

Acute cervical myelopathy in a patient presenting with knee instability – a case report

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Introduction

Obtaining a specific patho-anatomic source for neck and spinal pain can be difficult for the vast majority of cases.⁵ An alternate option is to classify mechanical neck or spinal pain into groups, or syndromes, based on homogenous signs and symptoms.^{3,7,8} The Canadian Back Institute² (CBI) has developed a syndrome based classification system consisting of four distinctive categories or ‘patterns’ of neck pain (see Table 1). Pattern One represents neck pain that is primarily aggravated with cervical flexion postures and movements.

Pattern Two is neck pain that is only aggravated with cervical extension positions. Pattern Three is arm pain associated with cervical radiculopathy and Pattern Four represents symptoms of neck or arm pain and upper motor neuron dysfunction associated with cervical myelopathy. The CBI methodology offers clinicians a carefully structured assessment that places particular emphasis on the importance of a detailed symptomatic history to determine the location and constant or intermittent nature of the pain, and to identify the neck movement and postures that aggravate and relieve

symptoms. Another essential component of the CBI classification process is the routine assessment of upper and lower motor neuron function for all patients that present with neck pain. This standardised assessment and classification approach was an essential factor in this case in which a relatively inexperienced clinician (four month post graduate physiotherapist) diagnosed an acute cervical myelopathy in a patient presenting with symptoms of knee instability, and referred the patient appropriately to a specialist for further investigation.

TABLE 1: Diagnostic criteria for patterns of neck pain.

***neck dominant indicates worst pain is proximal to the deltoid insertion and inferior angle of the scapula; arm dominant pain indicates worst pain is distal to the deltoid insertion.**

Pattern of Neck Pain	Location*	Nature	Aggravating and Relieving Postures or Movements
One	Neck dominant pain.	Intermittent or constant pain.	Cervical flexion increases pain.
Two	Neck dominant pain.	Intermittent pain.	Cervical extension increases pain.
Three	Arm dominant pain.	Constant or previously constant pain.	Neck movement and postures affect arm pain.
Four	Neck or arm dominant pain.	Balance or gait disturbance and/or loss of fine motor skills.	Varied - but upper motor neuron signs such as hyperreflexia, spasticity, clonus and positive babinski testing may be present (clonus and babinski testing is standard with all neck pain patients).

CASE REPORT

Case Report

A 41 year old male recreational football player attended a routine follow up appointment three months following a right knee arthroscopic meniscectomy and subsequent rehabilitation. He complained of a one week history of intermittent right knee instability that was causing difficulty when walking downhill or descending stairs. He also noticed some weakness in his left knee and was complaining that both lower limbs felt cold and “jittery”, especially at night and when cold. He reported no other problems on level surfaces with walking or running. He did not complain of knee pain and could not recall a recent injury to the knee. He intended to play football the following day for his club team.

Because the patient was presenting with new symptoms of bilateral leg weakness and sensation changes without any history of a recent local injury to the knee, the spine was assessed as a possible cause of the symptoms. On further questioning, the patient denied any low back discomfort but when asked about neck pain he recalled being hit from behind in a mild traffic accident two weeks earlier. He had been experiencing mild intermittent left sided neck pain since the accident but these symptoms had been slowly resolving. He had no history of any previous significant neck pain, and at no stage did he ever have any arm pain or paraesthesia distal to the acromion.

Physical examination revealed full cervical range of motion with minor left-sided neck discomfort in all directions. There was grade 5 strength bilaterally in both upper and lower limbs. Sensation testing was normal in his lower limbs. Pulses were present equally in both feet. There was bilateral hyperreflexia in the tendons of his biceps and triceps brachii, brachioradialis, patella and Achilles tendons. There was a positive clonus test with at least four beats

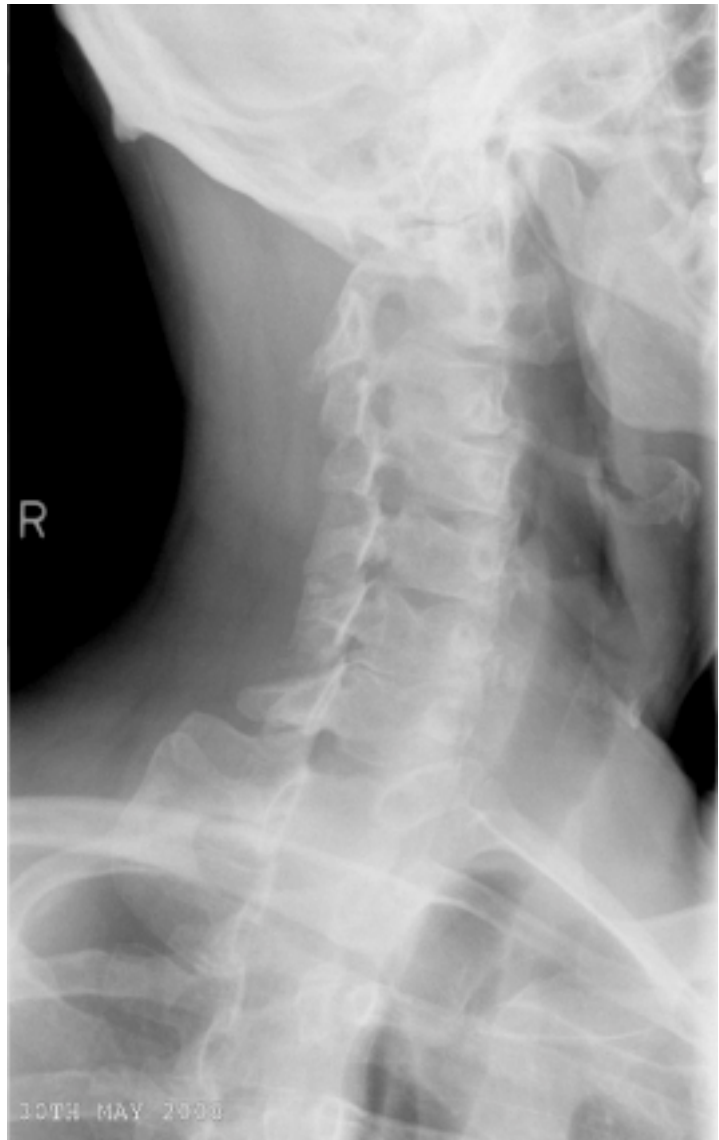


FIGURE 1



FIGURE 2

of clonus bilaterally. Babinski reponse was negative.

According to the CBI system, these symptoms of neck pain and upper motor neuron disturbance may indicate a cervical myelopathy (Pattern Four). An urgent x-ray was arranged which showed a posterior s luxation of C3 on C4 facets (figure 1). The subsequent MRI scan showed a large disc bulge at C3/4 compromising the spinal canal, where increased signal suggested acute cord oedema (Figure 2).

The patient was referred urgently to the neurosurgical registrar at the Wellington Hospital Emergency Department. An anterior cervical discectomy and fusion (ACDF) at C3/4 was performed two days following admission. When the patient was reviewed several weeks following surgery, he still had a positive clonus test but noticed that the episodes of knee instability had decreased significantly. On following up this patient 3 years after his surgery he states that he now only has occasional 'jumping' sensations in his legs when descending stairs. He describes these symptoms are only present in cold weather. He has no neck pain and has resumed playing football at his previous level. His symptoms have been slowly improving over the last 3 years.

Discussion

Because complaints of neck pain and discomfort are so common, it is easy to become dismissive, especially when the pain is not the significant problem. In this case, a patient presenting with relatively innocuous symptoms of knee instability and mild neck pain had a very serious pathological cause for his symptoms.

In addition to the findings for this patient, there are many other signs and symptoms that could suggest presence of cervical myelopathy. Radiculopathy in the upper limb, bowel and bladder dysfunction and

lower limb stiffness or weakness can all commonly be associated with cervical myelopathy.^{1,4} Kim et al⁶ found the most common complaints from patients experiencing myelopathy from soft disc herniation were gait disturbance and spasticity.

One of the most interesting features of this case was the relative lack of local neck pain and discomfort in someone who had such a potentially serious injury. This finding is however not altogether uncommon as Bednarik et al found that cervical myelopathy may often present without neck pain as spinal cord compression itself is not necessarily symptomatic, especially in the early stages of development.¹

This patient's positive upper motor neuron lesion signs could have been benign or from an unrelated, upper motor lesion such as multiple sclerosis or a localised cerebral lesion but because the onset of both neck pain and neurological symptoms seemed to relate to a specific recent event (motor vehicle accident), it was necessary to investigate the cervical spine urgently. Since this patient's ACDF surgery he has noticed a slow but steady improvement in both his left and right knee strength and stability. This in itself supports the theory that the neck pathology was most likely the cause of his lower limb symptoms, and that his symptoms were not related to an alternate upper motor neuron pathology or previous right knee meniscetomy surgery.

This case reinforces the need to consider cervical myelopathy in the presence of symptoms associated with lower limb weakness or gait disturbance. It also emphasises the importance of routine upper and lower motor function screening as an essential component of a cervical spine assessment.

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