

Nelarabine-Induced Myelotoxicity

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Figure Nelarabine-Induced Myelotoxicity



MRI of the cervical (A, C, and E) and thoracic (B and D) spine. Sagittal T2-weighted (A), sagittal short tau inversion recovery (B), axial T2-weighted (C–D), and axial T1-weighted postcontrast (E) images demonstrate extensive T2 hyperintensity of the dorsal (A–D, arrows) and lateral columns (D, dashed arrows), with dorsal column enhancement at the cervicomedullary junction (E, arrowhead).

A 29-year-old woman with relapsed T-cell acute lymphoblastic leukemia presented with 4 months of progressive ataxia, weakness, and bowel/bladder incontinence. Symptoms started after completing 2 cycles of nelarabine. Examination revealed paraplegia and complete sensory loss from mid-chest down, loss of vibration and joint position in upper limbs, areflexia, and bilateral Babinski signs. EMG showed fibrillation potentials with no activated motor units in lower limbs. Laboratory workup, including paraneoplastic auto-antibody panel, CSF analysis, vitamin B₁₂, methylmalonic acid, and copper levels, was unremarkable. Spine MRI findings were consistent with nelarabine-induced subacute

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combined degeneration, including previously unreported lateral column involvement and cord enhancement (figure).^{1,2} The unremarkable CSF, MRI findings (tractopathy), and subacute course made alternative etiologies such as infection, infiltrative leukemia, ischemia, or cord hemorrhage less likely. The patient was treated conservatively and started to spontaneously improve. She then underwent allogeneic stem cell transplantation. Three months later, she regained movement against gravity in all lower extremity muscles. However, she remained severely ataxic, requiring the use of a wheelchair. Repeat EMG showed reinnervation in most lower-limb muscles and less frequent fibrillation potentials.

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Appendix Authors

Name	Location	Contribution
Ajay A. Madhavan, MD	Mayo Clinic, Rochester, MN	Writing and editing the manuscript and figure
Carrie M. Carr, MD	Mayo Clinic, Rochester, MN	Study conception, writing and editing the manuscript and figure
Hassan Alkhateeb, MD	Mayo Clinic, Rochester, MN	Editing the manuscript and figure
Nathan P. Staff, MD	Mayo Clinic, Rochester, MN	Editing the manuscript and figure
Elie Naddaf, MD	Mayo Clinic, Rochester, MN	Study conception, writing and editing the manuscript and figure

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