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Case Report

Ventral Cervical Spinal Schwannoma Presenting as Progressive Myelopathy

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Abstract

Presentation
A male patient in his 20s presented with a two-year history of progressive paraparesis and new-onset urinary incontinence. Neurological examination revealed bilateral ankle clonus, reduced lower-limb power, spastic gait and a positive Hoffmann's sign.

Diagnosis
MRI of the cervical spine demonstrated an intradural extramedullary lesion extending from C4 to C5–C6 disc level, causing severe cord compression. Histopathology confirmed schwannoma.

Treatment
The patient underwent surgical resection via anterior cervical corpectomy of C4 and C5. Postoperatively, his lower-limb strength improved, and bladder control had returned by 6 weeks.

Discussion
This case highlights an unusual lower-limb–predominant presentation of cervical schwannoma, emphasising the role of neurological examination in accurate lesion localisation.

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Introduction

Myelopathy refers to neurological deficits resulting from spinal cord dysfunction, most commonly due to degenerative spondylosis. Although less frequent, benign neoplasms such as spinal schwannoma may also lead to myelopathy if untreated[1]. This Schwann cell–derived nerve sheath tumour can occur at any level of the spinal canal, with an annual incidence of 0.3–0.4 per 100,000 individuals[2].

Case Report

A man in his 20s presented with a two-year history of progressive paraparesis, associated with new-onset urinary incontinence. Prior to neurology referral, he underwent MRI of the thoracolumbar spine, which demonstrated a broad-based L4–L5 disc bulge. He was managed conservatively with walking aids; however, he re-presented one month later with worsening sphincter dysfunction, prompting admission under the neurology service for further investigation.

Neurological examination of the lower limbs revealed marked hyperreflexia, sustained bilateral ankle clonus, reduced power graded at 3/5, and a scissoring, spastic gait. Examination of the upper limbs demonstrated bilaterally positive Hoffmann's sign, mild hypertonia, brisk reflexes, and normal power. Sensation was intact across all modalities.

MRI of the brain and cervical spine was subsequently performed, revealing an intradural extramedullary ovoid lesion extending from the superior border of C4 vertebral body to C5–C6 intervertebral disc level. The lesion demonstrated homogeneous contrast enhancement and measured approximately 3.3 cm in maximal craniocaudal dimension, causing severe compression and posterior displacement of the cervical cord (Figure 1).

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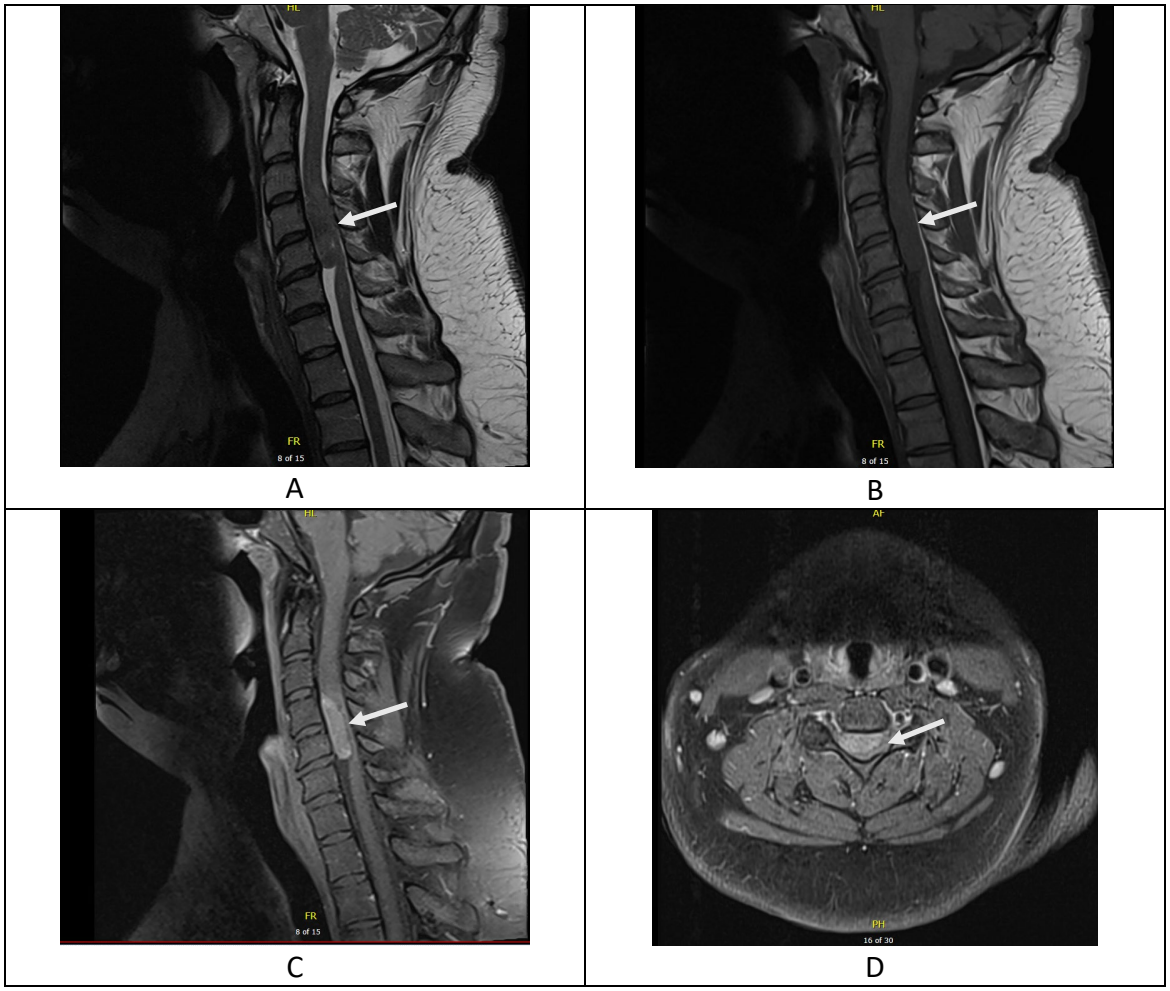

***Figure 1**: (A) T2-weighted and (B) T1-weighted mid-sagittal MRI images of the cervical spine showing an intradural extramedullary lesion extending from C4 to C5–C6 disc space and appearing isointense to the spinal cord. (C) Post-gadolinium MRI demonstrating homogeneous enhancement of the lesion, with near-complete effacement of the spinal canal and central cord compression, as shown on the corresponding axial image (D).*

Following neurosurgical consultation, the patient underwent surgical resection of the lesion via anterior cervical corpectomy and fusion involving C4 and C5 (Figure 2). Histopathological analysis identified a benign peripheral nerve sheath tumour composed of spindle cells with nuclear palisading, consistent with schwannoma. Postoperatively, he had an uncomplicated course and engaged in a structured rehabilitation programme. At six-week follow-up, his lower-limb power had improved to 4/5 bilaterally, with return of bladder control.

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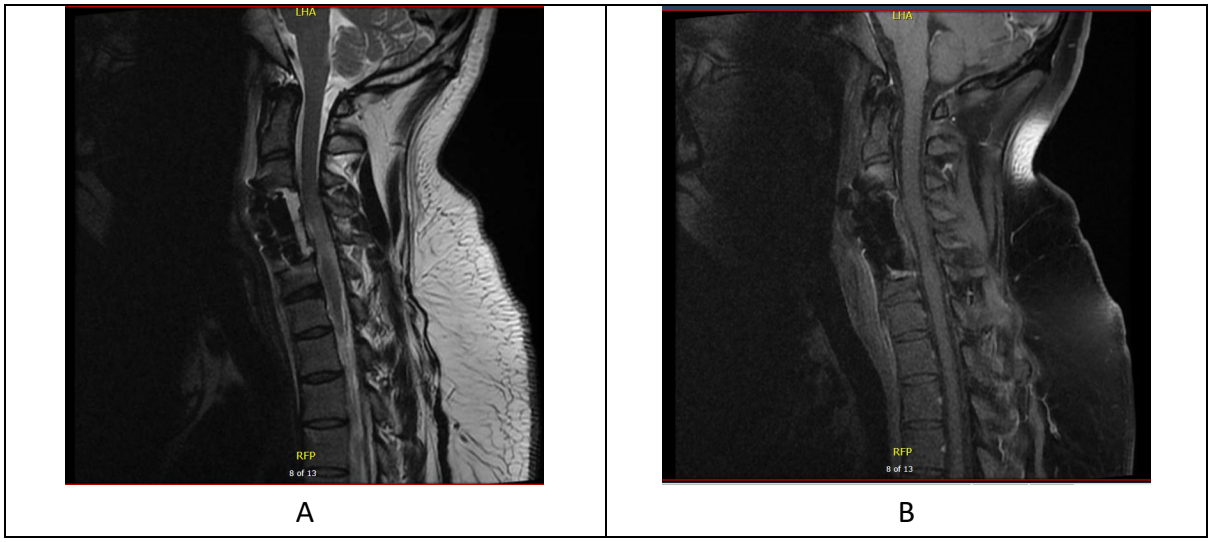

***Figure 2**: (A) T2-weighted and (B) contrast-enhanced T1-weighted images demonstrating postoperative changes following tumour resection with C4 and C5 corpectomy.*

Discussion

Spinal schwannomas have variable clinical presentations, ranging from localised or radicular pain to sensory disturbances and muscle weakness. When arising in the cervical region, these symptoms typically affect the neck and/or upper limbs[3]. However, the clinical picture in our case was dominated by progressive lower-limb weakness and sphincter dysfunction. This atypical presentation posed a diagnostic challenge, as such features may overlap with pathologies involving the lower spinal segments[4]. Consequently, initial investigations were directed towards the thoracic and lumbar spine, resulting in diagnostic delay.

This unusual clinical manifestation may be attributed to the tumour's anterior orientation relative to the spinal cord, a configuration reported in fewer than 5% of spinal schwannomas[5]. Kang et al. documented that anterior cord compression was more commonly associated with motor weakness, particularly when the lateral corticospinal tracts were involved[6]. As fibres supplying the lower extremities are located more peripherally within these tracts, lower-limb symptoms may predominate following cord compression[7]. Supporting this, Funaba et al. found that nearly half of patients with C6-C7 myelopathy presented primarily with gait disturbance without upper-limb sensory or motor impairment[8]. Furthermore, as spinal schwannomas grow slowly, symptoms often progress for several years before diagnosis[2],

allowing advanced cord compromise to develop, indicated by bladder or bowel dysfunction[9], as observed in this case.

Despite no upper-limb symptoms, our patient demonstrated upper motor neuron signs, including a positive Hoffmann's sign which has been reported in 60–80% of patients with cervical myelopathy[8]. This prompted cervical spine imaging, ultimately revealing the underlying schwannoma, thus highlighting the importance of correlating clinical findings with lesion localisation. A predominantly lower-limb presentation should not preclude consideration of cervical cord pathology, particularly when neurological examination suggests a higher lesion, as delayed diagnosis may risk irreversible cord injury.

Declaration of Conflicts of Interest:
None declared.

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