Crossed cerebellar diaschisis in status epilepticus
Diaschisis cérébelleux croisé au cours d'un état de mal épileptique

Case report
A 43-year-old man with medical history of alcoholism, diabetes mellitus and head trauma was found unresponsive at home. Physical examination showed apyrexia and a convulsive status epilepticus (SE) without focal signs. Capillary blood glucose was normal. Because of no response to standard treatment regimens for SE, he was sedated, intubated and admitted in ICU. Seizures stopped. Comprehensive laboratory investigations (including lumbar puncture) were negative. EEG performed under sedation found no sign of persistence of SE. Patient was treated with levetiracetam. Brain MRI revealed restricted diffusion within the cortex of the left hemisphere (Figures 1 and 2), ipsilateral pulvinar and right cerebellum (Figure 3). Magnetic resonance (MR) angiography showed no vessel occlusion. MRI findings were consistent with focal status epilepticus and crossed cerebellar diaschisis (CCD). Sedation was stopped. Consciousness improved. Patient was discharged from ICU at day 14. Right hemiparesis and aphasia persisted at day 30.

Discussion
CCD was first described in the early twentieth century by Monakow [1]. It can be due to supratentorial stroke, tumours and SE. CCD is due to a hyperactivation–deafferentation phenomenon. It may represent injury caused by excessive neuronal transmission from prolonged excitatory synaptic activity via the cortico-pontine-cerebellar or cortico-thalamic-cerebellar pathways [2]. This leads to loss of function and metabolism, neural depression in the contralateral cerebellum (linked to the injured area) and sometimes neurodegeneration. Its reversibility would be related to the severity of the supratentorial damage: persistent CCD is associated with poor clinical outcome in acute stroke [3]. Lesion’s area, not severity, is the main determinant of CCD incidence [4]. Positron emission tomography or perfusion-weighted MRI is used to
assess the hypoperfusion or hypometabolism in area distant from the original lesion [5]. Diffusion tensor MR imaging can show altered corticocerebellar circuit.

References


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