Temporary Internal Distraction: A Novel Approach to Correct Severe Kyphoscoliosis Without Major Osteotomy

[1]Chung YC; [1]Sharfuddin AI; [1]G Felicia; [1]Lim HS; [1]KB Zairul Anuar

[1]Department of Orthopaedic Spine, Penang General Hospital.

INTRODUCTION:

Severe kyphoscoliosis poses significant challenges in surgical correction, often necessitating innovative techniques to achieve satisfactory correction and mitigate potential complications.

REPORT:

We outline the utilization of temporary internal distraction (TID) as an adjunctive measure in the surgical management of a 14-year-old girl with severe thoracic kyphoscoliosis with underlying syringomyelia. She presented with a Cobb angle of 126°, debilitating symptoms and impaired quality of life.

Surgical intervention involved two-stage posterior spinal fusion T2 to L3 augmented with TID devices strategically placed along the concave aspect of the curvature. The procedure aims to gradually realign the spinal column while preserving spinal integrity and promoting fusion. Intraoperative neuromonitoring and gradual increment of distraction forces ensured correction without compromising neurovascular structures. Post procedure, a 50% reduction in curve magnitude was achieved.

One week after distraction, she underwent definitive spinal fusion with dual-rod fixation. Partial correction obtained during TID in the coronal and sagittal planes made the final surgical procedure less difficult and allowed us to achieve additional correction without performing major osteotomy.

Postoperative evaluation demonstrated a remarkable reduction in the Cobb angle to 25°, restoration of spinal alignment, along with significant improvements in clinical symptoms.

Figure 1: Decrease in curve magnitude after the TID procedure and after the final operation.

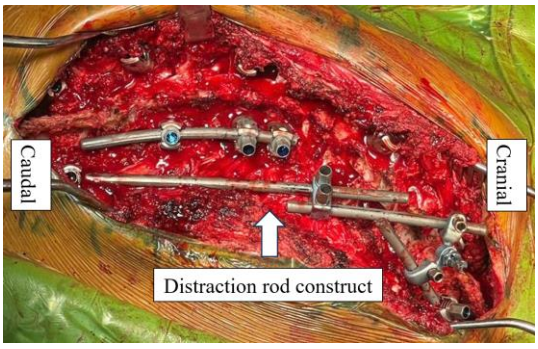

Figure 2: Intra-operative distraction rod configuration.

CONCLUSION:

This case highlights the efficacy and safety of TID as a valuable adjunctive tool in correcting severe kyphoscoliosis without the need of major osteotomy. It allows maximal correction and minimal complications, offering promising results in deformity correction and patient rehabilitation.

REFERENCE:

Buchowski JM, Bhatnagar R, Skaggs DL, Sponseller PD. Temporary internal distraction as an aid to correction of severe scoliosis. J Bone Joint Surg Am. 2006 Sep;88(9):2035-41.