

Acute Spinal Cord Ischemia: Presenting with Back Pain

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Abstract

Presentation

33-year-old female presented to the ED with an acute onset mid-thoracic back pain. Initial neurological examination revealed a power of 4/5 in her right leg. Re-assessment 10 hours later showed the power in the same leg had reduced to 1/5.

Diagnosis

MRI of the thoracic and lumbar spine revealed an acute spinal cord ischemia, involving the anterior segment of the spinal cord at the level of T2.

Treatment

She was administered analgesia whilst in the ED and subsequently transferred to a neurosurgical centre for a specialist review and further management where she was commenced on high dose IV steroids and thromboprophylaxis.

Discussion

This case emphasises that patients with seemingly benign back pain can have serious underlying aetiology. It highlights the importance of a detailed neurological examination and the need for urgent MRI in cases of unexplained back pain with neurological findings.

Introduction

Acute spinal cord ischemia (ASCI) is a rare but potentially disabling neurological emergency. It accounts for less than 1% of all strokes and is often misdiagnosed in the early stages due to its variable presentation¹. The anterior spinal artery supplies the anterior two-thirds of the spinal cord, and infarction in this region can result in significant motor and sensory deficits². ASCI can occur in a range of clinical settings, but a significant portion of documented cases occur in the setting of an acute aortic pathology or aortic surgery³. Idiopathic cases have also been reported but are extremely rare⁴. Early recognition and prompt intervention are therefore crucial for improving patient outcomes⁵.

Case Report

33-year-old female with no significant past medical history presented late in the evening, to the Emergency Department (ED) with sudden-onset upper back pain that began 18 hours prior to her presentation. She was able to walk unaided and also reported an associated numbness in the right leg. On arrival, she rated her pain as 7/10 in severity and all her vital signs were unremarkable.

She was evaluated by an emergency medicine physician, who noted tenderness from T2 to T6 along the thoracic spine, with diminished sensation in her right lower limb, extending from the thigh to the foot. The motor examination revealed a muscle strength of 4/5 in the right leg. Initial investigations indicated an erythrocyte sedimentation rate (ESR) of 25 mm/hr, while the full blood count and C-reactive protein were unremarkable. Due to persistent pain, despite analgesia, she was admitted to the Clinical Decision Unit (CDU).

Upon re-assessment, approximately 10 hours later by an emergency medicine consultant the following morning, there was a significant decline in right leg strength, with motor power reduced to 1/5. Exaggerated knee and ankle reflexes were observed, along with hypoesthesia to fine touch throughout the entire right lower limb. No other neurological deficits were noted. Urgent MRI of the thoracic and lumbar spine was organised, revealing an acute infarction affecting the anterior segment of the spinal cord at the T2 level, consistent with acute spinal cord ischemia.

The patient was urgently transferred to a neurosurgical centre, where she was managed conservatively with high-dose IV methylprednisolone along with thromboprophylaxis. She was discharged on day five with a physiotherapy and rehabilitation plan, in addition to a tapering steroid regimen and oral aspirin.

Discussion

Spinal cord infarction is an uncommon condition that can manifest with a range of symptoms based on the involved vascular region and the severity of ischemic injury, including sudden weakness, sensory disturbances, and autonomic impairment⁶. This case is unique due to the lack of any identifiable underlying risk factors.

MRI is considered the most reliable imaging technique for diagnosing spinal cord infarction, typically revealing T2-weighted hyperintensities in the affected regions⁷. Treatment focuses on supportive care, such as high-dose corticosteroids, thromboprophylaxis, and comprehensive rehabilitation. Outcomes can vary greatly, with some individuals experiencing partial recovery, while others may face lasting neurological impairments⁷.

This case underscores the need to promptly arrange an MRI in patients with unexplained back pain accompanied by neurological findings. Spinal cord infarction, though rare, should be considered in cases of progressive motor and sensory deficits without an obvious cause. Early recognition and timely imaging are crucial, as they enable appropriate management, which can significantly improve patient outcomes and prevent further neurological deterioration⁸.

Declarations of Conflicts of Interest:

None declared.

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