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Reirradiation for Recurrent Meningioma

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Purpose/Objective(s)

Management options for meningioma include observation, surgical resection, and radiation therapy (RT). In cases of progressive or recurrent disease after RT, similar options exist. The control rate following a second course of RT is unknown.

Material/Methods

We reviewed an institutional database of patients treated with stereotactic radiosurgery (SRS) or fractionated stereotactic radiotherapy (fSRT) for meningioma. Patients who underwent two or more courses of RT for disease recurrence or progression were identified. Clinical, treatment, and outcome data for these patients were recorded. Disease progression was defined as documented growth on follow-up imaging or additional intervention.

Results

Six-hundred-fifty-one (651) patients were treated with RT for meningioma from 1995 to 2009. Of those, 18 patients who underwent reirradiation for recurrent or progressive meningioma and follow-up imaging were identified. Thirteen (13) patients underwent surgical resection before the first course of RT, and 6 patients underwent surgical resection between courses of RT. Median interval between courses of RT was 42 months (range 3-93). Ten (10) patients were treated with SRS (14-18 Gy), and 8 were treated with fSRT (35.0-54.0 Gy).

With median follow-up time of 31 months (range 2-105), 11 patients (61%) were found to progress after reirradiation, at a median of 10 months (range 5-57) following completion of treatment. Kaplan-Meier estimates of freedom from progression (FFP) at 1, 2, and 3 years were 65%, 65%, and 49%, respectively.

Seven patients (39%) were shown to have atypical or malignant histology on biopsy or surgical resection at some point in their treatment course. Median time to progression for these patients was 8 months. Median time to progression has not been reached for other patients. FFP at 1 year for patients with atypical or malignant tumors was 17%, compared to 90% for grade 1/unbiopsied tumors ($p < 0.01$).

Conclusion

Reirradiation for recurrent or progressive meningioma yields modest tumor control rates. Outcomes are poor in patients with high-grade tumors.