

## **Accelerated Early Progression of Residual High Cervical Dumbbell Schwannoma Following Subtotal Resection: A Case Report**

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### **Case Presentation**

A 65-year-old female presented with a two-week history of progressive gait instability and right-sided weakness. Neurologic examination demonstrated spastic gait and right-sided hemiparesis with brisk reflexes and ankle clonus, consistent with cervical myelopathy.

MRI of the cervical spine revealed a 3.5 × 1.1 × 1.6 cm intradural extramedullary mass at C2–C3 with extension into the right neural foramen producing severe spinal cord compression. Imaging findings were consistent with a dumbbell-shaped schwannoma. CTA demonstrated no vertebral artery involvement.

The patient underwent posterior C2 laminectomy and partial C3 laminectomy. The intradural component was resected using microsurgical techniques, achieving decompression of the spinal cord. A substantial foraminal component was intentionally left in situ to preserve neurologic function and avoid instability associated with aggressive foraminal resection. Pathology confirmed benign schwannoma without atypia.

Postoperative MRI demonstrated adequate decompression with residual tumor measuring 2.4 × 1.2 × 1.7 cm within the neural foramen. The patient experienced complete neurologic recovery.

Four months later, she developed recurrent right-hand numbness. Surveillance MRI demonstrated enlargement of the residual tumor to 3.4 × 1.4 × 1.9 cm with recurrent spinal cord compression. Revision posterior decompression and resection were performed, and pathology again confirmed benign schwannoma. Given the rapid regrowth of the residual lesion, the patient subsequently underwent fractionated external-beam radiation therapy. At follow-up, she remained neurologically intact with stable residual tumor volume.

### **Discussion**

Spinal schwannomas are benign nerve sheath tumors that typically demonstrate slow growth and favorable outcomes following gross total resection. However, cervical location and dumbbell morphology frequently necessitate subtotal resection due to anatomic constraints and the need to preserve neurologic function and spinal stability.

Residual schwannomas following subtotal resection generally demonstrate slow progression, with reported linear growth rates typically ranging from 1 to 6 mm per year. In contrast, the residual tumor in this case demonstrated substantial enlargement within four months, with growth exceeding rates commonly described in the literature.

This case highlights the importance of careful postoperative surveillance when subtotal resection is required, particularly when substantial residual tumor burden remains. Early detection of tumor progression may allow timely intervention and prevent recurrent spinal cord compression. Management of cervical dumbbell schwannomas requires careful balance between oncologic completeness and preservation of neurologic function and spinal stability.