# Evaluation of Clinical Outcomes of Vertebrectomy for Malignancy Based on Spine Instability Neoplastic Score (SINS)

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## Introduction

The Spine Instability Neoplastic Score has become the primary assessment tool to describe neoplasia-related instability. The clinical prognostic value of this tool, in the context of vertebrectomy for neoplasia, has not yet been established.

## Methods

A retrospective analysis of 141 patients who underwent vertebrectomy for malignancy between 2006 and 2016 at a single hospital was performed. Primary outcomes assessed included mortality, survival days, neurological improvement and complications stratified by SINS score. Secondary outcomes included operative time, blood loss and transfusion, delayed neurological deterioration, construct failure and length of inpatient stay.

## Results

68 (48.2%) had indeterminate stability (SINS 7-12), 66 (46.8%) were unstable (SINS 13-18) and no patients were stable (SINS 0-6). 96 patients had died at the time of review, with a mean survival days of 465. The unstable group had a mean survival of 279 days compared to 689 days in the indeterminate group (p=0.007). Only 5 patients experienced a neurological deterioration to an unfavourable grade (A, B or C) post-operatively. There was no significant difference between SINS groups and post-operative Frankel grade (p=0.737). There were 32% complication rate (12.1% minor and 19.9% major) with no significant difference found in complications between the indeterminate and unstable patients (p=0.845). Operative time was significantly longer in the indeterminate group (264 minutes) compared to the unstable group (219 minutes, p= 0.022) but there was no difference between groups with respect to blood loss (p= 0.140), length of stay (p=0.380) or delayed construct failure (p=0.362).

## Conclusions

This is the first large scale series evaluating vertebrectomy outcomes in relation to SINS score. It demonstrates a significant difference in survival days post procedure between those in the indeterminate and the unstable SINS groups. No difference in complications, neurological outcomes or blood loss was seen. The operative time was significantly longer in the indeterminate group.

## Learning Objectives

By the conclusion of this session, participants should have an understanding of the clinical outcomes associated with the Spine Instability Neoplastic Score in relation to vertebrectomy for malignancy

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