Quantitative susceptibility mapping suggests a paramagnetic effect in PML

Figure 1 Brain MRI fluid-attenuated inversion recovery and T2* images

Initial MRI revealed hyperintensities of the subcortical white matter on fluid-attenuated inversion recovery and adjacent cortical hypointensities on T2* (A, B). One year later, abnormalities were more extensive (C-E).

A 42-year-old man previously treated with rituximab and stem cell transplantation for B-cell lymphoma presented with subacute cerebellar ataxia and cognitive decline.

Brain MRI revealed fluid-attenuated inversion recovery cortico-subcortical hyperintensities (figure 1, A and B). Adjacent cortex was hypointense on T2* (figure 1, A and B) and susceptibility-weighted imaging (SWI),

Figure 2 Brain MRI

White arrowhead: cortical paramagnetic effect, hypointense on T2* (A) and susceptibility-weighted imaging (B), hyperintense on quantitative susceptibility mapping (C).

hyperintense on quantitative susceptibility mapping (QSM) (figure 2). CSF PCR analysis showed JC virus DNA. Follow-up MRI revealed more extensive lesions (figure 1, C–E).

SWI hypointensities have been described recently in progressive multifocal leukoencephalopathy (PML)¹ suggesting diamagnetic (calcifications) or paramagnetic (blood degradation products or non-heme iron deposits) effect.² This report using QSM in PML strongly suggests a paramagnetic effect.

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