Multi-Disciplinary Management of Skull Base Paragangliomas

Gregory P. Lekovic MD, PhD
House Institute

Introduction

The management of paragangliomas of the skull base requires cooperation between neurosurgery, neurotology and radiation oncology. Gross total resection may be curative but is associated with high morbidity. Multi-disciplinary management with resection, partial resection, and/ or stereotactic radiosurgery (SRS) may lessen morbidity without sacrificing tumor control.

Methods

The records of all patients with skull base paraganglioma treated by the author between August 2008 and December 2011 were retrospectively reviewed.

Results

Sixteen tumors underwent treatment in a total of 11 patients (5F:6M; age 14-86); four patients had multiple paragangliomas. Tumor type was glomus vagale (n=6); jugulare (n=5); tympanicum (n=1), facialis (n=1), and carotid body tumor (n=3). Indications included growth, symptomatic presentation, or mass effect. One patient presented with an endocrinologically active tumor. Treatment consisted of microsurgery (n=4), partial resection followed by radiosurgery (n=4), or primary radiosurgery (n=8). Microsurgery was reserved for carotid body tumor and for decompression of the facial nerve in a patient with glomus facialis. Partial neurotological resection followed by SRS was performed on tumors with extension into the middle ear in order to treat symptoms (tinnitus, conductive hearing loss) and minimize cochlear radiation exposure. Four patients underwent single session, frame-based SRS and eight underwent hypofractionated, frameless SRS.

Follow up ranged from 3- 42 months. No tumors progressed after treatment. No difference was seen in tumor control rates or complications between patients treated with single fraction vs hypofractionated SRS. No patient lost serviceable hearing. Complications following treatment included transient swallowing difficulty (n=1), neck swelling (n=2), and facial paresis (n=1). There were no other permanent cranial neuropathies.

Conclusions

Multidisciplinary management of skull base paraganglioma provides high levels of tumor control and may reduce risk to hearing and other cranial nerves. Longer follow up is necessary to confirm the durability of these benefits.