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1: [Neurosurgery](#). 2009 Feb;64(2 Suppl):A26-32.



Cyberknife for brain metastases of malignant melanoma and renal cell carcinoma.

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OBJECTIVE: To evaluate the efficacy of CyberKnife (Accuray, Inc., Sunnyvale, CA) stereotactic radiosurgery (SRS) for patients with brain metastases of malignant melanoma and renal cell carcinoma. **METHODS:** We conducted a retrospective review of all patients treated by image-guided radiosurgery at our institution between March 1999 and December 2005. Sixty-two patients with 145 brain metastases of renal cell carcinoma or melanoma were identified. **RESULTS:** The median follow-up period was 10.5 months. Forty-four patients had malignant melanoma, and 18 patients had renal cell carcinoma. The median age was 57 years, and patients were classified as recursive partitioning analysis Class 1 (6 patients), 2 (52 patients) or 3 (4 patients). Thirty-three patients had been treated systemically with either chemotherapy or immunotherapy, and 33 patients were taking corticosteroids at the time of treatment. The mean tumor volume was 1.47 mL (range, 0.02-35.7 mL), and the mean prescribed dose was 20 Gy (range, 14-24 Gy). The median survival after SRS was 8.3 months. Actuarial survival at 6 and 12 months was 57 and 37%, respectively. On multivariate analysis, Karnofsky Performance Scale score ($P < 0.01$) and previous immunotherapy/clinical trial ($P = 0.01$) significantly affected overall survival. One-year intracranial progression-free survival was 38%, and local control was 87%. Intracranial control was impacted by whole-brain radiotherapy ($P = 0.01$), previous chemotherapy ($P = 0.01$), and control of the primary at the time of SRS ($P = 0.02$). Surgical resection had no effect on intracranial or local control. Radiographic evidence of radiation necrosis developed in 4 patients (6%). **CONCLUSION:** CyberKnife radiosurgery provided excellent local control with acceptable toxicity in patients with melanoma or renal cell brain metastases. Initial SRS alone appeared to be a reasonable option, as survival was dictated by systemic disease.

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