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1: [J Neurooncol.](#) 2009 Apr 21. [Epub ahead of print]



Whole-brain radiotherapy and tumor bed radiosurgery following resection of solitary brain metastases.

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A standard approach to solitary brain metastases is resection followed by whole-brain radiation therapy (WBRT). Despite WBRT, the tumor bed remains a common site of failure. We reviewed outcomes following adjuvant WBRT with tumor bed radiosurgery (SRS). We retrospectively identified patients having undergone neurosurgical resection of a single brain metastasis followed by adjuvant WBRT and tumor bed SRS. SRS dose selection was independent of target volume (10 Gy peripheral dose). Outcomes were calculated actuarially. Patients were censored for local control at the time of last imaging. From 2005 to 2008, 27 patients were treated with WBRT and tumor bed SRS. Median age was 58.7 years, median KPS 80%. The primary malignancy was non-small cell lung cancer in 70%. Median follow-up was 9.7 months. Following the combination of surgery, WBRT and SRS the median overall survival was 17.6 months. Actuarial 2-year local control was 94%. The SRS boost was well tolerated with one patient (4%) requiring reoperation for symptomatic radiation necrosis 16 months post treatment. Radiosurgery can be safely added to WBRT as an adjuvant treatment following resection of a single brain metastasis. In our retrospective series, this combination treatment produced a high rate of local control.

PMID: 19381439 [PubMed - as supplied by publisher]
