ALS corticospinal degeneration on DWI

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A 58-year-old woman experienced progressive gait slowing over 4 months. She had normal strength and reflexes, mute plantar responses, and no clinical or EMG lower motor neuron findings. MRI was obtained (figure). A month later, spasticity and hyperreflexia in the legs were noted, with bilateral Babinski signs. Widespread fasciculations became present on EMG, supporting the diagnosis of amyotrophic lateral sclerosis (ALS).

MRI evidence of corticospinal tract involvement can help to confirm upper motor neuron disease in ALS.¹ The degenerating tract was specifically highlighted on diffusion-weighted imaging (DWI) because recent lesions appear bright on DWI, whereas older lesions do not.²

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Figure. Fluid-attenuated inversion recovery (FLAIR) MRI (A) and diffusion-weighted imaging (DWI) (B). Both the periventricular white matter (arrowhead) and the corticospinal tracts (black arrows) appear bright on FLAIR, but only the corticospinal tracts, recently damaged, appear bright on DWI. The white arrows point to the Rolandic sulcus.

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