Reversible splenial lesion of the corpus callosum related to valproic acid therapy

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INTRODUCTION. Reversible splenial lesion is a distinct radiological condition characterized by reversible lesion in the splenium of the corpus callosum (SCC) affecting particularly children but documented also in adults, with diverse aetiologies such as influenza, hypoglycaemia, rotavirus, Escherichia coli and adenovirus. The pathophysiology of the lesions remains unclear. We present a case with transient lesion of the SCC associated with epileptic seizures and antiepileptic therapy.

MATERIALS and METHODS. A 54-year-old female patient was referred to our Unit for recurrent partial seizures. No consciousness disorders, drowsiness, fever episodes were reported or observed in the last year. Episodic attack of migraine without aura were only described. The neurological examination was normal. She had occasional complex partial seizures since age 50 years. She was given valproic acid (VPA) 1.400 mg/die for treatment of the seizures with transient efficacy. Her intercritical electroencephalogram showed short and rare discharge of focal sharp waves. Routine laboratory tests (including vitamin B12 levels, immunological study and serum level of VPA) were normal. The analysis of the faeces excluded the presence of Rotavirus and Escherichia Coli. The initial MRI showed a transversal lesion in the SCC, hyperintense on T2 and FLAIR and hypointense on T1 images (fig.1A-B), without contrast enhancement (fig.1C). A diffusion weighted acquisition revealed no changes in the posterior aspect of corpus callosum (fig.1D).

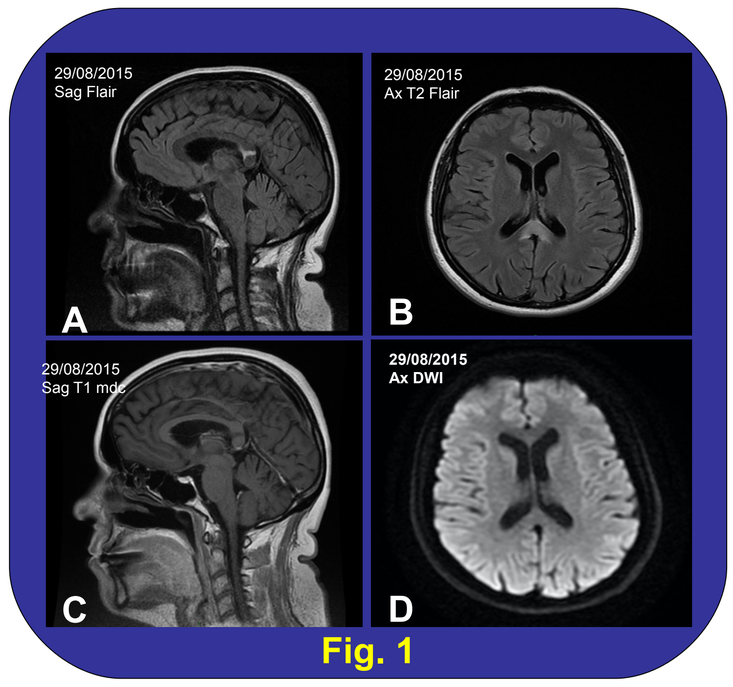

Fig. 1

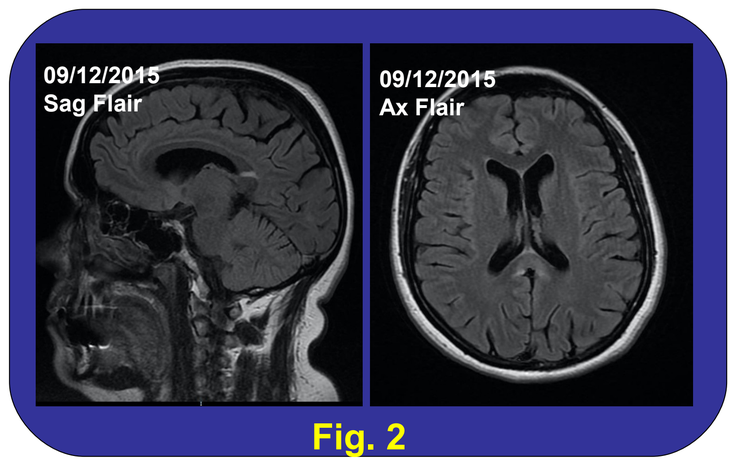

Fig. 2

RESULTS. The patient was discharged after a reduction of the daily posology of VPA (1.000 mg/die). Four months later, a control MRI brain showed a significant reduction of the lesion (fig.2).

DISCUSSION and CONCLUSIONS. The splenium of the corpus callosum is an unusual location where lesions can be observed. Most of these cases are associated with epileptic seizures, antiepileptic drug (AED) usage and sudden withdrawal of the AEDs, in particular the carbamazepine, and were been reported in children and young adults. Factors such as focal demyelinization due to the toxicity of the AEDs and the effects of the AEDs on the fluid-electrolyte equilibrium have been held responsible. In our patient we suppose a toxic and transient effect of VPA on white fibers of SCC through an unknown and reversible mechanism related with use of VPA. Although rare in middle-aged patients, in case of isolated splenial lesion on MR imaging in patients taking AEDs, we suggest to repeat brain MR after appropriated adjustment of therapy avoiding unnecessary invasive examinations and further treatments.

References

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