

Journal Article



Single session stereotactic radiosurgery boost to the post-operative site in lieu of whole brain radiation in metastatic brain disease

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Abstract *Purpose* Whole brain radiation (WBXRT) reduces the incidence of local and distant recurrence following resection of metastatic brain disease but does not prolong life and may entail neurocognitive decline. We employed a novel treatment modality of providing a single-session stereotactic radiosurgery (SRS) boost to the surgical resection site to achieve local control without the risk of cognitive effects. *Methods* We reviewed all patients at our institution that were treated with SRS to the post-operative bed following resection of a metastatic brain deposit. *Results* There were 32 patients identified (16 F) and median age was 60 years. One lesion was resected in all patients of whom 21 were solitary (eight with two lesions, three with three). Median survival was 16.4 months with a 14 month median follow-up. Factors which improved survival were solitary tumor, age <65 and RPA 1, although none achieved statistical significance. In the Cox multivariate analysis only smaller post-operative treatment volume correlated with survival ($P = .04$). There were two local recurrences (6.25%) to the surgical site and four patients required SRS for new lesions. Nine patients ultimately required salvage WBXRT (3/21 solitary v. 6/11 multiple lesions, $P = .03 \chi^2$), two for local recurrence post resection and seven for diffuse new disease. *Conclusion* The use of SRS to the surgical site results in local recurrence rates comparable to WBXRT and is associated with excellent survival. Over 70% of patients managed this way were spared WBXRT. The presence of multiple lesions on presentation is predictive of the need for subsequent salvage WBXRT.

Keywords Brain metastasis - Outcome - Radiation - Radiosurgery - Resection

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References secured to subscribers.

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