A New Surgical Technique For Salvage Of Post-Operative Proximal Junctional Failure In Pediatric Patients–A Case Series

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A New Surgical Technique for Salvage of Post-Operative Proximal Junctional Failure in Pediatric Patients—A Case Series

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Background

• Proximal junctional failure (PJF) is a known complication that can occur following posterior spinal fusion and is associated with pain, decreased neurologic function, and increased morbidity
• Very little literature exists regarding PJF in pediatric populations and there are currently no surgical techniques described in the literature for revision of PJF

Methods

• The surgical technique involves proximal extension of spine instrumentation and anchoring via paired sets of sublaminar bands
• The bands are sequentially tightened to bring the spine into sagittal alignment
• Patients who received this procedure at CMH and had at least one year of follow-up time were identified
• Demographic and clinical data, including radiographic and CT spine parameters, were gathered both pre and post-operatively

Results

Demographics

• Eight patients with an average age of 14 years, 10 months were included in the study
• Surgical revision was performed approximately 3 years after the initial procedure
• Patients were followed for an average of 31 months after revision
• Original patient diagnoses consisted of adolescent/juvenile idiopathic scoliosis, neuromuscular scoliosis, kyphoscoliosis, and Scheuermann thoracic kyphosis

Clinical Findings

• Reduced pain and rod prominence
• Reports of increased satisfaction with appearance and improved horizontal gaze

<table>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Average</th>
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<tbody>
<tr>
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<td>19°</td>
<td>-43°</td>
<td>1°</td>
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<td>27°</td>
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<td>-4°</td>
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<td>PJF Angle</td>
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<td>-10°</td>
<td>-40°</td>
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<tr>
<td>Lumbar Lordosis</td>
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<td>2.6 cm</td>
<td>0.7 cm</td>
<td>2.2 cm</td>
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<tr>
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<td>15°</td>
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<td>6 bands</td>
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</tbody>
</table>

Conclusion

Patients with PJF who received this surgical technique experienced resolution of pain and upper rod prominence and improved cervical spine radiographic parameters that was maintained at 2 years after revision surgery.