LETTER TO THE EDITOR

Upper motor neuron involvement and conventional diffusion weighted imaging

MASAMI MORIKAWA, HIROSHI KATAOKA, HIROSEI HOKIKAWA & SATOSHI UENO

From the Department of Neurology, Nara Medical University, Kashihara, Nara, Japan

Dear Sir

A 58-year-old female had symmetric spasticity, hyperreflexia, extensor plantar responses, spastic dysarthria, and pseudobulbar symptoms. The upper motor neuron involvement had progressed gradually over more than five years, leading to weakness in all four limbs and pseudobulbar symptoms, requiring a percutaneous endoscopic gastrostomy. Denervation potentials were not detectable on needle electromyography. Primary lateral sclerosis was diagnosed clinically. Cranial magnetic resonance imaging showed hyperintensity along the corticospinal tracts (CST) on fluid-attenuated inversion recovery (FLAIR) (Figure 1A) and T2-weighted images, with high signal intensity in the CST on diffusion-weighted imaging (DWI) (Figure 1B).

High signal intensity was evident in the CST on DWI, extending from the precentral gyrus and passing through the centrum semiovale, periventricular white matter, internal capsule, and brainstem. A single case of amyotrophic lateral sclerosis in which motor tract degeneration was highlighted mildly on DWI of recent lesions has been documented (1). FLAIR images showed that abnormalities extended beyond the CST and were therefore not diagnostic (1), whereas DWI images in our patient showed abnormalities restricted to the CST. Because changes on DWI may be related to T2 abnormalities (‘T2 shine-through’), it would have been helpful if some FLAIR images had been obtained at the same levels as the DWI images, thereby confirming upper motor neuron disease.

Reference


Figure 1. Fluid-attenuated inversion recovery images (panel A) showed hyperintensity in the corticospinal tracts. Diffusion-weighted magnetic resonance images (panel B) demonstrated high signal intensity in the corticospinal tracts.