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Preservation of Facial Nerve Function in the Resection of Large Vestibular Schwannoma: Our Institutional Experience

Jehad Zakaria MD; Kurt Grahnke BA; Loren Riedy BS; Caroline Szujewski; John P. Leonetti MD; Douglas E. Anderson MD, FAANS

[Institution]

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Introduction

The ideal treatment for large Vestibular Schwannomas (VS) is complete removal with preservation of neurologic function. However, several recent streams of information made it clear that facial nerve (FN) preservation appropriately eclipsed gross total resection as the primary goal of surgery. We present data from large VS with objective intraoperative quantification of residual tumor size and analyze factors related to tumor control and FN preservation.

Methods

We retrospectively reviewed 872 cases of VS operated on at our institution and confined this study to those who were operated on between 2005-2017 with tumors > 2.5 cm in largest extracanicular diameter (n=170). We analyzed patient demographics, presenting symptoms, and extent of resection (documented by intraoperative measurements of residual tumor size) with respect to tumor control and FN outcomes.

Results

Average age was 49 (range: 9-79). Average tumor size was 3.3cm with the largest tumor measuring 7.0 cm in greatest diameter. At last follow-up 85% of patients had good FN function (HB I & II), 9% had moderate FN function (HB III) and 6% had poor FN function (HB IV-VII). In total, 68 patients (40%) had residual tumors postoperatively with an average longest of diameter 8mm. Seven patients (4%) required retreatment in the form of radiosurgery (n=2) and repeat surgical resection (n=5). Patients who required retreatment tended to have larger residuals (14.9mm) than those who did not (7.9mm), but this was not statistically significant. Additionally, all patients requiring retreatment in any form had good (n=6) or moderate (n=1) FN function

Learning Objectives

- gross total resection of VS is ideal, however, functional outcome in regards to facial nerve function is critical

- special attention should be paid to facial nerve function in the resection of VS

- subtotal resection with facial nerve preservation is an acceptable outcome from both a functional and oncologic perspective

References

Conclusions

We suggest leaving tumor behind in VS surgery is a viable option in order to preserve good FN function. While the percentage of patients requiring retreatment is low, it is possible to sustain good FN function in these cases. Additionally, the amount of tumor left behind may be an important factor for predicting recurrence.