



## Image Report

# Cervical schwannoma with acute worsening and intratumoral hemorrhage

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## ABSTRACT

**Background:** Primary spinal tumors are rare and include schwannomas. In the cervical region, these lesions can cause pain, radiculopathy, and/or myelopathy.

**Case Description:** A 53-year-old male presented with 9 months of chronic neck pain and left upper extremity radiculopathy/myelopathy. The MRI revealed an intradural extramedullary C6-C7 left-sided mass with foraminal extension. Following a C5-C7 laminectomy with C5-T2 instrumented fusion, the diagnosis of schwannoma with evidence of recent hemorrhage was confirmed by biopsy. Three weeks postoperatively, the patient was pain free, no longer taking opioids, and neurologically intact. Although the MRI 6 months later showed no tumor, the MRI 15 months later documented a recurrent enhancing C6-C7 lesion. The patient elected to be treated with external beam radiotherapy and remained asymptomatic.

**Conclusion:** A 53-year-old underwent resection of a cervical C6-C7 schwannoma with intratumoral hemorrhage. Fifteen months following C5-C7 laminectomy with C5-T2 fusion, the tumor recurred and required external beam radiation therapy.

**Keywords:** Cervical radiculopathy, Cervical schwannoma, Intratumoral hemorrhage, Spinal tumor

## INTRODUCTION

Primary spinal tumors are rare (i.e. 2 cases/100,000/year).<sup>[5]</sup> Schwannomas are benign, slow-growing tumors that constitute approximately 5% of these lesions, with 25–40% being found in the brain or cervical spine.<sup>[7,10]</sup> Patients with acute intratumoral hemorrhages into cervical schwannomas may present with the rapid onset of pain, radiculopathy, and/or myelopathy warranting urgent/emergent resection and stabilization.<sup>[2–4,6,9]</sup>

## CASE ILLUSTRATION

### Initial presentation

A 53-year-old male presented with 9 months of chronic neck pain and worsening left upper extremity radiculopathy. The cervical magnetic resonance imaging (MRI) showed a left-sided C6-C7 intradural extramedullary mass extending into the neural foramen, resulting in cord/root compression [Figure 1].

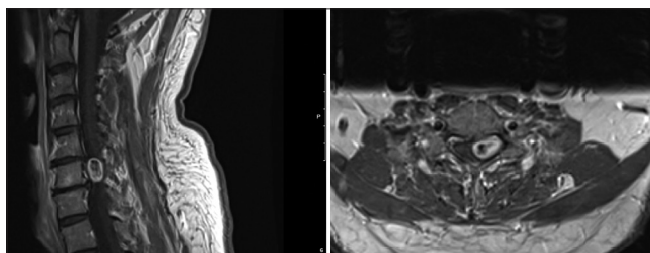
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**Table 1:** Summary of published reports on cervical schwannoma with intratumoral hemorrhage.

Author (year)	Patient age, sex	Spinal level	Symptoms	Surgical procedure
Jung <i>et al.</i> (2019) <sup>[6]</sup>	37, M	C2-C3 (nerve root)	NP, Q, S	C2-C3 HL, EN-B
Gandhoke <i>et al.</i> (2018) <sup>[4]</sup>	38, M	C2-C4	NP, Q, H	C2-C4 Lam, EN-B DNR
Sahoo <i>et al.</i> (2015) <sup>[9]</sup>	44, M	C3-C5	NP, Q	C3-C4 Lam, C, M, CapE
Ciappetta <i>et al.</i> (2008) <sup>[3]</sup>	44, F	C2 (nerve root)	NP, Q, S, B, NR	C2-C5 HL

NP: Neck pain, Q: Quadriplegia, S: Sensory deficit (pain and touch decreased), H: Hyperreflexia, B: Bladder dysfunction, NR: Nuchal rigidity, HL: Hemilaminectomy, EN-B: *En bloc* tumor removal, Lam: Laminectomy, DNR: Resection dorsal nerve root, C: Clots, M: Mass, CapE: Capsule excised



**Figure 1:** MRI of the cervical spine (left: sagittal view, right: axial view) showing an intradural extramedullary mass centered to the left, protruding into the C6-C7 neural foramen.

### Surgery

A C5-C7 laminectomy with C5-T2 instrumentation and fusion was performed, the tumor was removed under direct intraoperative neurophysiologic monitoring and stimulation, and biopsy revealed benign schwannoma.

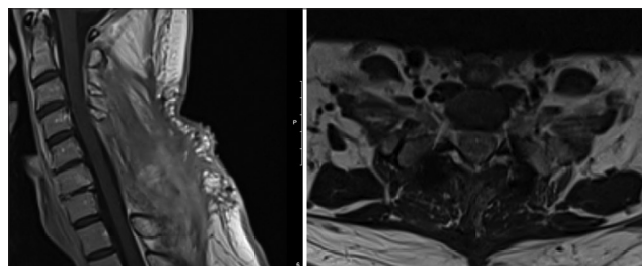
### Follow-up

Three weeks postoperatively, the patient was neurologically intact, pain free, and no longer taking opioids [Figure 2]. Although the 6 months MRI demonstrated no recurrence, the 15-month postoperative surveillance scan revealed a recurrent enhancing lesion at C6/C7 extending into the neural foramen. As the patient was asymptomatic (i.e. without a focal deficit), he opted for radiation treatment (25 sessions with dosage of 4500 cGy of 6 MV photons). At 9 months postradiation, he continued to remain symptom free.

### DISCUSSION

We identified four published cases of cervical schwannomas presenting with intratumoral hemorrhages. All patients underwent urgent tumor resection and fully recovered neurological function.

Jung *et al.* reported a single case of C2-C3 left-sided spinal cord compression due to a schwannoma compressing the cord and attached to the left nerve root.<sup>[6]</sup> Three other cases were reported by Gandhoke *et al.*, Sahoo *et al.*, and Ciappetta *et al.* [Table 1].<sup>[3,4,9]</sup> Patients presented with quadriparetic



**Figure 2:** MRI of the cervical spine at 6 months (left: sagittal view, right: axial view) demonstrating excellent decompression with no visualization of previous intradural extramedullary mass with no new enhancing nodule.

neurological deficits, variably accompanied by sensory and/or sphincteric changes.

Surgical techniques include tumor excision with neural preservation or sacrifice, tumor enucleation between adjacent healthy nerve fibers, and tumor emptying with tumor capsule preservation.<sup>[2,8]</sup> Several authors have recommended conservative nonsurgical treatment for asymptomatic lesions with slow or no growth, and only patients with symptomatic and/or recurrent lesions should be considered for surgery and/or radiation therapy.<sup>[1,10]</sup>

### CONCLUSION

Here, we report a 53-year-old patient who presented with a cervical C6-C7 schwannoma accompanied by an intratumoral hemorrhage contributing to cervical radiculopathy. Following a C5-C7 laminectomy for tumor excision and a C5-T2 fusion, the foraminal portion of the lesion recurred 15 months later warranting the utilization of focal radiation therapy.

### Statement of ethics

Informed consent from the patient was obtained for this report and for all accompanying figures. IRB approval was not sought because the patient had given permission for his clinical information to be shared and had completed signed authorization for release of this information. Identifiers for the patient were not included in the publication.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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