

Complications Associated with Surgery for Spinal Metastases: a Multivariable Analysis

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Introduction

Metastases to the spine occur from a variety of primary malignancies. Surgery on these patients can be challenging with a substantial risk of complications. We present a single-center experience of 189 consecutive patients who underwent surgery for spinal metastases, and share our insights regarding complications.

Methods

Charts of 189 patients who underwent surgery for spinal metastases over 5 years from October 2011 through February 2017 were reviewed for complications and possible contributing factors. A multivariate analysis was performed for patient demographic and surgical parameters that predict complications.

Table 1. Complication Rates	
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Incidence rate of any complication	20%
Medical Complications	
Urinary tract infection	10%
Deep vein thrombosis / Pulmonary embolism	5%
Pneumonia	3%
Myocardial infarction	1%
Surgical Complications	
Wound infection	3%
New neurologic deficit	2%

Table 2. Survival Rates

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Average 30-day survival 87% Average 90-day survival 65%

Results

Complications were identified in 20% of all patients who underwent surgery for spine metastases. Medical complications included: urinary tract infection, 10%; deep vein thrombosis/pulmonary embolism, 5%; pneumonia, 3% and myocardial infarction, 1%. Surgical complications included: wound infection, 3%; and new neurologic deficit, 2%. Average thirty-day survival was 87%. Average ninety-day survival was 65%. Age > 65, prior radiation, and multiple metastases were all predictive of complications at a statistically significant threshold of p < 0.05.

Conclusions

Surgery for spinal metastases is associated with a relatively high complication rate. Medical complications are more common than surgical complications. Age > 65, prior radiation, and multiple metastases were all predictive of complications. Optimization of co-morbid conditions by a multidisciplinary team may help reduce medical complications associated with surgery for spinal metastases.

Table 3. Factors Predictive of Complication (p < 0.05)

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Age > 65 Prior radiation Multiple metastases

Learning Objectives

By the conclusion of this session, participants should be able to: 1) describe the most relevant complication rates for patients undergoing surgery for spinal metastases, and 2) discuss the relative implications of post-operative management options on complication rates.