

Abducens nerve schwannoma

Abducens nerve (AN) schwannomas are very rare, and there is limited literature on their optimal management. Therapeutic options include surgery and/or stereotactic radiosurgery. The aim of this study was to evaluate the role of Gamma Knife radiosurgery (GKRS) in these sixth cranial nerve (CN) schwannomas. **METHODS** The authors performed a retrospective analysis of patients who had undergone GKRS for intracranial tumors at their institute in the period from 2003 to 2010. Inclusion criteria were as follows: isolated AN paresis on presentation, a lesion along the course of the sixth CN, and imaging features characteristic of a schwannoma. Patients with other CN deficits and neurofibromatosis Type 2 were excluded. Symptomatic improvement was defined as the resolution of or an improvement in diplopia noted on a subjective basis or as an improvement in lateral eyeball excursion noted objectively on follow-up. A reduction in tumor volume by at least 20%, as noted by comparing the pre- and post-GKRS images, was deemed significant. **RESULTS** Six patients with a mean age of 37.1 years (range 17-55 years) underwent primary GKRS. There were 2 prepontine cistern, 3 cavernous sinus, and 1 cisterno-cavernous tumor. The mean duration of symptoms was 6.1 months (range 3-12 months). The mean tumor volume was 3.3 cm³ (range 1.5-4.8 cm³). The mean tumor margin radiation dose was 12.5 Gy (range 12-14 Gy), while the median margin dose was 12 Gy (50% isodose line). The median number of isocenters used was 5 (range 4-8). The brainstem received an average 8.35-Gy radiation dosage (range 5.5-11 Gy). The mean follow-up duration was 44.3 months (range 24-78 months). Symptoms remained stable in 1 patient, improved in 3, and resolved in 2 (total improvement 83%). Magnetic resonance imaging at the last follow-up showed a stable tumor size in 3 patients (50%) and a reduction in the other 3. Thus, the tumor control rate achieved was 100%. No new CN deficits were noted. **CONCLUSIONS** Abducens nerve schwannomas are rare intracranial tumors. They can be cavernous, cisternal, or cisterno-cavernous in location. Excellent tumor control rates and symptomatic improvement can be achieved with GKRS, which appears to be a safe and effective, minimally invasive modality for the treatment of such lesions. Therefore, it is reasonable to consider GKRS as the initial treatment of choice for this rare pathology. Long-term follow-up will be essential for further recommendations ¹⁾.

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Prasad GL, Sharma MS, Kale SS, Agrawal D, Singh M, Sharma BS. Gamma Knife radiosurgery in the treatment of abducens nerve schwannomas: a retrospective study. J Neurosurg. 2016 Jan 29:1-6. [Epub ahead of print] PubMed PMID: 26824380.

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Last update: **2024/06/07 02:51**

