

Cervical Dumbbell-Shaped Schwannoma

- A rare case of dumbbell shaped ancient schwannoma found inside thoracic spine in a psychologically challenged patient
- Tumour distribution and characteristics associated with poor surgical outcomes in patients with sporadic spinal schwannomas
- Case report: Microsurgical resection of a giant triple dumbbell shaped jugular foramen Schwannoma via retrosigmoid and transcervical approach
- A Complete Facet Resection and Cervical Pedicle Screw Placement Enhances Both Gross Total Resection and Motion Preservation for the Cervical Spinal Dumbbell Tumor
- Primary Spinal Malignant Melanoma Mimicking a Cervical Nerve Root Schwannoma: Case Report and Literature Review
- Surgical Strategy for Dumbbell-Shaped Cervical Schwannoma at the Vicinity of the Vertebral Artery: The Utilization of Anatomic Layer
- Resection of Cervical Dumbbell-Shaped Schwannoma Using Posterior Unilateral Approach: Impact on Postoperative Cervical Function and Clinical Outcomes
- Microsurgical Resection of Dumbbell-Shaped Jugular Foramen Schwannoma Using the Transmastoid Presigmoid Approach: 2-Dimensional Operative Video

The purpose of our study was to investigate the risk factors of **remnant** tumor growth after incomplete resection (IR) of cervical dumbbell-shaped schwannomas (DS).

Methods: Twenty-one patients with IR of cervical DS with at least 2 years of follow-up were included and were divided into 2 groups: the remnant tumor growth (G) (n = 10) and no growth (NG) (n = 11) groups. The tumor location in the axial plane according to Toyama classification, the location of the remnant tumor margin, and the tumor growth rate (MIB-1 index) index were compared.

Results: No significant differences in Toyama classification and MIB-1 index were found. Age was significantly higher in the G group (61.4 years vs. 47.6 years; $p = 0.030$), but univariate logistic regression analysis revealed little correlation to the growth (odds ratio [OR], 1.08; 95% confidence interval [CI], 1.001-1.166; $p = 0.047$). Seventeen patients (9 in the G and 8 in the NG group) underwent the posterior one-way approach, and significant differences in the location of the remnant tumor margin were confirmed: within the spinal canal in 1 and 0 case, at the entrance of the intervertebral foramen in 7 and 1 cases, and in the foramen distal from the entrance in 1 and 7 cases, in the G and NG groups, respectively ($p = 0.007$). The proximal margin was identified as a significant predictor of the growth (OR, 56.0; 95% CI, 2.93-1,072; $p = 0.008$).

Conclusion: Remnant tumors with margins distally away from the entrance of the foramen were less likely to grow after IR of cervical DS. ¹⁾

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Endo T. Commentary on “Remnant Tumor Margin as Predictive Factor for Its Growth After Incomplete Resection of Cervical Dumbbell-Shaped Schwannomas”. Neurospine. 2022 Mar;19(1):41-42. doi: 10.14245/ns.2244202.101. Epub 2022 Mar 31. PMID: 35378580; PMCID: PMC8987541.

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