

Non-traumatic cervical disc prolapse with spinal cord compression:

an unlikely but important cause of leg and back pain

INTRODUCTION

Leg pain, back pain, and unsteadiness are common presenting complaints in general practice that can represent a broad range of conditions. Rarely, they can be the first symptoms of catastrophic spinal cord lesions. This report explores a case of cervical spondylomyelopathy resulting in severe spinal cord compression and impending paraplegia that presented in the community with mild initial symptoms and no history of trauma. It is used to discuss the differential diagnosis of unsteadiness, the value of taking a patient-centred history, and the importance of safety-net advice and timely follow-up of patients with unrelenting symptoms. In addition, a format of focused neurological examination to fit within the time constraints of general practice is suggested. In patients with a typical history and positive physical signs, urgent referral to secondary care is required for further investigation and intervention to prevent life-changing damage.

CASE REPORT

A previously well and active 42-year-old male presented to his GP with a 4-week history of persistent 'burning', 'stretching' pain in both thighs and vague, non-radiating lower back pain. He also complained of progressive unsteadiness on his feet.

He denied any history of trauma, sphincter control remained intact, and he did not complain of upper-limb or sensory symptoms. Two weeks previously he attended the emergency department following an episode where his legs gave way. Clinical assessment at that time reported no significant neurological signs and he was discharged home for GP follow-up with regular co-codamol, diclofenac, and diazepam. Despite this, the patient's symptoms did not improve and 4 days prior to attending the GP he remotely requested a repeat prescription of these analgesics, which prompted expedition of his follow-up.

His comorbidities included asthma,

hyperlipidaemia, psoriasis, and anxiety with depression. He worked an active job in the commercial sector.

On examination, he struggled to stand from a seated position and walked with a waddling gait. His anterior thigh muscles were exquisitely tender on light palpation, passive and active flexion. Symmetrical upper motor neurone signs were seen in both lower limbs, namely increased tone, globally reduced power (particularly in hip flexion), deep tendon hyperreflexia, and ankle clonus. Plantar reflexes were equivocal and sensation was intact. Upper-limb neurology and cranial nerves were normal. Examination of his cardiorespiratory system and abdomen were unremarkable.

The case was referred to the medical team on call to investigate possible central or spinal cord lesions secondary to malignancy, infection, metabolic or neurological disorders.

MRI of the whole spine revealed disc herniation at the level of C6/C7 causing severe spinal cord compression (Figure 1). The patient was admitted under the neurosurgeons for emergency decompression with anterior cervical discectomy and fusion to prevent progression to permanent paralysis. He had a good outcome and post-surgery was enrolled in a period of rehabilitative physiotherapy.

DISCUSSION

This case demonstrates how the common presenting complaints of leg pain and back pain, even in the absence of trauma, should prompt focused assessment and a low threshold for investigation to rule out lesions of the spinal cord. Alarming points in the history include unsteadiness, the progressive nature of the pain, and resistance to multiple analgesics. It is worth noting that neither neck pain nor upper-limb symptoms were present despite the site and severity of the underlying cervical lesion.

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Figure 1. MRI spine (sagittal view) showing vertebral disc herniation and spinal cord compression at the level of C6/C7.

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Competing interests

The authors have declared no competing interests.

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Early paraparesis in the absence of traumatic injury can be difficult to diagnose in a primary care setting as symptoms may be vague. It may also take time for clinical signs to manifest, as suggested by the previous emergency department visit in this case. Neuropathic pain can be difficult to distinguish from other aetiologies and repeat clinical assessment is essential in cases of pain that is unrelenting or associated with unsteadiness. It is possible that irreversible progression could have gone undetected had the patient's repeat prescription request not expedited follow-up, highlighting the value of prescribing short-term courses of analgesics for acute pain and giving clear safety-net instructions for patients to reattend should their symptoms not improve.

In the literature, reports of non-traumatic acute paraplegia are rare.^{1–3} Underlying lesions may occur in the brain, corticospinal fibres, or spinal cord at any level,⁴ and pathologies include disc herniation, vertebral collapse, haematoma, infection, or malignant infiltration. The mean age of presentation is 49 years (29–75 years) with a slight male predominance. A history of pre-existing spinal stenosis can be an important predisposing factor and herniation usually involves one interspace or contiguous interdisc spaces.³ The herniated disc in this case occurred at the level of C6/C7 but it is impossible to tell how long this pathology had existed, or whether it occurred just before the onset of symptoms.

Unsteadiness is a challenging, often non-specific symptom relating to postural imbalance and gait disturbance. Normal steadiness of gait relies on the subconscious coordination of sensory inputs and balance, behavioural and motor control, and musculoskeletal function.⁵ Therefore, the differential diagnosis of unsteadiness is broad and includes structural lesions at any level of the nervous system (herniated disc, tumours, vascular, abscess, or demyelination), drugs (ethanol, phenytoin, lithium, valproate, or metronidazole), metabolic deficiencies (vitamin B12 or B1), infections (viral or Creutzfeldt–Jakob disease), basal ganglia (Parkinson's disease and Parkinson plus syndromes), and inner-ear disorders.⁵ In patients with normal neurological findings, musculoskeletal conditions should be considered.

Any patient with new unsteadiness warrants neurological examination. This need not take more than 5 minutes [Box 1] and any positive sign should prompt urgent referral to a facility with adequate imaging and specialist services. There is

Box 1. Focused neurological examination of a patient complaining of unsteadiness on feet

1. **Speech** — listen for slurring, dysphasia, or staccato speech.
2. **Gait** — observe on walking into the room. A useful screening test, if appropriate, is to ask the patient to hop on the spot on each foot in turn. Ability to do this indicates well-functioning lower-limb neurology. If this is not appropriate or the patient is unable to do it, assess tandem gait, tip-toe walking, heel walking, and Romberg's sign.
3. **Central** — inspect for facial droop and assess eye movements for nystagmus.
4. **Upper limbs** — assess finger-to-nose coordination for past pointing.
5. **Lower limbs** — test deep tendon reflexes and plantars, and heel-to-shin test.
6. **Vestibular** — this is not recommended in cases of potential cervical spine pathology. However, if symptoms suggest a vestibular cause, head impulse test or Dix–Hallpike manoeuvre may be performed.

much to be said for standing at the door to welcome patients into the consultation room to observe their gait. Whole-spine MRI is the imaging modality of choice to rule out spinal cord compression. Cases of isolated disc herniation with spinal cord compression should be considered for urgent neurosurgical decompression and reconstruction.⁶ Follow-up should include specialist neurorehabilitation and focused physiotherapy to restore function and quality of life.

This case demonstrates a serious but unusual cause of leg and back pain in a previously well patient with no history of trauma: cervical spinal cord compression secondary to intervertebral disc prolapse. Focused history and recognition of abnormal neurological signs by focused physical examination is crucial to preventing devastating morbidity. The absence of objective neurological signs may be reassuring but clear safety-net advice, close follow-up, and timely reassessment are key in cases of unrelenting or worsening symptoms.

Provenance

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Patient consent

Prior to publication, the patient reviewed the text and images included in this manuscript and gave explicit, written consent for its publication by the *British Journal of General Practice*.