

## Gamma Knife Radiosurgery for Glomus Tumors: Long Term Results of a Single Institution Experience of Thirty-Three Patients

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### Abstract

**Objectives:**

Glomus tumors (both glomus jugulare and glomus tympanicum) are relatively uncommon, benign, hypervascular tumors. Surgery has been the standard of treatment for patients with these tumors, with great risk of morbidity due to their vascularity and involvement of cranial nerves. Gamma Knife radiosurgery (GKRS) now represents a more common approach to management of these tumors, and the goal of this study is to examine the long term results of patients treated with GKRS at a single institution.

**Methods:**

From 2008 to 2023, 33 patients were treated for glomus tumor with GKRS. There were 9 patients with glomus tympanicum, and 24 patients with glomus jugulare tumors. GKRS was the primary treatment modality in 24/33 (73%) of patients, and surgery preceded GKRS in 9/33 (27%) of patients. The median tumor volume was 5.2 cm<sup>3</sup> (range 0.3 - 27.2 cm<sup>3</sup>), and median dose to the tumor periphery was 15 Gy (range 12 - 17 Gy). The median follow-up was 21 months (range 0 - 140 months).

**Results:**

For patients with glomus jugulare tumors, the most common presenting symptom was tinnitus in 15/24 (63%) patients. Other presenting symptoms included vertigo (38%), hearing loss (33%), facial palsy (25%), and dysphagia (21%).

For patients with glomus tympanicum tumors, the most common presenting symptoms were tinnitus in 7/9 (78%), otalgia in 7/9 (78%), and hearing loss in 7/9 (78%) patients. Patients also presented with vertigo in 33% of cases.

82% (27/33) of patients had a durable improvement of their symptoms, without symptomatic progression at their latest follow-up. Tumor volume was not associated with progression of disease (p=0.27).

**Conclusion(s):**

GKRS is an effective treatment for both glomus jugulare and glomus tympanicum tumors, with a durable clinical response in the majority of treated patients.