

Images In Neurology: Spinal Cord Herniation In A Patient With Brown Sequard Syndrome

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Citation

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Abstract

A 44-year-old female patient was alright till two years back when she noticed insidious onset of decreased pain sensation of the whole of right lower limb. She did not have any motor weakness, back ache, bladder symptoms or altered gait at that time. Magnetic resonance imaging (MRI) of the spinal cord at this time was interpreted as disc herniation in the cervical region and she was managed conservatively. Over the next 2 years she developed gradually progressive weakness of the distal muscles of the left lower limb and later involving proximal muscles. This was followed by urgency of micturition, with preserved bladder sensations. She was subsequently investigated with an MRI that revealed a thoracic spinal cord herniation

CASE REPORT

A 44-year-old female patient was alright till two years back when she noticed insidious onset of decreased pain sensation of the whole of right lower limb. She did not have any motor weakness, back ache, bladder symptoms or altered gait at that time. Magnetic resonance imaging (MRI) of the spinal cord at this time was interpreted as disc herniation in the cervical region and she was managed conservatively. Over the next 2 years she developed gradually progressive weakness of the distal muscles of the left lower limb and later involving proximal muscles. This was followed by urgency of micturition, with preserved bladder sensations.

Her past history was unremarkable except for hypothyroidism for which she was on treatment. Neurological examination revealed scoliosis of the lower dorsal and lumbar spine. There were signs of pyramidal dysfunction in the left lower limb in the form of spasticity, brisk reflexes and extensor plantar response, in addition to motor power of grade 4/5 distally and proximally. Vibration sense was impaired on left side till D10 level and position sense was impaired in the left foot. There was a 50% impairment of pain and temperature was on the right side till D4 spinal segmental level. There was no pain, tenderness or gibbus deformity of the spine. Other systemic examinations were normal. Laboratory investigations showed normal blood counts, ESR and serum biochemistry. She was subsequently investigated with an MRI (Fig 1 & 2) that revealed a thoracic spinal cord herniation

Figure 1

Figure 1: Sagittal T2 weighted image shows anteriorly displaced spinal cord (arrow) with focal kink at D3 vertebra. Spinal cord abuts the vertebral body with secondary enlargement of subarachnoid space posteriorly. Cord shows mild atrophy

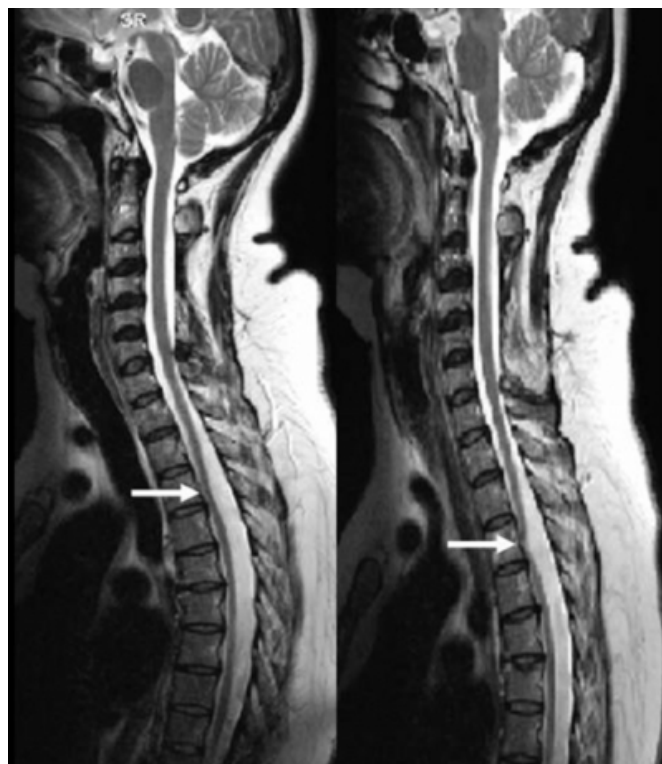
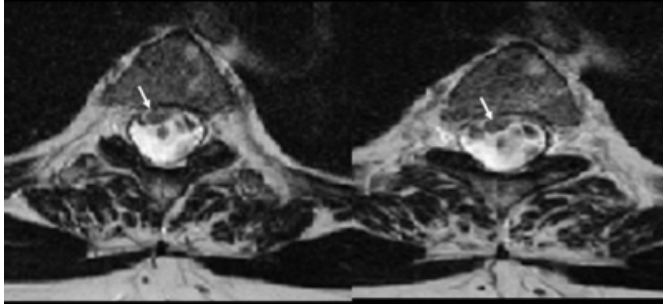


Figure 2

Figure 2: Axial T2 weighted image at the level of upper dorsal spine shows anteriorly and laterally displaced spinal cord (arrow) that abuts the anterior dura with mild flattening of the lateral edge. CSF flow artifacts are seen in the enlarged subarachnoid space.



DISCUSSION

The spontaneous thoracic spinal cord herniation was first described by Wortzmann in 1974 (1). This condition is very rare but new cases are being diagnosed with the advent of MRI. The age of the patients described varied from 22 to 71 years. Neurological symptoms were generally progressive with patients presenting with the features of Brown-Sequard syndrome (2). Most of the dural defects were located between D4-D8. Pathogenesis is unclear. The spinal cord is thought to herniate through the congenital or unrecognised posttraumatic defect in the anterior dura. Herniation of the spinal cord through the inner layer of duplicated ventral dura is reported by many authors. CSF pulsations can widen the dural defect with subsequent herniation. Cord can get adhered to the dural defect with tethering and scarring,

leading to vascular compromise and progressive myelopathy. Thoracic cord is most frequently affected probably due to the fact that spinal cord lies ventrally due to natural kyphosis.

MRI may show anterior and/or lateral kink of the spinal cord mostly at D4-D8 level. Spinal cord is seen abutting the dura at the level of herniation with secondary enlargement of subarachnoid space. Abnormal cord signal intensity and atrophy of cord over a length of 1-3 cm may be present. CT myelogram might show the dural defect through which the cord herniates (3,4). Differential diagnosis includes intradural arachnoid cyst, traumatic or posttraumatic herniation, and adhesions, disc herniation with cord tethering. Treatment includes surgical reduction of herniated cord with dural repair. Majority of the treated patients show improvement or resolution of neurological symptoms.

References

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