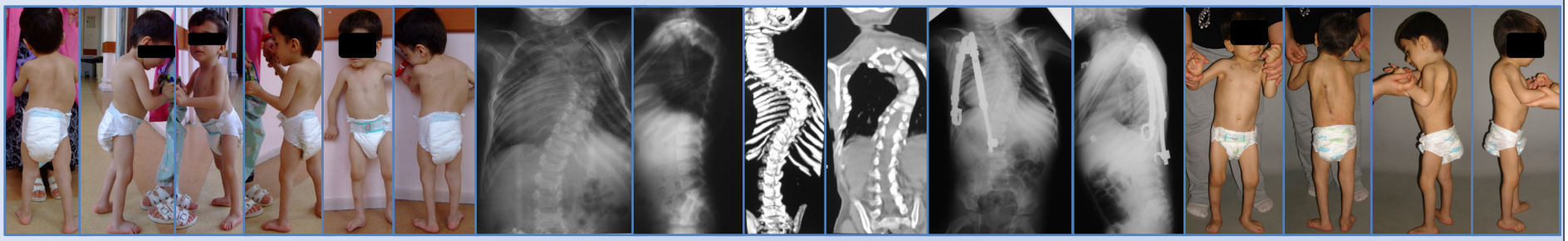
Per-op wiew

Results

1

Preop

Postop



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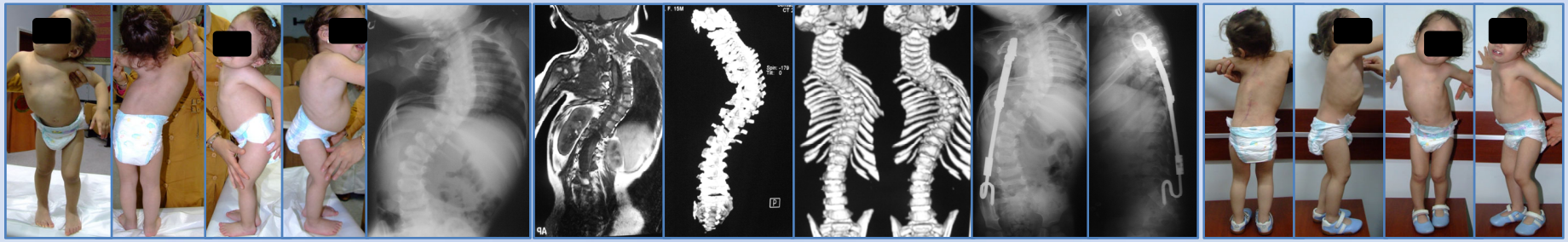

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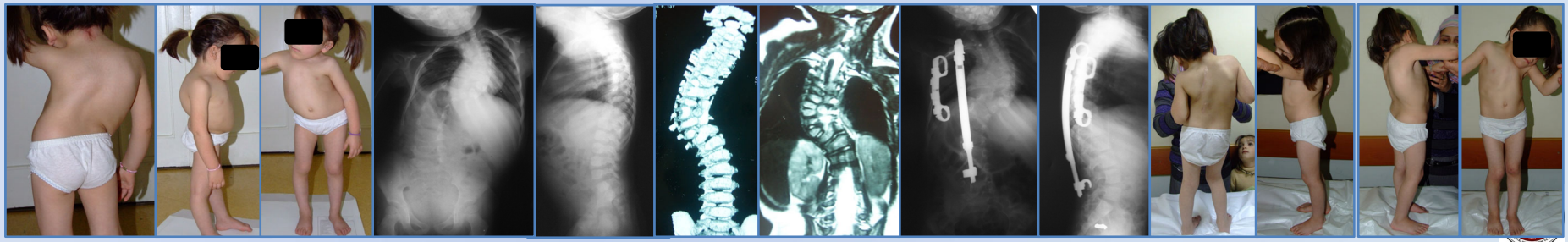

Conclusions

For infantile patients with severe chest wall deformity it is important to correct the deformity at an early age when lung capacity is rapidly developing.

The early results of VEPTR implants showed a significant correction in chest wall deformity, increased SAL and the beginning of a reduction in spinal deformity.