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### Repeated treatments with bevacizumab for recurrent radiation necrosis in patients with malignant brain tumors: a report of 2 cases.

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#### Abstract

Bevacizumab is expected to constitute a new treatment modality for radiation necrosis. In the present cases, we observed a recurrence of radiation necrosis after temporary improvement by bevacizumab treatment. Re-treatment with bevacizumab controlled the necrosis again. A 39-year-old male and a 57-year-old female were diagnosed with glioblastoma and lung cancer metastasis, respectively. The former patient underwent partial resection of the glioblastoma, followed by boron neutron capture therapy (BNCT) and 30 Gy of fractionated X-ray radiotherapy. Eleven months after BNCT, he suffered from left hemiparesis and convulsions with enlargement of a perifocal edema. The latter patient underwent stereotactic radiosurgery twice for the same tumor. Three months after the second radiosurgery, she had an uncontrollable convulsion and right hemiplegia with a massive perifocal edema. Both lesions were suggested to be radiation necroses by positron emission tomography using amino acids as a tracer. Neither patient responded to corticosteroids, anticoagulants, or vitamin E. They underwent treatment with 5 mg/kg bevacizumab biweekly, for a total of 6 cycles. The size of the perifocal edema was clearly reduced in response to the treatments. The neurological status of the patients improved concomitant with therapy. However, the clinical status of both patients was aggravated several months after the bevacizumab was stopped, and the perifocal edemas enlarged again. The patients underwent a second treatment with bevacizumab, and the perifocal edemas again decreased. Although radiation necrosis may recur several months after bevacizumab treatment, repeated bevacizumab treatments also appear to be effective.

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