

Radiosurgery for spinal metastases: Clinical experience in 500 cases from a single institution

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Abstract:

STUDY DESIGN: A prospective nonrandomized, longitudinal cohort study. **OBJECTIVE:** To evaluate the clinical outcomes of single-fraction radiosurgery as part of the management of metastatic spine tumors.

SUMMARY OF BACKGROUND DATA: The role of stereotactic radiosurgery for the treatment of spinal lesions has previously been limited by the availability of effective target immobilization and target tracking devices. Large clinical experience with spinal radiosurgery to properly assess clinical experience has previously been limited. **METHODS:** A cohort of 500 cases of spinal metastases underwent radiosurgery. Ages ranged from 18 to 85 years (mean 56). Lesion location included 73 cervical, 212 thoracic, 112 lumbar, and 103 sacral. **RESULTS:** The maximum intratumoral dose ranged from 12.5 to 25 Gy (mean 20). Tumor volume ranged from 0.20 to 264 mL (mean 46). Long-term pain improvement occurred in 290 of 336 cases (86%). Long-term tumor control was demonstrated in 90% of lesions treated with radiosurgery as a primary treatment modality and in 88% of lesions treated for radiographic tumor progression. Twenty-seven of 32 cases (84%) with a progressive neurologic deficit before treatment experienced at least some clinical improvement.

CONCLUSIONS: The results indicate the potential of radiosurgery in the treatment of patients with spinal metastases, especially those with solitary sites of spine involvement, to improve long-term palliation.

Comments:

Strengths/uniqueness:

This paper addresses the efficacy of radiosurgery as a relevant up and coming treatment option for treating spinal metastases. The study involves a large number of participants with a variety of primary malignancies with a respectable median follow-up time of 21 months.

Weakness:

A protocol for participant follow-up was not used and as such follow-up varied greatly between patients. Radiological progression and change in neurological progression were not defined and subjectively evaluated by two authors leaving room for bias in the results.

Relevance to Palliative Care

In recent years radiosurgery for treatment of intracranial malignancies and metastases has been increasingly used. The methods used in this study are an extension of this present technology and may be widely available in the foreseeable future.