



Acute Disseminated Encephalomyelitis

Last Updated: June 30, 2021

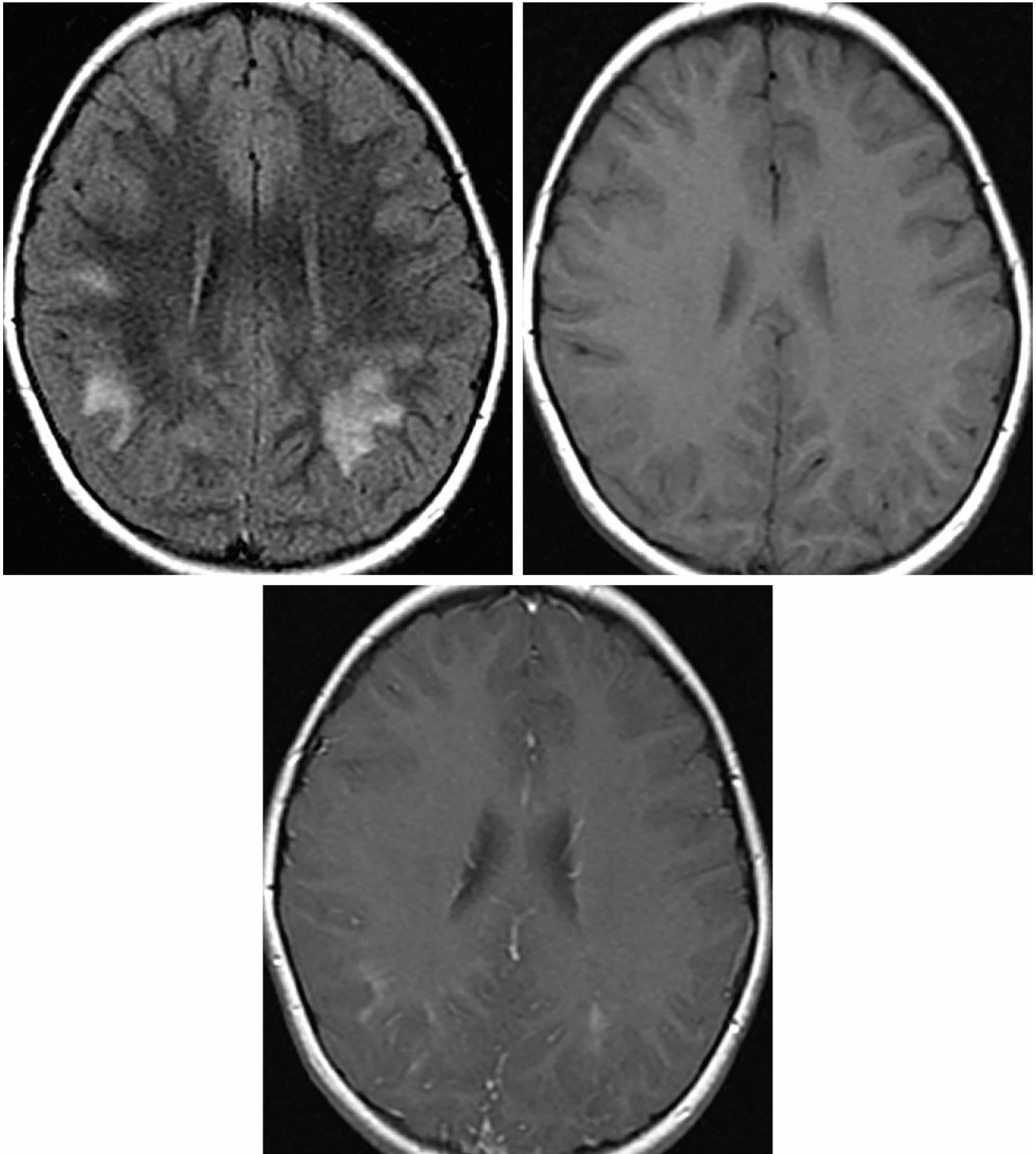


Figure 1: In this patient, with a recent history of upper respiratory tract infection, there is clear asymmetric subcortical FLAIR-hyperintense signal (top left) within the bilateral temporal and parietal lobes with subtle

corresponding hypointense signal on T1WI (top right). (Bottom) The postcontrast image demonstrates faint peripheral enhancement.

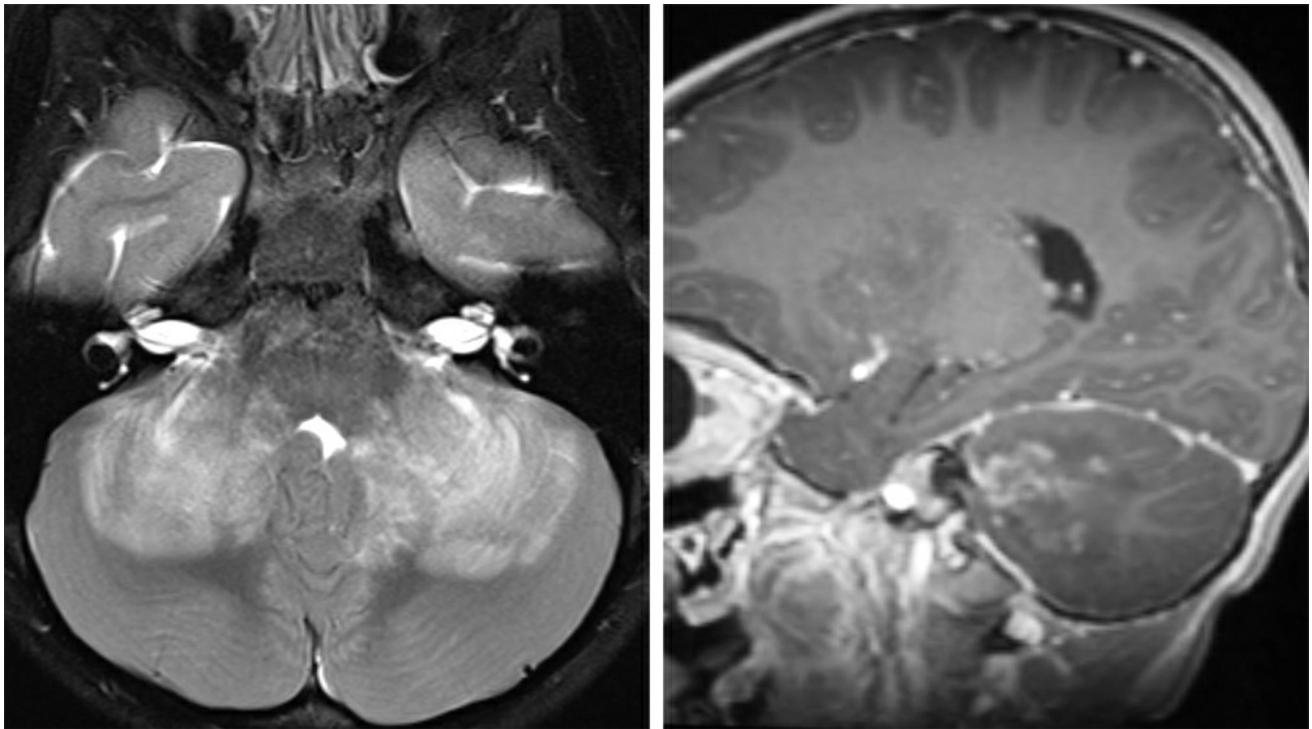


Figure 2: Axial T2-FS (left) and sagittal T1 postcontrast (right) images of the head demonstrate expansile FLAIR hyperintensity in the bilateral cerebellar hemispheres. There is a flocculent appearance of the signal abnormality with heterogeneous internal contrast enhancement. The patient presented with history of viral illness, nausea, vomiting, and multiple neurologic deficits on exam. The lesions subsequently resolved after treatment with intravenous immunoglobulin and steroids.

Description

- Autoimmune-mediated demyelination typically occurring shortly after immunization or upper respiratory viral infection

Pathology

- Inflammation surrounding vessels, edema, and perivenous demyelination

Clinical Features

- Symptoms

- Fever, malaise, myalgia, lethargy, and potentially coma
- Nonspecific neurologic findings related to location of demyelination
- Age
 - Most common in children
- Gender
 - Male > Female
- Prognosis
 - 10% to 30% mortality rate

Imaging

- General
 - Multifocal areas of white matter demyelination typically within a few weeks of immunization or viral infection
 - Cerebral, cerebellar, and spinal cord lesions
 - Very little mass effect
- Modality specific
 - CT
 - Often normal at presentation but may have multiple ill-defined regions of hypoattenuation
 - Variable enhancement
 - MR
 - T1WI
 - Ill-defined regions of hypointensity
 - T2WI/FLAIR
 - Multifocal asymmetric white matter hyperintensities with surrounding edema
 - Typically, symmetric signal abnormality within the basal ganglia and thalami
 - DWI
 - Diffusion restriction is uncommon and portends a poor prognosis
 - Contrast

- Incomplete rim of enhancement
- Cranial nerve enhancement is common
- Imaging Recommendations
 - MRI with contrast of the brain and spinal cord
- Mimic
 - While multiple sclerosis, vasculitis, and posterior reversible encephalopathy syndrome (PRES) are common mimics, acute disseminated encephalomyelitis (ADEM) can also mimic infiltrative glioma or CNS lymphoma in an immunocompromised patient, particularly when involving the corpus callosum. The incomplete rim of enhancement and clinical history of recent immunization or upper respiratory tract infection can help clinch the diagnosis.

For more information, please see the corresponding chapter in [Radiopaedia](#) and the [ADEM](#) chapter in the [Spinal Cord Disorders](#) subvolume.

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DOI: <https://doi.org/10.18791/nsatlas.v1.03.02.02>

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