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Management of newly diagnosed single brain metastasis with surgical resection and permanent I-125 seeds without upfront whole brain radiotherapy.

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In this retrospective study, we evaluate the efficacy of surgical resection and I-125 seeds, without upfront whole brain radiotherapy (WBRT), for newly diagnosed single brain metastasis. About 40 women and 32 men underwent gross total resection and placement of permanent low-activity I-125 seeds at our institution (1997-2007). Primary systemic cancer sites varied. At follow-up (median 16 months), local control rate was 93%. Distant brain failures occurred in 23 (32%) patients: 5 patients within 3 months and 18 patients >3 months; brain failure underwent further treatment (i.e., radiosurgery in 13, WBRT in 5, surgical resection with I-125 seeds in 2). Four patients developed radiation necrosis. All 72 patients had stable or improved Karnofsky Performance Score at 1 month after surgery. Median actuarial survival rate was 14 months; 2-year survival rate was 27%. Permanent I-125 brachytherapy at initial operation without WBRT provided excellent local control. 67 patients (93%) never required WBRT, thus avoiding potential long-term radiation-induced neurotoxicity.

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