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Cervical Plexus Schwannoma: A Rare Case Report

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Abstract | **Case Report**

Background: Schwannomas are benign tumors originating from Schwann cells and commonly occur in the head and neck region. However, schwannomas arising from the upper cervical nerve roots are exceedingly rare [1,2]. ***Case Presentation:*** We report a 65-year-old man presenting with a slowly progressive right lateral cervical mass associated with moderate shoulder-radiating pain. Contrast-enhanced computed tomography revealed a well-circumscribed dumbbell-shaped mass in the right posterior cervical space with foraminal extension at the C2–C3 level. Complete surgical excision via a posterior approach was performed with preservation of the C2 nerve root. Histopathological and immunohistochemical analyses confirmed the diagnosis of schwannoma. Postoperative recovery was uneventful, and no recurrence was observed after 16 months of follow-up. ***Conclusion:*** Upper cervical nerve root schwannomas are rare entities. Accurate preoperative imaging and meticulous surgical resection allow complete tumor removal with excellent functional outcomes [3,4].

Keywords: Schwannoma; C2 nerve root; cervical mass; surgery; peripheral nerve tumor.

1. INTRODUCTION

Schwannomas, also referred to as neurilemmomas or neurinomas, are benign encapsulated tumors derived from Schwann cells. They account for approximately 25–45% of peripheral nerve tumors in the head and neck region [1]. Around 10% of cervicofacial schwannomas originate from the vagus nerve or the sympathetic chain, whereas schwannomas arising from the upper cervical nerve roots, particularly the C2 root, are exceptionally reported in the literature [2].

Preoperative imaging, particularly magnetic resonance imaging (MRI) and computed tomography (CT), plays a crucial role in identifying the tumor origin, extension, and relationship with surrounding neurovascular structures. Complete surgical excision remains the treatment of choice [5].

2. CASE PRESENTATION

A 65-year-old man presented with a progressively enlarging right lateral cervical swelling evolving over two years. He complained of moderate pain radiating to the right shoulder, without dysphagia, dyspnea, or dysphonia. He was afebrile and had no systemic symptoms.

Physical examination revealed a firm, well-defined mass measuring approximately 7 × 5 cm, located in the posterior cervical triangle. The mass was slightly mobile and non-tender, with no overlying skin changes. Neurological examination was normal. Nasofibroscopy demonstrated normal mobility of both vocal cords.

Contrast-enhanced cervical CT showed a well-circumscribed heterogeneous mass in the right posterior cervical space with central necrotic areas and heterogeneous enhancement. The lesion measured 74 × 55 × 47 mm and extended into the C2–C3 intervertebral foramen, suggesting a dumbbell-shaped tumor of neural origin (Figure 1A–C).

After obtaining written informed consent, surgical exploration under general anesthesia revealed a homogeneous, ovoid, well-encapsulated mass arising from the C2 nerve root with foraminal extension at C2–C3. Complete extracapsular excision was achieved while preserving the C2 nerve root (Figure 2).

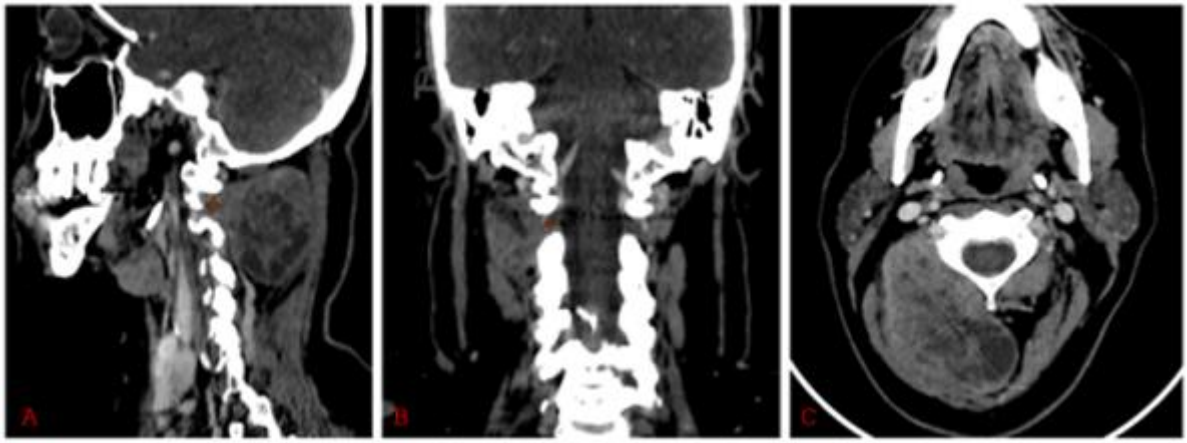

Figure 1A–C: Contrast-enhanced CT scans showing a posterior cervical mass with extension into the C2–C3 intervertebral foramen

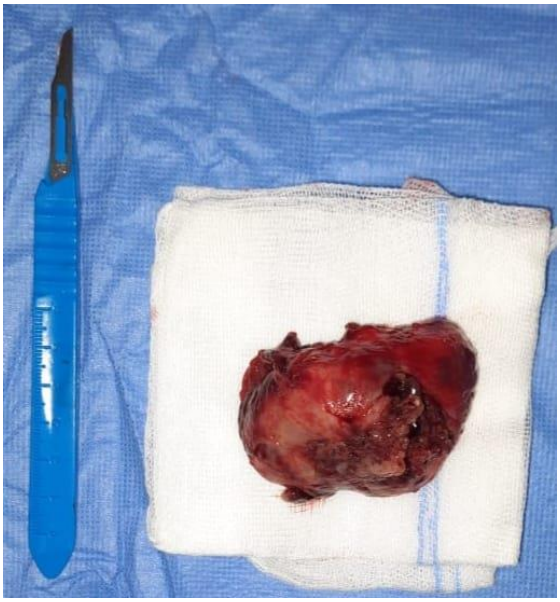

Figure 2: Intraoperative photograph of the surgical specimen demonstrating a well-encapsulated, ovoid tumor with a smooth surface

Histopathological examination showed Antoni A and Antoni B areas with Verocay bodies, confirming the diagnosis of schwannoma. Immunohistochemistry demonstrated strong S-100 protein positivity.

Postoperative recovery was uneventful, with no neurological deficit. No adjuvant therapy was required. At 16 months of follow-up, the patient remained asymptomatic with no evidence of recurrence.

3. DISCUSSION

Schwannomas are benign encapsulated tumors derived from Schwann cells. Schwannomas arising from the upper cervical nerve roots, particularly the C2 nerve root, are rare, with only a limited number of cases reported in the literature [3].

Clinically, these tumors often present as a slowly growing lateral cervical mass and may be asymptomatic or associated with nonspecific compressive symptoms. Pain, palpable mass, and radicular symptoms can occur, whereas neurological deficits are uncommon preoperatively due to the eccentric growth pattern that displaces rather than infiltrates nerve fibers [5].

The differential diagnosis includes paragangliomas, neurofibromas, metastatic lymphadenopathy, and branchial cleft cysts [6].

MRI is considered the imaging modality of choice, typically demonstrating hypointense signals on T1-weighted images, hyperintense signals on T2-weighted images, and heterogeneous enhancement after contrast administration [5].

Complete surgical excision remains the gold standard treatment, aiming for total tumor removal while preserving neurological function. Schwannomas of the upper cervical roots pose significant surgical challenges

due to their proximity to the vertebral artery and the craniovertebral junction [7].

Radiotherapy has a limited role in the management of benign schwannomas. It may be considered in unresectable tumors, residual disease, recurrent lesions, or in patients who are not suitable surgical candidates [8].

4. CONCLUSION

Schwannomas arising from the upper cervical nerve roots are rare tumors. Accurate imaging and meticulous surgical excision allow complete tumor resection with excellent functional outcomes.

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