Sub-Laminar Polyester Band Fixation Construct in the Treatment of Neuromuscular Scoliosis: A Preliminary Report

S. Rosenfeld MD, S. Kenney DO MPH, E. Rebich DO

CHOC Children’s Hospital
Orange, California
17 March 2017
Date  March 17, 2017

Sub-Laminar Polyester Band Fixation Construct in the Treatment of Neuromuscular Scoliosis: A Preliminary Report

Samuel R. Rosenfeld, M.D., FAAOS, FAAP, FAOA
Steven Kenney, D.O., M.P.H.
Eric Rebich, D.O.

CHOC Children’s Hospital, Orange, California

• Does not intend to discuss commercial products or services.
• Does not intend to discuss non-FDA approved uses of products/providers of services.
Introduction

- Spinal deformity correction is a mainstay in the treatment of neuromuscular scoliosis
- Multiple implants are available including pedicle screws, hooks, wires, and sub laminar bands
- Most constructs using sub laminar bands are hybrid constructs especially at the most cephalad level of correction
- Thoracic pedicle screws pose significant risk of injury to contiguous structures, especially neurologic and vascular, and may plow during reduction maneuvers
Purpose

- The purpose of this study was to assess outcomes of a predominant sub laminar band construct used to treat pediatric neuromuscular scoliosis
Methodology

• Retrospective review of 28 cases
• Single surgeon at single center
• Correction calculated by comparing pre operative and post operative radiographs
• Clinical outcomes including complications assessed
• Perioperative data including EBL and duration of surgery were analyzed.
• In the patients with Spina Bifida, pedicle screw fixation was utilized only in the dysraphic spinal elements.

• Pelvic fixation included iliac and sacral implants
Results

• 28 patients with neuromuscular scoliosis included
• Cases included from 2013-2016
• Average post operative coronal correction was 53% (0-92%)
• Sagittal balance was corrected to within 2 cm of C7 plumb line in 76% of patients
Results

• Average lumbar lordosis angle was within normal limits
• Average thoracic kyphosis angle increased by 9 degrees post operatively
• Average post operative pelvic obliquity decreased by 50% post operatively.
Results

• Average blood loss lower than that reported in pedicle and hybrid surgeries (1600ml)
• Average surgical time 294min
• Complications
  • 1 post operative seroma that required I&D
  • 10 minor complications that resolved without permanent effect and did not require procedure in the operating room
Discussion

• Sub laminar band constructs are viable treatment options with comparable and sometimes improved outcomes compared to other fixation constructs.

• To our knowledge this study is the only study that investigates outcomes of constructs that include sub laminar bands at the top of the construct.
Discussion

• Sub laminar bands may be easier to place and with less complications than other devices such as pedicle screws.
• 2 year data on all patients is needed to evaluate maintenance of deformity correction.
References


