

Timing of Adjuvant Radiotherapy Is Not Associated with Wound-related Complications Among Patients with Spinal Metastatic Disease

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Introduction

Spinal metastases can be managed effectively with surgical decompression followed by adjuvant radiation therapy (RT). The optimal timing of adjuvant RT, which must strike a balance between oncologic control and not precipitating wound-related complications, remains undetermined.

Methods

We identified 842 patients (44.5% female; mean age 58.2 years; mean follow up 397.3 days) with spinal metastases who received surgical decompression in the MarketScan database from 2007 through 2014. We computed the time to adjuvant conventional RT, defining early RT as within 1-4 weeks of surgery and delayed RT as within 5-8 weeks of surgery. Multi-variable Cox regression modeling was utilized to assess the impact of RT timing on wound-related complications, adjusting for age, sex, systemic chemotherapy, instrumentation, and number of levels. Sensitivity analyses were conducted, systematically varying the definitions of early and delayed RT.

Results

The most common primary malignancies were lung (17.7%) and breast cancer (15.2%). Nearly 20% of patients received systemic chemotherapy before surgery and 71.1% of patients received adjuvant RT within 8 weeks of surgery. Of patients receiving adjuvant RT, slightly early RT was slightly more common (52.8%) than delayed RT (47.2%), with week four following surgery being the most common time of receiving RT (22.2%). Wound-related complications were observed in 2.8% of patients. We found no difference in likelihood of wound-related complications between the early and delayed RT groups in the adjusted Cox regressions (HR=0.86, P=0.75). Notably, we observed a trend towards significance for women to develop wound-related complications (HR=2.8, P=0.05).

Conclusions

There is no consensus regarding the optimal timing of adjuvant RT following surgical decompression for spinal metastasis, which likely contributes to the variation in timing that we observed in this cohort. Our findings indicate minimal impact of the timing of adjuvant RT on wound-related complications in this population and suggest that early RT may enable expedient oncologic control.

Learning Objectives

1. There is no consensus regarding the optimal timing of adjuvant RT following surgical decompression for spinal metastasis.
2. There is marked variation in timing of adjuvant RT for patients with spinal metastases.
3. Our findings indicate minimal impact of the timing of adjuvant RT on wound-related complications in this population.

