

in spine heights were significant (Table 1); 50% with coronal imbalance and 71% with sagittal imbalance were corrected. COMP occurred in 33% pts; types: neuro/IONM change 57%, wound 29% and medical 11%. Of neuro/IONM COMP 6/13 had preop deficits, 8/13 IONM wave changes only, 4/13 had IONM changes + deficit, 2/13 had no wave changes but a postop deficit. All patients with a postop deficit had a complete or partial recovery.

Conclusion: VCR in EOS while rare is efficacious in severe, rigid deformities, predominantly as primary surgery and can be used with growth friendly constructs. VCR resulted in 69% major curvature correction, and a 33% complication rate. Despite high post-operative neuro deficits, there were no permanent changes.

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Paper #21

Posterior Vertebral Column Resection (PVCR) for Congenital Thoracic Lordoscoliosis in children under age of 10 with minimum 5 years follow-up

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Summary: Congenital thoracic lordosis or lordoscoliosis are rare deformities which causes severe cardiopulmonary problems in early ages. PVCR is effective in restoring thoracic kyphosis in treatment of these rare deformities and avoids morbidity of combined surgeries.

Hypothesis: PVCR is effective in correcting congenital thoracic lordosis or lordoscoliosis deformity.

Design: Retrospective.

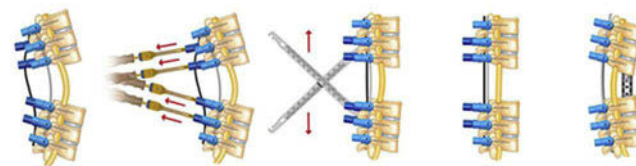
Introduction: Congenital thoracic lordosis(CTL) or lordoscoliosis(LS) are rare deformities which causes severe cardiopulmonary problems in early ages. In our practice we perform PVCR for treatment of this rare deformities. The aim of this study was to evaluate the results of PVCR in treatment of CTL or LS.

Methods: 6 pts (5F,1M), mean age of 7 yrs(3-10) with min 5 yrs f/up were included. The surgical technique included segmenter pedicle screw fixation with long-arms for the apical and adjacent segments. Osteotomy was performed at the apex level starting from the concave side. After completion of resection, an over-kyphotic rod was placed for the first attempt of correction while a short temporary rod on convex side secured and avoided any

translation. As tap screws were driven sequentially it pulled vertebral bodies backwards to the precontoured rod to create thoracic kyphosis. Over-kyphotic rod changed gradually to gain more kyphosis and in-situ benders were used for additional kyphotic effect. Titanium cage was used for reconstruction of residual anterior gap and H shaped femoral strut allograft placed over laminectomy site to prevent compression dura by hematoma. Preop and postop standing AP and lateral X-rays were measured for Cobb angles, sagittal parameters and diameter of thoracic cage.

Results: Mean f/up was 9,8(5-14)yrs. Mean preop thoracic lordosis of 16,9°(-22-11) was restored to thoracic kyphosis of 18,8°(11-29). Mean preop Cobb angle of 42,9°(30-59) was corrected to 7,8°(5-20) with 81% correction rate. Mean resection was 1,5(1-3) levels. The improvement of AP diameter of thoracic cage was 30(25-45). The mean postop intensive care unit period was 1,2(1-2) days and none of patients required prolonged respiratory device support. There was no infection, implant failure or pseudoarthrosis at the final f/up.

Conclusion: Although it is technically challenging, current study demonstrated that it is PVCR is effective in restoring thoracic kyphosis in treatment of CTL or LS and avoids morbidity of combined surgeries.



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Paper #22

Unplanned Return to OR for EOS Children: A Comprehensive Evaluation of all Diagnoses and Instrumentation Strategies

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Summary: When considered comprehensively, 30% of children treated with growing instrumentation to manage early onset scoliosis have one or more unplanned returns to the operating room.

Hypothesis: Unplanned return to the operating room for early onset scoliosis (EOS) is common, with some diagnoses, deformity patterns, and instrumentation strategies generating a particularly high risk.

Design: Case control study.

Introduction: With recent concerns about the impact of anesthesia on the young child's brain, unplanned return to the OR (UPROR) for any reason is an important consideration for informed consent. EOS occurs in a heterogeneous patient population, and many instrumentation strategies are deployed for its management. The advent of a valid classification system (C-EOS) now permits a more sophisticated analysis of UPROR across the full spectrum of underlying causes, deformity patterns, and instrumentation types.

Methods: A multi-center database from the Children's Spine Study Group was prospectively collected and retrospectively analyzed for all patients with a diagnosis of EOS who had surgical implantation of growing instrumentation without fusion. All patients who returned to the OR within 20 months of initial surgery were included. UPROR was analyzed by diagnosis and deformity type, using the C-EOS classification.

Results: 474 patients met inclusion criteria. 142 of the 474 (29.95%) required 225 unplanned trips to the operating room for various reasons, including: revision for implant or anchor failure, infection, or implant removal. Analysis of patients returning to the operating room by C-EOS classification is seen in Table 1. Groups at highest risk of unplanned trips to the operating room include neuromuscular deformities measuring 51o-90o with kyphosis between 20o-50o (M3N) and kyphosis over 50o (M3+),