CLINICAL AND RADIOLOGIC OUTCOMES OF POSTERIOR ONLY HEMIVERTEBRA RESECTION AND SHORT SEGMENT FUSION WITH PEDICLE SCREW FIXATION IN CHILDREN YOUNGER THAN 5 YEARS: MINIMUM 10 YEARS FOLLOW-UP

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Paper #11 CLINICAL AND RADIOLOGIC OUTCOMES OF POSTERIOR ONLY HEMIVERTEBRA …

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INTRODUCTION

Previous studies evaluated midterm outcomes of posterior hemivertebra resection and short-segment fusion technique in patients under age 5 years, however there are few studies with long term outcomes.

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Hemivertebra Resection and Osteotomies in Congenital Spine Deformity

Michael Ruf, MD,* Rubens Jensen, MD,† Lynn Letko, MD,† and Jürgen Harms, MD†

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RESEARCH ARTICLE Open Access

Surgical outcomes and complications of posterior hemivertebra resection in children younger than 5 years old

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INTRODUCTION

This study evaluates long term outcomes of 13 patients under 5 years with congenital scoliosis due to hemivertebra who underwent posterior hemivertebra resection and short-segment fusion, with minimum 10 years of follow-up.

MATERIAL & METHODS

- 13 (8F/5M) patients under age of 5 years during surgery and had minimum 10 years follow-up were included.
- Mean age was 3,5 (1-5) years at the time of surgery.
- All patients underwent posterior hemivertebrectomy and short-segment fusion with pedicle screw fixation.

MATERIAL & METHODS

- Main and compensatory curves and sagittal parameters were measured on pre-op, post-op, follow-up x-rays.
- Follow-up x-rays were reviewed for occurrence of new curve development.
- SRS22 score was evaluated at latest follow-up
- Mean follow-up period was 11.5 (10-17) years.

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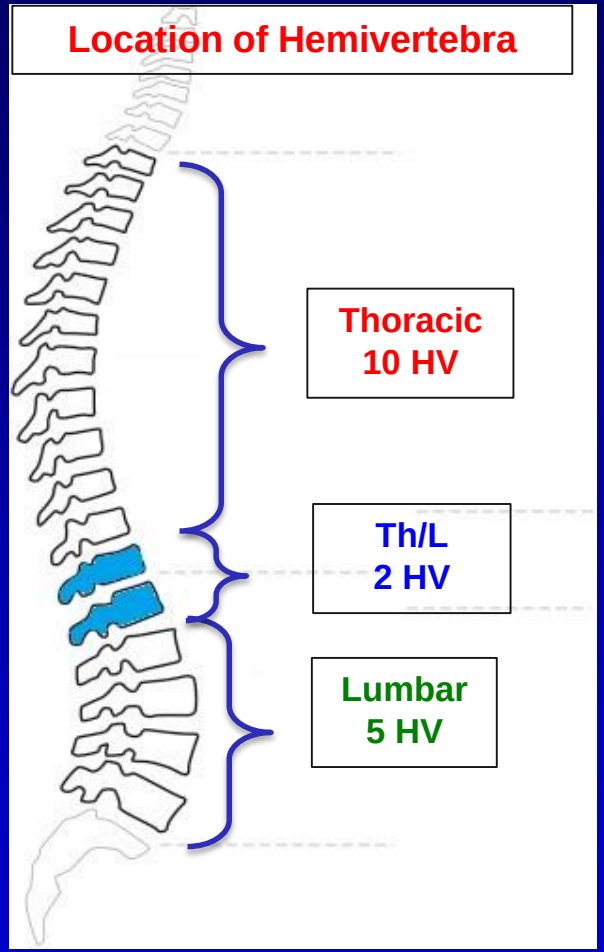
RESULTS

- 8 patients had pure scoliosis and 5 patients had kyphoscoliosis.
- Total 17 hemivertabrae (HV) were resected.
- Mean main curve of 32.2° was corrected to mean 3.8° at early post-op and mean 9.6° at final follow-up (70.2%).
- Mean compensatory curve of 13.8° was corrected to mean 2.1° at early post-op and mean 6.2° at final follow-up.



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RESULTS

- Mean local kyphosis improved from 31.2° to mean 5.3° at final follow-up (83.1%).

- Sagittal alignment was restored and maintained

  (Mean SVA: +21mm at final follow-up).

- Mean SRS22 score was 4.5 at follow-up.
- There was no pseudoarthrosis.

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RESULTS

- A new C-shaped, long, flexible curve with the apex at the level of the resected hemivertebra (4 lumbar, 1 thoraco-lumbar) developed in 5 patients (38%).
- Mean age at new curve diagnosis was 11.2 (6-14) years.
- Mean new C-shaped curve was 21° (16-30).
- No additional surgery was performed.
- Only 1 patient was treated with brace.

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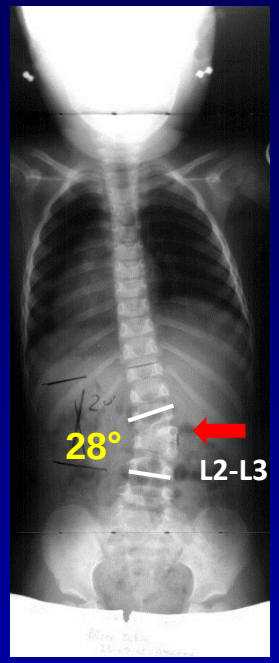
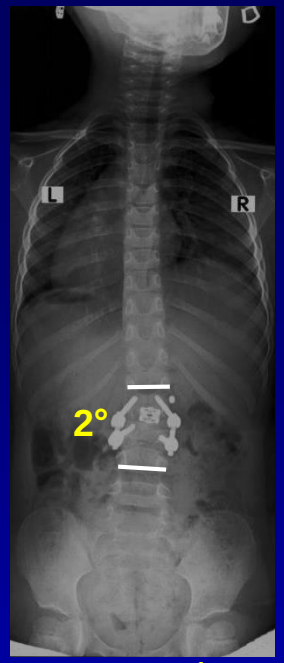
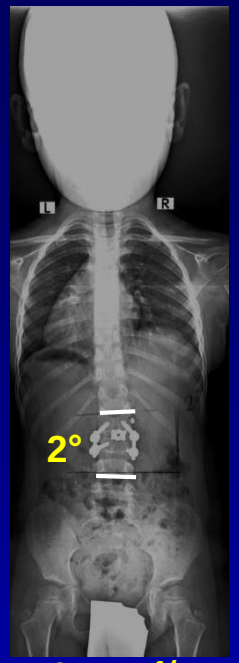
BT, 3y, F



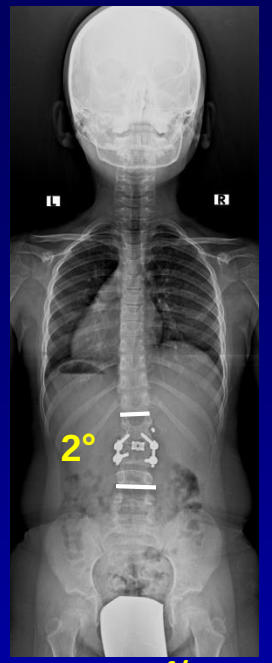
Preop



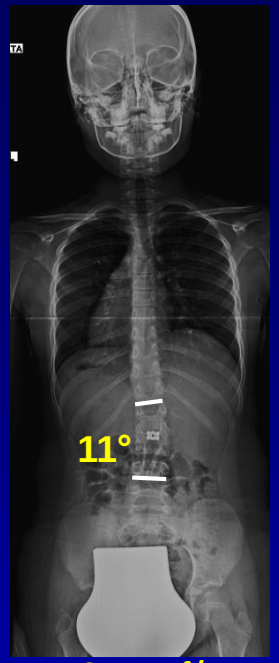
6 month f/up



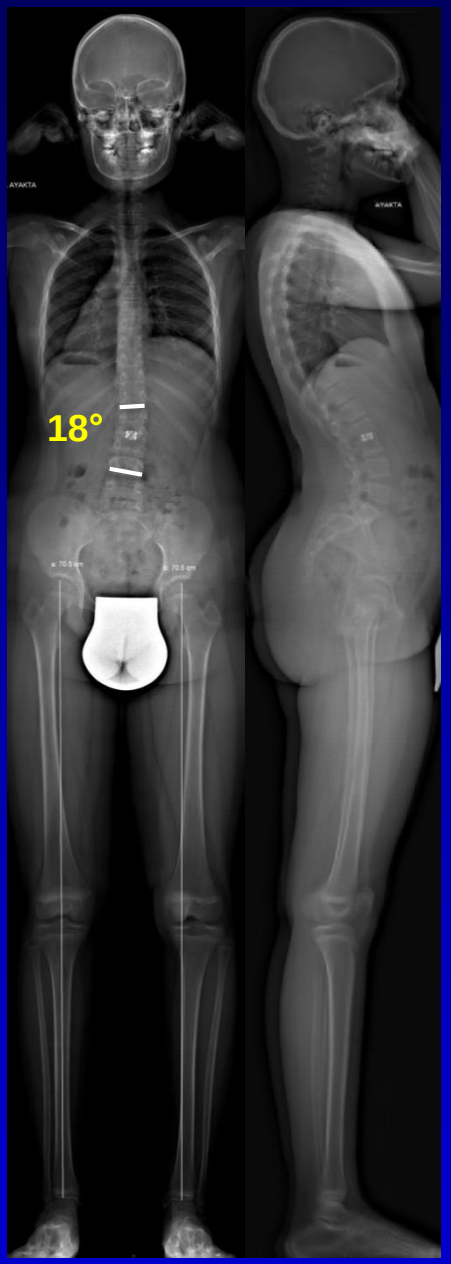
2 years f/up



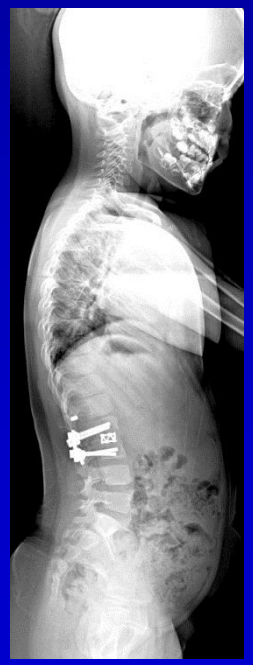
4 years f/up



6 years f/up



10 years f/up



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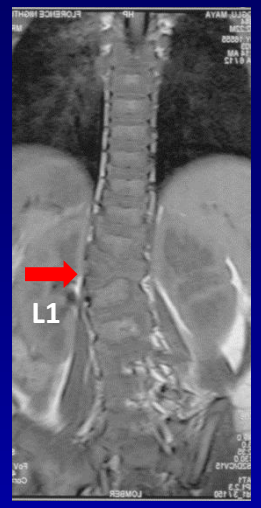
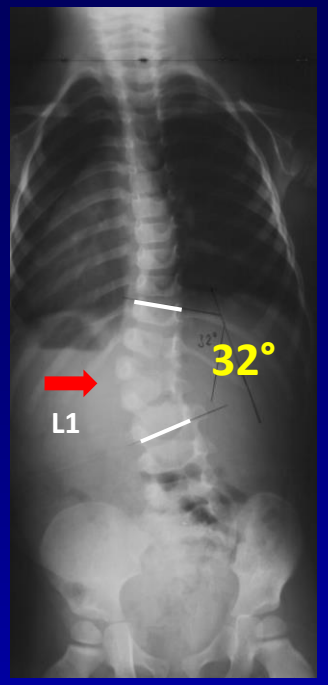
MS, 2y11m, F





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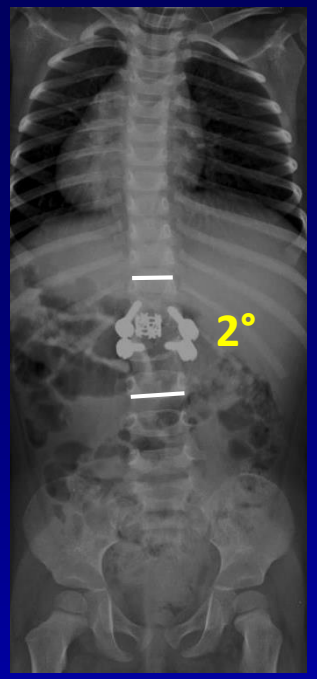
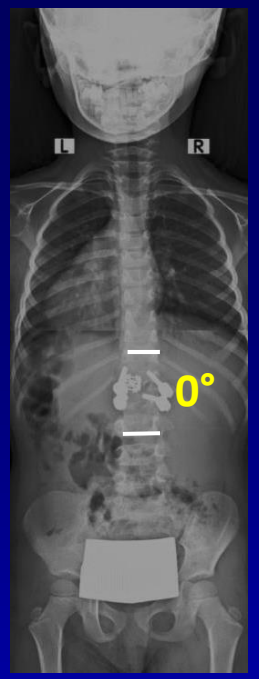


3 month f/up



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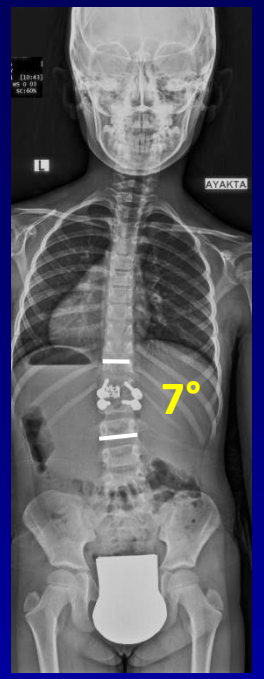
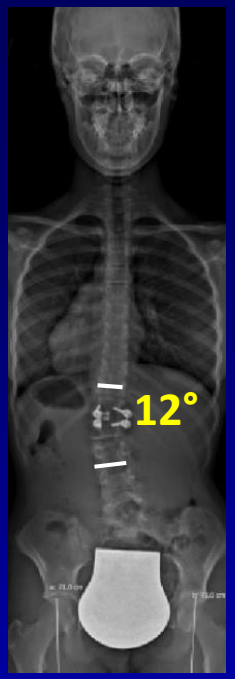
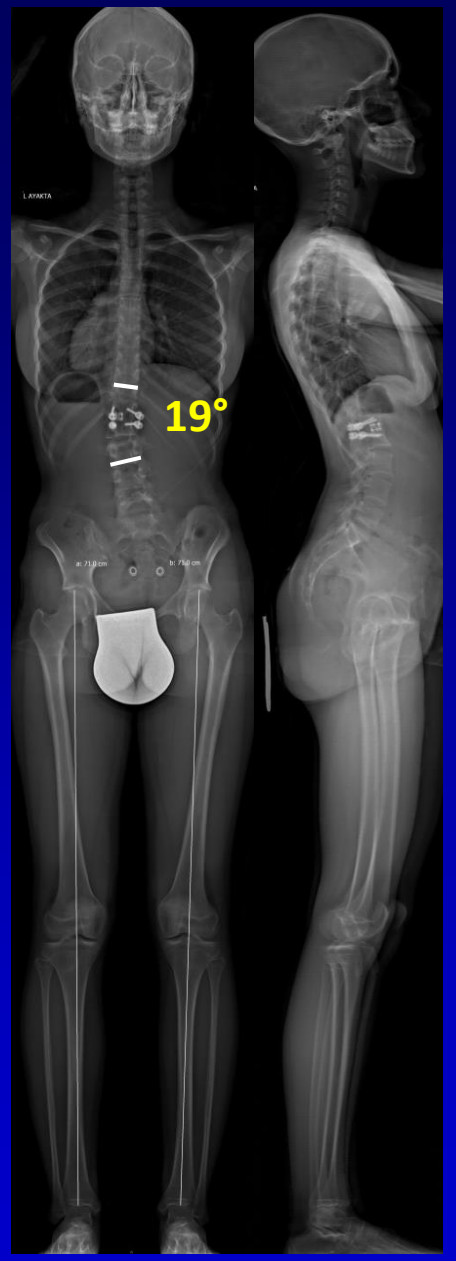


7 years f/up



12 years f/up



14 years f/up

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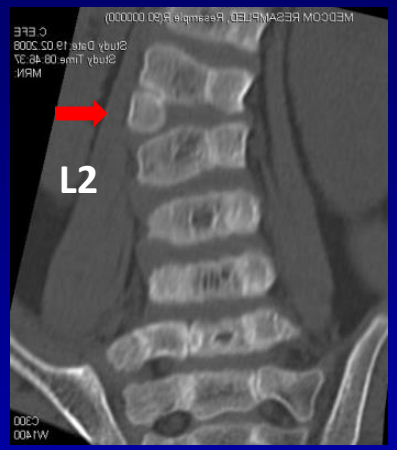
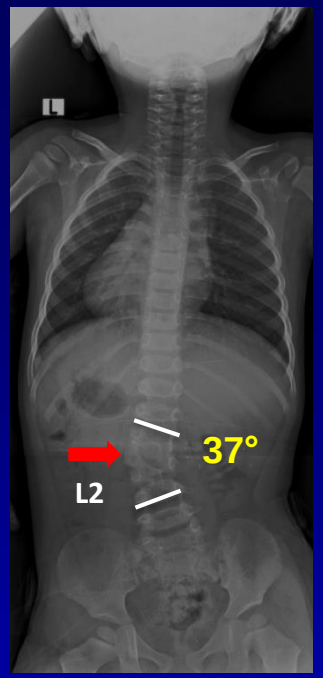
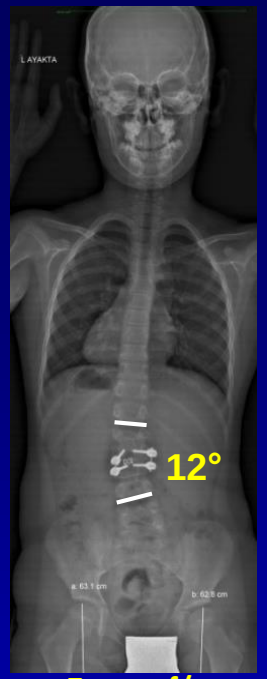
EC, 2y3m, M



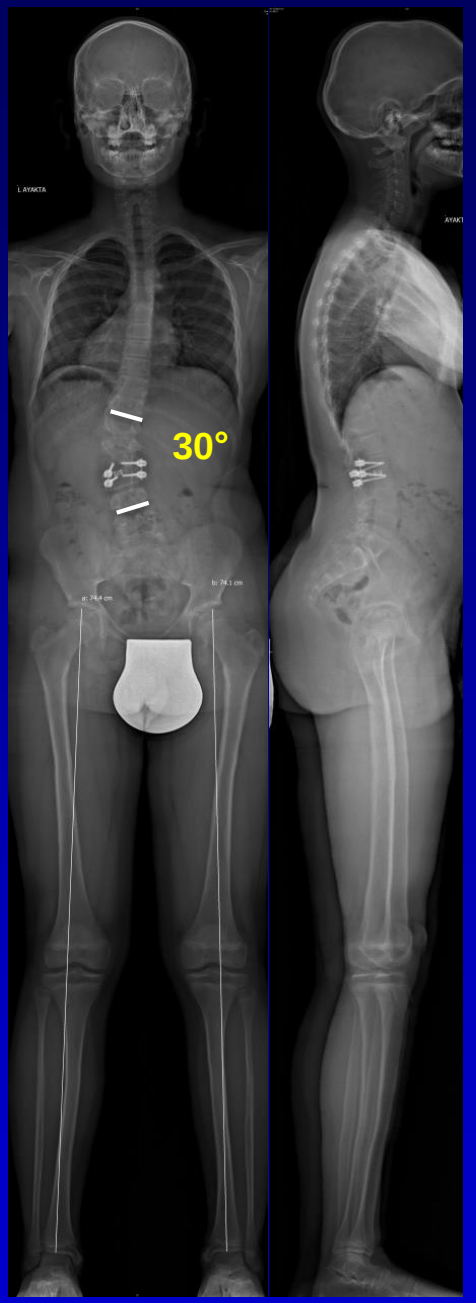


Preop

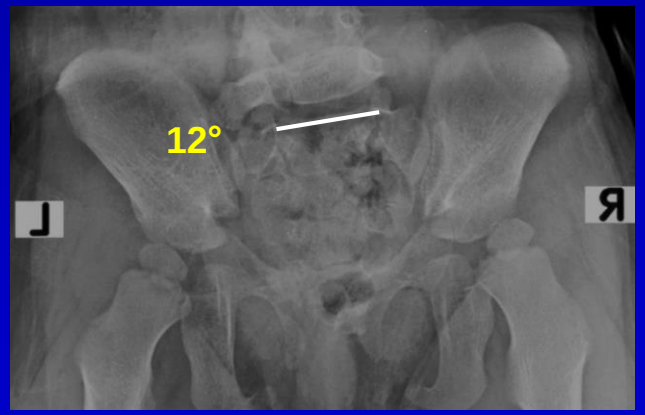
1 year f/up



7 years f/up



10 years f/up



CONCLUSION

Posterior hemivertebra resection and short-segment fusion technique under 5 years provided satisfactory correction on both planes.

However, a new C-shaped, long, flexible curve with its apex at the level of the resected hemivertebra was observed at long term follow-up in 38% of patients.

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CONCLUSION

This study suggests that patients with congenital scoliosis who undergo posterior hemivertebra resection and short-segment fusion under 5 years should be followed up closely till the end of adolescence growth spurt.

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THANK YOU