

Comparison of Clinical Outcomes Based on Target Delineation in Patients Treated with Stereotactic Body Radiotherapy (SBRT) for Spinal Metastases

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Introduction

We compare tumor control, rates of compression fracture, and pain control for patients treated with stereotactic body radiotherapy (SBRT) for spinal metastases treated to lesion only (LO) versus the full vertebral body (FVB).

Methods

126 spinal metastases in 84 patients were treated with single-fraction stereotactic body radiotherapy between January 2009 to February 2015. Thirty-six lesions (29%) were treated to the FVB, and the remainder were treated to the LO. Radiation plans were reviewed to determine the treatment volume. Odds ratios were used to compare rates of compression fracture and local failure.

Results

There were 5 failures in the FVB group and 17 in the LO group (19% failure rate). There was no statistically significant difference in rates of failure in the FVB group vs. the LO group. Odds ratio for failure was 1.4 (95% CI 0.5-4.7). 75 lesions had pain scores pre-SBRT and 46 had pain scores post-SBRT. There was no difference in pain reduction between groups (Fisher's test $p = 0.9$). There were 7 post-treatment compression fractures in the LO group and 4 in the FVB group. On multiple logistic regression analysis, minimum dose to PTV was a significant predictor of local treatment failure.

Conclusions

Given the results of a lack of difference in tumor control between patients treated to the FVB vs. LO, as well as an increased risk of compression fracture in the FVB, it may be reasonable to consider treating with SBRT to the LO in select patients if small, anterior, and it would not interfere with reirradiation in the case of recurrence or presentation of another nearby metastasis.

Learning Objectives

By the conclusion of this session, participants should be able to describe 1) the difference between lesion only versus vertebral body radiation and 2) contributors to local treatment failure for radiation therapy to metastatic spinal disease.

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