Transient lesion of splenium of corpus callosum

Published on 22.02.2017

Case 14491

Clinical History:

A 6-year-old girl came with history of one episode of convulsion in the last 24 hour prior to admission. Since then the patient was in a semiconscious state.

Imaging Findings:

MRI brain showed a globular T2/FLAIR hyperintense lesion in the splenium of the corpus callosum with diffusion restriction and low ADC value. (Fig. 1 a-d) The rest of the MRI showed no significant abnormality.

In view of the clinical history and typical lesion in the corpus callosum, the patient was diagnosed with transient lesion of the splenium of the corpus callosum.

Discussion:

Aetiologies for transient signal intensity changes observed in the splenium of the corpus callosum include epilepsy, electrolyte imbalance, demyelination, multiple sclerosis, acute disseminated encephalomyelitis, posterior reversible encephalopathy syndrome, Marchiafava-Bignami disease, diffuse axonal injury, AIDS dementia complex, infections (viral: influenza, measles, herpes, mumps, adenovirus, varicella zoster, rotavirus and HIV; bacterial: salmonella, Legionnaires disease; mycobacterial: tuberculous meningitis) hypoglycaemia, haemolytic-uremic syndrome with encephalopathy. [1]

Transient lesions of the splenium are only appreciable on MRI, where they have two distinct patterns: 1. Well circumscribed, small, oval lesions in the midline <1cm within the substance of the corpus callosum. 2. More extensive ill-defined irregular lesions extending throughout the splenium or whole corpus callosum and into the adjacent hemispheres (boomerang sign). [2] The first pattern is a typical lesion seen in the setting of seizures/cessation of anti-epileptic medication, whereas the second pattern is more typical of other aetiologies mentioned above.

“MERS” (mild encephalitis/encephalopathy with a reversible splenial lesion) is a terminology to explain a clinical syndrome have features of mild encephalopathy, seizures, and good outcome on follow-up. In MERS involvement was restricted to the splenium, with some patients having adjacent white matter involvement as well. [3] Infarct is a major perception but it is less likely a cause of this signal intensity changes as the splenium has extensive vascular supply so infarct is less likely to develop in the region.

TPMA (Transient Periictal MR abnormalities) classified into type I-restricted to the superficial grey matter, type II-
affecting the superficial grey and subcortical white matter (type IIa) or with the subcortical white matter involvement extending to the adjacent periventricular surface (type IIb), type III—with involvement of the subcortical nuclei associated with any degree of cortical or white matter involvement, type IV—involvement of white matter alone and type V—with leptomeningeal enhancement and/or gyriform cortical enhancement. [4]

The lesion is hyperintense on T2, FLAIR and DWI with low ADC value. The changes in DWI appear earlier than the changes in T2WI and FLAIR, as reported by Oster et al. [5]

Disappearance of signal abnormalities in the splenium of corpus callosum has been documented by various authors. [3]

This case is interesting due to transient periictal signal abnormality involving solely the splenium of the corpus callosum on MRI is not frequently encountered in clinical practice. So, the treating physician might be tempted to subject the patient to unnecessary diagnostic and therapeutic interventions. By clinical knowledge and MRI findings we can conclude the proper diagnosis. These lesions of splenium carry a good prognosis due to their reversibility and should not be confused with serious pathologies.

**Differential Diagnosis List:** Transient lesion of the splenium of the corpus callosum, Ischaemia, Boomerang sign

**Final Diagnosis:** Transient lesion of the splenium of the corpus callosum.

**References:**


**Description:** T2 axial image of the brain shows small globular hyperintense lesion in the splenium of the corpus callosum. **Origin:** Department of Radiology, Sardar Patel Hospital and Heart Institute, Ankleshwar, Gujarat, India.
Description: FLAIR axial image of the brain shows small globular hyperintense lesion in the splenium of the corpus callosum. Origin: Department of Radiology, Sardar Patel Hospital and Heart Institute, Ankleshwar, Gujarat, India.
Description: DWI of the brain shows diffusion restriction in the lesion found in the splenium. Origin: Department of Radiology, Sardar Patel Hospital and Heart Institute, Ankleshwar, Gujarat, India.
Description: ADC of the brain shows low ADC value in the lesion of the splenium. Origin: Department of Radiology, Sardar Patel Hospital and Heart Institute, Ankleshwar, Gujarat, India.