Atypical onset of demyelinating syndrome with Isolated Cognitive Relapse

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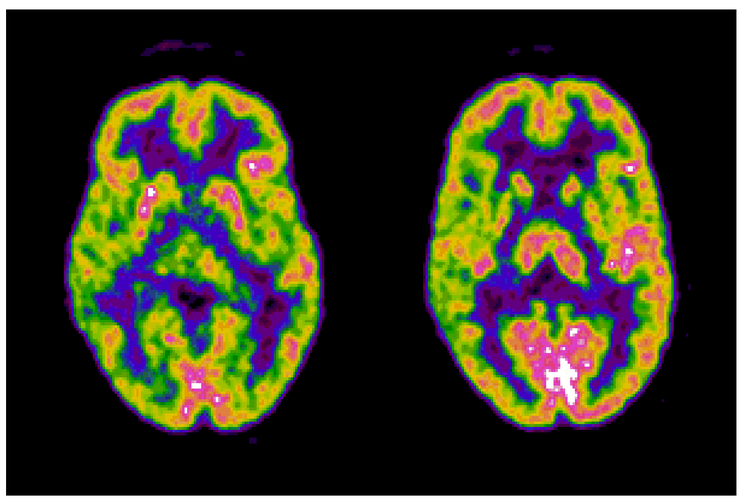
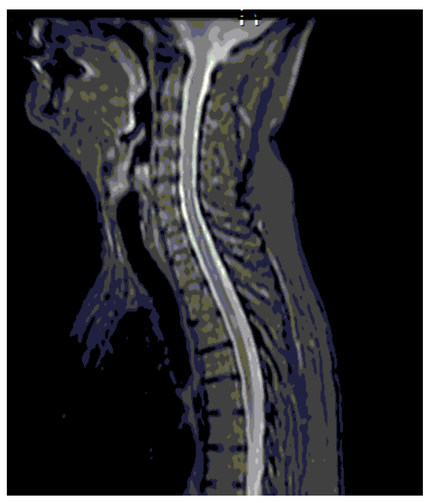
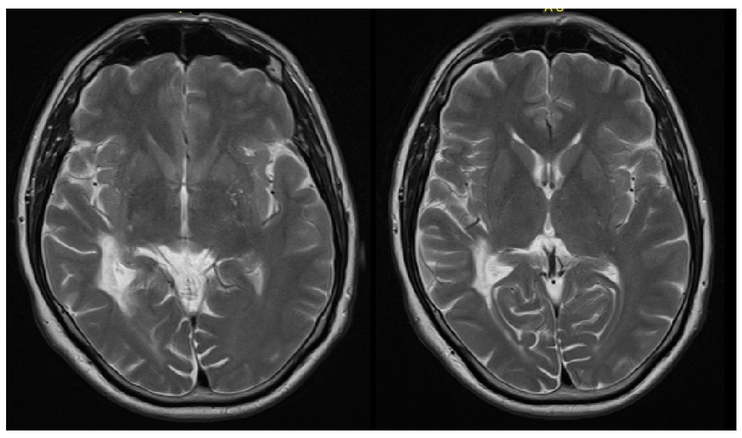
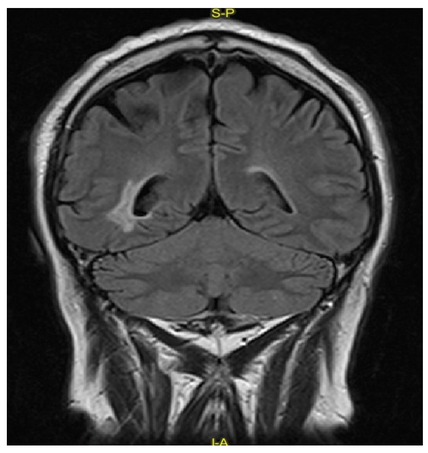
We describe the case of a 49 years old man **cigarette smoker**, affected by **diabetes**, who came to our attention for **dyscalculia**. An episode of vertigo and gait impairment was reported three years before; a brain CT scan was performed, showing a small cerebellar lobe hypodensity, and a patent **forame ovale** was found: he was treated with percutaneous closure. Dyscalculia emerged abruptly 2 months before our evaluation, followed by **subjective memory impairment**.









Here, we describe a case of **demyelinating disease onset** with dyscalculia and subjective memory loss, confirmed by neuropsychological evaluation, due to the presence of a lesion in **critical brain area**, primarily interpreted as a vascular disease, with subsequent motor relapse.

Our neuropsychological evaluation confirmed only a **mild calculating and memory impairment**; BDI showed mild depression levels.

To evaluate the possibility of an early onset dementia we performed a **brain MRI** and found a right periventricular lesion, hyperintense in T2 and FLAIR sequences, with extension in temporo-parietal lobe; no relevant brain atrophy was found. **FDG-PET** showed only temporo-parietal hypocaptation, fair to the lesion seen in MRI; no further areas of hypocaptation was found. **CSF examination** showed normal levels of amyloid-B, tau and fosfo-tau proteins. The case was interpreted like a **cognitive impairment due to vascular lesion**.

During follow-up neuropsychological and clinical evaluation were stable, but after 2 years the patient came showing **paraparesis** with **hyperreflexia**, walking limitation for more than 200 meters, lower limbs **dysesthesias**. We performed a complete spinal cord MRI and found **many T2 hyperintense** lesions in thoracic cord without contrast enhancement. We repeated CSF examination and found some **oligoclonal bands**; no new brain lesions in MRI were detected.

Isolated Cognitive Relapses (ICR) are well described and notoriously associated with a persistent reduction of cognitive performance over time, as seen in our patient (persistence of dyscalculia and mild memory impairment). The misdiagnosis at first evaluation was due to the presence of multiple vascular risk factors (PFO, cigarettes smoke, diabetes); we don't know if an early diagnosis and treatment could prevent the spinal relapse.

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2 Clinical and imaging assessment of cognitive dysfunction in multiple sclerosis. Rocca MA, Amato MP, De Stefano N, Enzinger C, Geurts JJ, Penner IK, Rovira A, Sumowski JF, Valsasina P, Filippi M; MAGNIMS Study Group. Lancet Neurol. 2015 Mar;14(3):302-17. doi: 10.1016/S1474-4422(14)70250-9. Epub 2015 Feb 4. Review. PMID: 25662900

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