Gamma Knife surgery in the treatment paradigm for foramen magnum meningiomas.


Abstract

Object Microsurgical management of foramen magnum meningiomas (FMMs) can be associated with significant morbidity and mortality. Stereotactic radiosurgery may be an efficient and safe alternative treatment modality for such tumors. The object of this study was to increase the documented experience with Gamma Knife surgery (GKS) for FMMs and to delineate its role in an overall management paradigm.

Methods The authors report on their experience with 24 patients harboring FMMs managed with GKS. Twelve patients had primary symptomatic tumors, 5 had asymptomatic but enlarging primary tumors, and 7 had recurrent or residual tumors after a prior surgery. Results Follow-up clinical and imaging data were available in 21 patients at a median follow-up of 47 months (range 3-128 months). Ten patients had measurable tumor regression, which was defined as an overall volume reduction > 25%. Eleven patients had no further tumor growth. Two patients died as a result of advanced comorbidities before follow-up imaging. One patient was living 8 years after GKS but had no clinical evaluation. Ten of 17 symptomatic patients with at least 6 months of follow-up had symptom improvement, and 7 remained clinically stable. Smaller tumors were more likely to regress. No patient suffered an adverse radiation effect after radiosurgery. Conclusions Gamma Knife surgery was a safe management strategy for small, minimally symptomatic, or growing FMMs as well as for residual tumors following conservative microsurgical removal.

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