

### Introduction

Thoracic kyphosis can result in neurologic deficits, pain, and cardiopulmonary dysfunction. Vertebral column resection (VCR) is a powerful technique that can be employed for large curves and fixed deformities. This study reports the outcomes of posterior VCR for adult spinal deformity (ASD) with severe thoracic kyphosis.

## Methods

Retrospective review of all ASD patients who underwent posterior VCR for severe thoracic kyphosis (defined as segmental kyphosis greater than 80 degrees) was performed. Patients with kyphosis secondary to trauma, tumor, or infection were excluded. Perioperative, radiographic, and minimum 2-year outcomes were assessed.

## Results

Nineteen patients were included. Mean age was 57.1 years and 31.6% were male. Mean preoperative sagittal vertical axis (SVA) was 57.7 mm and thoracic kyphosis was 92.2 degrees. Among 19 patients, 24 VCR were performed. Mean blood loss was 2188 ml. Perioperative complication rate was 36.8% and mortality rate was 5.3%. Mean postoperative SVA was 42.3 mm and thoracic kyphosis was 58.1 degrees. Incidence of junctional failure at 2-years follow-up was 14.8%: one proximal and two distal. All patients with junctional disease required reoperation. At mean 35.7 months follow up, 61.1% of patients reported significant reduction of back pain and 50.0% were able to reduce their dose of opioid medications.

## Conclusions

Single stage posterior VCR is a powerful technique for the correction of severe thoracic kyphosis. Perioperative morbidity can be high, but a majority of patients fare well at follow-up. Junctional disease occurs both proximal and distal; surgeons should continue to implement strategies to minimize distal junctional disease.

# Learning Objectives

By the conclusion of this session, participants should be able to:

1) Describe the efficacy of posterior single-stage vertebral column resection for correction of severe thoracic kyphosis in adult spinal deformity patients

2) Describe the incidence of complications following VCR for thoracic kyphosis in adult spinal deformity patients

3) Understand the incidence of junctional disease following VCR for thoracic kyphosis

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