

Transient and reversible focal lesion involving the splenium of the corpus callosum in a person with epilepsy

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Case Report

A 40-year-old man with epilepsy was admitted with relapse of generalized tonic-clonic seizures following inadvertent discontinuation of phenytoin that he had been taking regularly. His neurological examination and previous brain magnetic resonance imaging (MRI) were normal. A repeat MRI (1.5-Tesla superconducting magnet, Symphony, Siemens, Germany) of the brain, using axial T1-weighted spin-echo (500 TR / 11 TE), axial and sagittal T2-weighted turbo spin-echo (6000 TR/90 TE), axial FLAIR, and diffusion-weighted and ADC sequences, revealed a solitary well-defined ovoid lesion in the splenium of the corpus callosum, measuring 15 × 20 mm in size. The lesion was isointense to minimally hypointense on T1-weighted sequences, hyperintense on T2-weighted and FLAIR sequences, and showed restricted diffusion with low ADC values (40–50) [Figure 1a–c]. Axial, sagittal, and coronal T1-weighted sequences were obtained after intravenous injection of gadolinium (0.1 mmol/kg gadopentetate dimeglumine). Postcontrast MRI showed no significant

enhancement of the lesion [Figure 1d]. The rest of the brain parenchyma was normal. The patient became asymptomatic after resuming phenytoin. An MRI of the brain, repeated

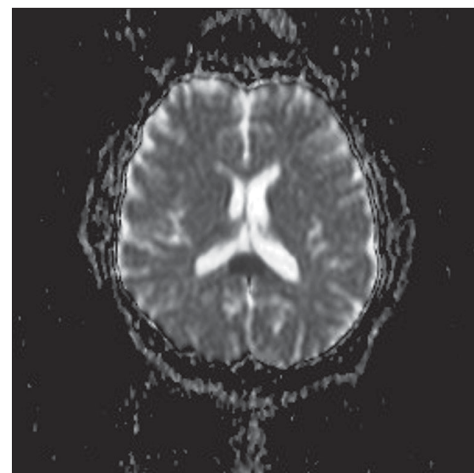


Figure 1(b): Axial ADC image shows that the lesion has a low ADC value (40–50)

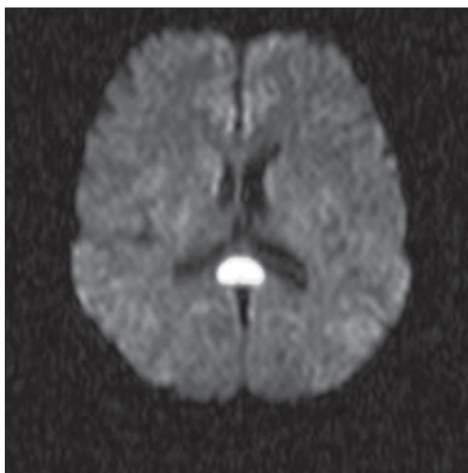


Figure 1(a): Axial diffusion-weighted MRI sequence shows a well-defined ovoid nodular lesion with restricted diffusion in the center of the splenium of the corpus callosum

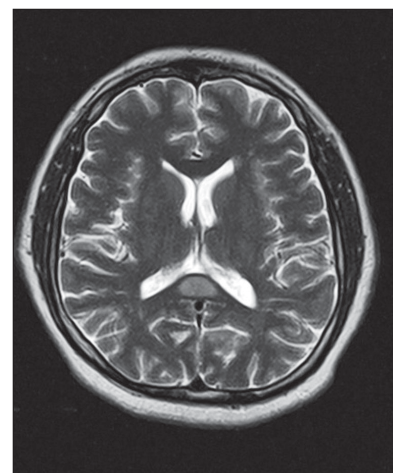


Figure 1(c): Axial T2-weighted sequence shows that the lesion is homogeneously hyperintense compared to the body of the corpus callosum

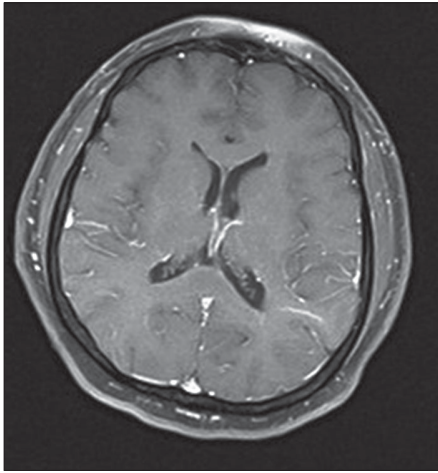


Figure 1(d): Axial T1W gadolinium-enhanced image shows that the lesion shows no significant enhancement

after 4 weeks, revealed complete disappearance of the splenial lesion. He remained normal 6 months later.

Discussion

Discrete focal nonhemorrhagic lesions within the central portion of the splenium of the corpus callosum without any other accompanying lesion frequently pose a diagnostic dilemma for the clinician.^[1] It is important to be aware that reversible focal lesions can occur rarely after seizures. Reversible MR signal changes in the splenium can occur due to vasogenic edema following a seizure,^[1-3] withdrawal of an antiepileptic drug,^[1,2,4-6] antiepileptic drug toxicity,^[1] multiple sclerosis, trauma, infarct, neoplasm, adrenoleukodystrophy and other leukodystrophies, AIDS dementia complex, Marchiafava–Bignami disease,^[1,7] or childhood-onset anorexia nervosa.^[8] Reversible splenial signal changes due to vasogenic edema can occur in acute herpes simplex cerebellitis.^[9,10] It is hypothesized that these signal changes may be related to alteration in the arginine–vasopressin system^[3] or excitotoxic injury to astrocytes.^[2,11]

A similar lesion was observed in a patient with an episode of kaleidoscopic vision while using diet pills containing sympathomimetic drugs^[12]; withdrawal of

the medication resulted in the cessation of the episodes and normalization of the MRI.

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