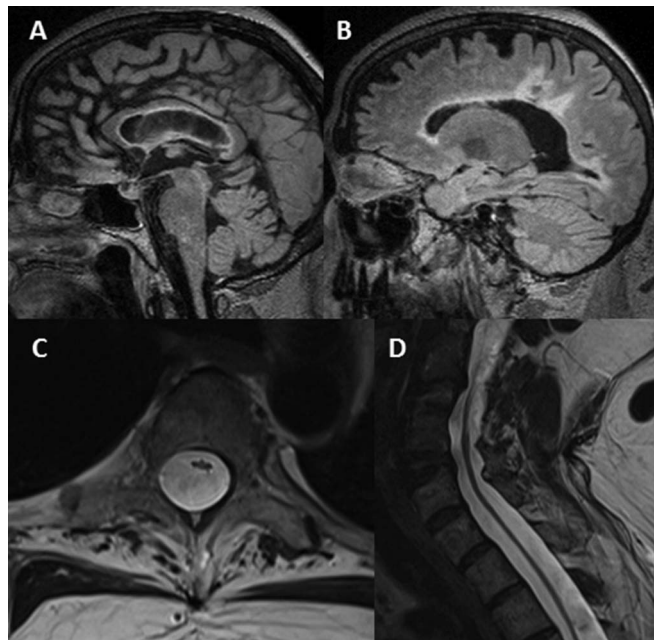


# Teaching NeuroImages: MRI in advanced neuromyelitis optica

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**Figure** MRI in severe neuromyelitis optica



(A) Sagittal T2 fluid-attenuated inversion recovery demonstrates hyperintensity on the internal surface of the corpus callosum surrounding the lateral ventricles and lining the tectum and tegmentum at the level of the cerebral aqueduct. (B) T2 hyperintense lesions perpendicular to the lateral ventricles (Dawson fingers) mimic multiple sclerosis and may lead to misdiagnosis of neuromyelitis optica. (C, D) Severe spinal cord atrophy on T2 imaging.

A 51-year-old woman was treated with multiple medications for relapsing-remitting multiple sclerosis (MS) over 20 years, including interferons and glatiramer, but continued to have recurrent attacks of optic neuritis and transverse myelitis, leading to bilateral blindness and triplegia. Even with MS-type lesions on MRI, neuromyelitis optica (NMO) was ultimately suspected and confirmed by detection of aquaporin-4 autoantibodies. MRI showed nonenhancing T2 linear hyperintensity around the ventricular system in areas known to highly express aquaporin-4 (figure).<sup>1</sup> Profound spinal cord atrophy was evident, consistent with severe, chronic NMO. This case illustrates the lack of effectiveness and potential detriment when MS-directed immunomodulatory medications are aimed at NMO.<sup>2</sup>

### AUTHOR CONTRIBUTIONS

Drs. Braksick and Cutsforth-Gregory were responsible for the initial drafting of the manuscript. Dr. Black assisted in revision of

the manuscript and selection of radiographic images. Drs. Weinschenker, Pittock, and Kantarci assisted in revision of the manuscript.

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S. Braksick reports no disclosures relevant to the manuscript. J. Cutsforth-Gregory is a member of the *Neurology*<sup>®</sup> Resident & Fellow Section editorial team. D. Black reports no disclosures relevant to the manuscript. B. Weinschenker serves on data safety monitoring boards for Novartis, Biogen Idec, and Mitsubishi Pharmaceutical Companies; has received payment for consultation from Elan Pharmaceuticals, Asahi Kasei Kuraray Medical Co., Ltd., GlaxoSmithKline Pharmaceuticals, Ono Pharmaceuticals, and CHORD Pharmaceuticals; and serves on the editorial boards of the *Canadian Journal of Neurological Sciences*, the *Turkish Journal of Neurology*, and *Multiple Sclerosis Journal*. He has received research support from the Guthy-Jackson Charitable Foundation and receives license royalties from RSR Ltd. for a patent regarding AQP4-associated antibodies for diagnosis of neuromyelitis optica.

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