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Hypofractionated radiosurgery for benign perioptic tumors: Tumor control and visual outcome

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Statement of the Problem: To investigate the relationship between dosimetric factors, tumor control rate, and occurrence of RION among 42 patients treated with hypofractionated radiosurgery.

Methodology & Theoretical Orientation: From June 2011 to July 2015, 42 patients with perioptic tumor underwent hypofractionated radiosurgery (hSRS) at Asan Medical Center. Among 42 patients, 22 patients (52%) had a meningioma, 10 patients (24%) had a pituitary adenoma, four patients (10%) had a craniopharyngioma, four patients (10%) had a hemangioma, and two patients (5%) had a schwannoma. All tumors were located within 2 mm of the anterior visual pathway. 16 patients (38%) had undergone previous tumor resection, one patient (3%) had previously been treated with hSRS and no patient had previously treated with conventional fractionated radiotherapy. Hypofractionated radiosurgery was delivered in five sessions. Radiologic and ophthalmologic evaluations were performed preoperatively, and three and six months after hSRS and then annually. The average prescribed dose was 27.3 Gy.

Findings: The mean follow-up was 22 months (range, 6-44 months). Tumor control was achieved in 40 patients (95%). Visual function improved in 13 patients (31%), showed no interval change in 25 patients (60%), whereas three patients (7%) experienced a worsening of visual function. Among three patients, two patients experienced deterioration of visual function due to tumor growth. One patient (2.4%) suffered a radiation-induced optic neuropathy.

Conclusion & Significance: Hypofractionated radiosurgery is safe and effective treatment modality for treating benign perioptic tumors. We advocate hypofractionated radiosurgery can be a treatment alternative for patients who are not eligible for surgery.

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