

Teaching NeuroImage: Dynamic MRI in the Evaluation of Cervical Myelopathy

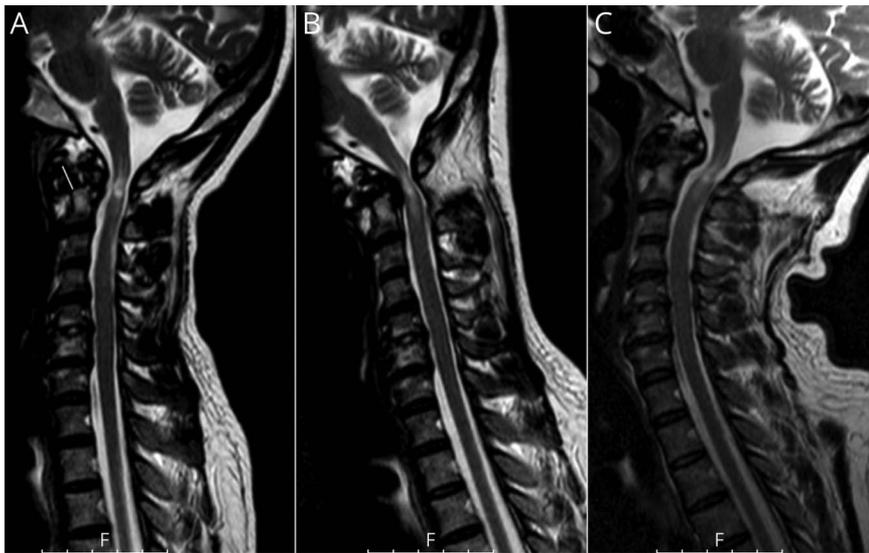
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Figure 1 Dynamic MRI of the Cervical Spine, Sagittal View



Sagittal T2-weighted imaging at rest (A), flexion (B), and extension (C). Spinal cord hyperintensity at the C1 level is depicted, suggesting gliosis/edema. There is also increased atlanto-dental interval (white line in A) and periarticular fibrosis. During flexion (B), severe canal stenosis is unveiled, favoring atlanto-axial instability.

A 44-year-old woman, with a childhood history of motor vehicle accident, was referred to neurosurgery due to progressive tetraparesis, inability to walk, generalized hyperreflexia, and bilateral extensor plantar reflexes (American Spinal Injury Association Impairment Scale D/Japanese Orthopaedic Association score 7), without bowel/bladder dysfunction. Dynamic MRI (Figures 1 and 2) showed spinal cord edema/gliosis at the C1 level and atlanto-axial subluxation. During flexion, severe spinal canal stenosis was observed, confirming atlanto-axial instability. Posterior arthrodesis was performed and resulted in resolution of instability with no neurologic deterioration after 3 months. Dynamic MRI in the supine position can be an accurate technique to unveil occult cervical canal stenosis.^{1,2} Although most cases are revealed or aggravated during extension, flexion should also be tested.²

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Disclosure

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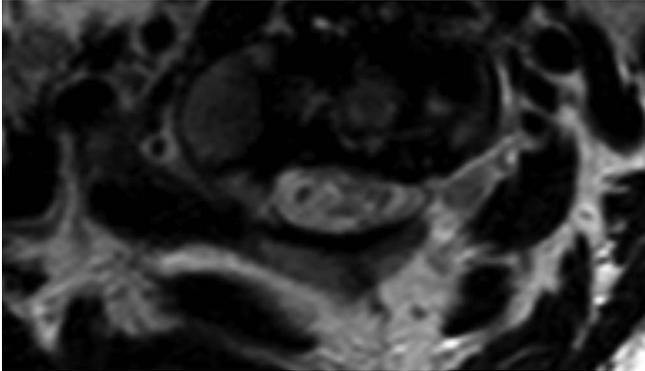
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Figure 2 MRI of the Cervical Spine, Axial View



Axial T2-weighted imaging at rest at the level of C1 confirms the bilateral spinal cord hyperintense lesion, in keeping with gliosis/edema.

Appendix Authors

Name	Location	Contribution
Miguel Quintas-Neves, MD	Department of Neuroradiology, Hospital de Braga, Portugal	Acquisition of data, clinical and imaging data review, literature review, final manuscript writing
Ângelo Carneiro, MD, MSc	Department of Neuroradiology, Hospital de Braga, Portugal	Clinical and imaging data review, literature review, final manuscript writing

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