

Case Report

Presentation of cauda equina syndrome due to an intradural extramedullary abscess: a case report

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Abstract

BACKGROUND CONTEXT: Cauda equina syndrome is caused by compression or injury to the nerve roots distal to the level of the spinal cord. This syndrome presents as low back pain, motor and sensory deficits in the lower extremities, and bladder as well as bowel dysfunction. Although various etiologies of cauda equina syndrome have been reported, a less common cause is infection.

PURPOSE: To report a case of cauda equina syndrome caused by infection of an intradural extramedullary abscess with *Staphylococcus aureus*.

STUDY DESIGN/SETTING: Case report and review of the literature.

METHODS: The literature regarding the infectious causes of cauda equina syndrome was reviewed and a case of cauda equina syndrome caused by infection of an intradural extramedullary abscess with *Staphylococcus aureus* was reported.

RESULTS: A 37-year-old woman, with history of intravenous drug abuse, hepatitis C, and hepatitis B, presented with low back pain lasting 2 months, lower extremity pain, left greater than right with increasing weakness and difficulty ambulating, and urinary and fecal incontinence. Her presentation was consistent with cauda equina syndrome. The patient underwent a T12–L2 laminectomy, and intradural exploration revealed an abscess. Methicillin-resistant *Staphylococcus aureus* was found on wound culture.

CONCLUSIONS: Cauda equina syndrome, presenting as a result of spinal infection, such as the case reported here, is extremely rare but clinically important. Surgical intervention is generally the recommended therapeutic modality. © 2014 Elsevier Inc. All rights reserved.

Keywords:

Cauda equina syndrome; Intradural extramedullary abscess; Infection; *Staphylococcus aureus*

Introduction

Cauda equina syndrome refers to the compression of lumbar and sacral nerve roots within the lower spinal canal

FDA device/drug status: Not applicable.

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distal to the L1 vertebral level. Most commonly associated with acute disc herniation and spinal stenosis, cauda equina syndrome can also be caused by neoplasms, infections, traumatic injury, and iatrogenic causes, such as after surgery [1]. It is characterized by lower back pain, bowel and bladder dysfunction, and sensory deficit in the perineum. Urinary incontinence and loss of rectal tone are observed on physical examination [1–4]. When cauda equina syndrome is suspected, imaging evaluation of the lumbar spinal canal is performed with magnetic resonance imaging (MRI) scan or myelography to evaluate for compressive pathology. On diagnosis with cauda equina syndrome, the treatment is emergent surgical decompression of the spinal canal [2,3]. The authors present the case of a patient with an intradural extramedullary abscess manifesting in cauda equina syndrome.

Case report

History and examination

A 37-year-old woman, with history of intravenous drug abuse, HIV, hepatitis C, and hepatitis B, presented with cauda equina syndrome. Her symptoms included low back pain lasting 2 months, lower extremity pain, left greater than right with increasing weakness and difficulty ambulating, and urinary and fecal incontinence. An MRI scan of the lumbar spine demonstrated a large intradural extramedullary mass at T12–L2 (Figs. 1–3).

Operation and pathological findings

A lumbar decompressive surgery was performed, under general endotracheal anesthesia, with somatosensory evoked potential (SSEP) and electromyographic (EMG) monitoring and bowel and bladder potential monitoring. A laminectomy from T12–L2 was performed, and on evaluation of intradural contents, nerve roots were noted to be plastered dorsally, in the intradural space, which were freed from an underlying mass. A discolored grayish mass could be found beneath the nerve roots and in freeing the roots, a small fenestration was created in this mass. Purulent fluid was then expressed. Several pieces of the mass were sent for frozen pathology and the result was consistent with an inflammatory lesion (Fig. 4). The abscess was evacuated.

Postoperative course

Postoperatively, the patient was placed on intravenous vancomycin and ceftriaxone for 8 weeks, because of the



Fig. 1. Preoperative T₁-weighted sagittal MRI without contrast.

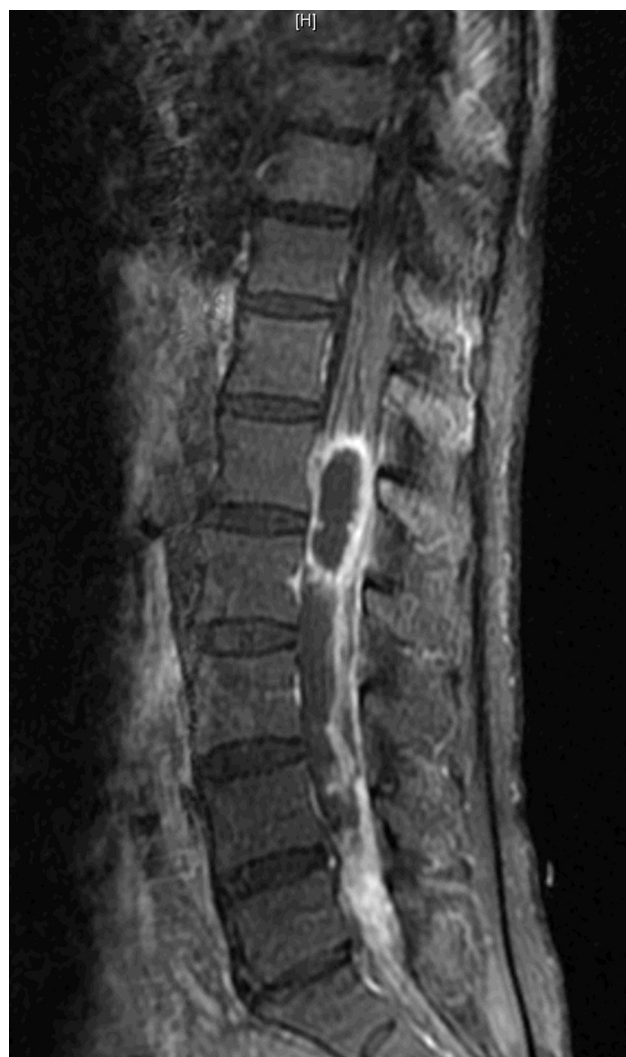


Fig. 2. Preoperative T₁-weighted sagittal MRI with contrast.

presence of methicillin-resistant *Staphylococcus aureus* (MRSA) within the wound culture, and was then switched to oral linezolid (Figs. 5–7). At the 2-year follow-up, the patient had seen marked improvement in her lower extremities and her fecal incontinence was largely resolved; however her bladder incontinence persisted and was unchanged. Additionally, there was continued numbness in the perianal region.

Discussion

Several etiological origins have been proposed for cauda equina syndrome. Although commonly caused by compression of the nerve roots in the lower spinal canal by a lumbar disk herniation and degenerative or congenital spinal stenosis, rare cases of cauda equina syndrome can also be caused by compression of the nerve roots by tumors or spinal infection [5].

Infection

An infectious cause of cauda equina syndrome should be suspected in the patient presenting with the characteristic

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