RESIDENT & FELLOW SECTION

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Mystery Case: Brown-Séquard syndrome caused by idiopathic spinal cord herniation

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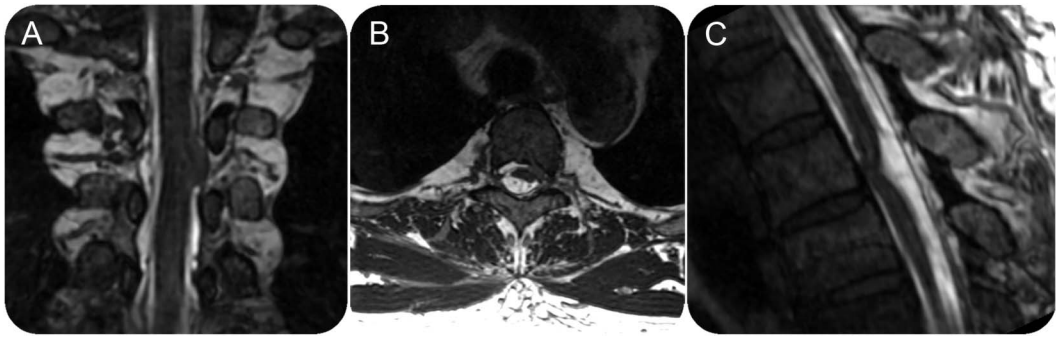
Figure T2-weighted MRI of the thoracic spine shows signs of spinal cord herniation



T2-weighted MRI of the thoracic spine displays anterolateral spinal cord deformation in the coronal (A), axial (B), and sagittal planes (C); this image corresponds to a spinal cord kink between the 6th and 7th thoracic vertebrae and a secondary expansion of the subarachnoid space. Axial image shows part of the cord protruded beyond the dural limits in anterolateral quadrant of spinal canal.[1]

A 48-year-old man developed numbness in the left leg, which progressed gradually to paresis and urinary incontinence. Neurologic examination revealed a left Brown-Sequard syndrome with leg paresis, mild spasticity, reduced proprioception, and contralateral thermal and painful hypoesthesia below T6. MRI revealed a thoracic spinal cord herniation (SCH) (figure). Idiopathic SCH is relatively rare. Pathogenesis involves a dura mater defect (see video on the *Neurology*® Web site at Neurology.org); herniation develops over a progressive pressure gradient through the dural fissure.[2] Surgical reduction is typically performed if symptoms progress, but mild symptoms may be eligible for conservative treatment and monitoring. Surgical spinal reduction and dural repair usually reverses neurologic deficits.

AUTHOR CONTRIBUTIONS

Erich Talamoni Fonoff: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval, acquisition of data. William Omar Contreras Lopez: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval. acquisition of data. Manoel Jacobsen Teixeira: drafting/revising the manuscript, accepts responsibility for conduct of research and final approval, study supervision.

Supplemental data at Neurology.org

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DISCLOSURE

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MYSTERY CASE RESPONSES

The Mystery Case series was initiated by the *Neurology*® Resident & Fellow Section to develop the clinical reasoning skills of trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an educational tool. Responses were solicited through a group e-mail sent to the American Academy of Neurology Consortium of Neurology Residents and Fellows and through social media.

All the responses came from individuals. Thirty-three percent correctly identified the patient's presentation as being a Brown-Sequard syndrome. Sixty-seven percent of the respondents correctly interpreted the MRI findings as spinal cord herniation. Thirty-three percent suggested a diagnosis of dural

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meningioma—while this is an important item on the differential diagnosis, the MRI reveals deformation of normal cord tissue rather than abnormal tissue growth as one would see with a meningioma. This can be seen especially well in the sagittal section.

The most complete response was provided by Dr. Jeremy Cutsforth-Gregory from the Mayo Clinic, who provided a clear localization for the patient's symptoms—specifically the involvement of the left lateral corticospinal tract and left dorsal column, and the right spinothalamic tract—and recognized the MRI findings as representing an idiopathic spinal cord herniation.

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