

AMSER Case of the Month

February 2025

15-year-old female with headache, dizziness, and ataxia.

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Patient Presentation

- HPI: 15-year-old presenting for worsening headache, dizziness, and ataxia over the past month.
- PMH: Anxiety, depression, psychosis, migraines, intracranial hypertension, and borderline personality disorder
- Medications: Olanzapine, Topiramate, Lithium, Lurasidone

Pertinent Labs

- Negative CSF and autoimmune panel.

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 7:

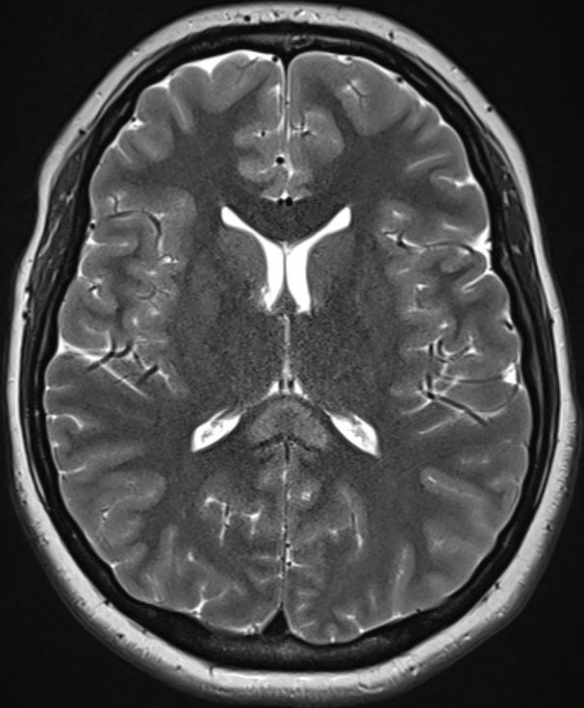
Headache with one or more of the following “red flags”: increasing frequency or severity, fever or neurologic deficit, history of cancer or immunocompromise, older age (>50 years) of onset, or posttraumatic onset. Initial imaging.

| Procedure | Appropriateness Category | Relative Radiation Level |
|---------------------------------------|--------------------------|--------------------------|
| MRI head without and with IV contrast | Usually Appropriate | ○ |
| MRI head without IV contrast | Usually Appropriate | ○ |
| CT head without IV contrast | Usually Appropriate | ☼☼☼ |
| Arteriography cervicocerebral | Usually Not Appropriate | ☼☼☼ |
| MRA head with IV contrast | Usually Not Appropriate | ○ |
| MRA head without and with IV contrast | Usually Not Appropriate | ○ |
| MRA head without IV contrast | Usually Not Appropriate | ○ |
| MRI head with IV contrast | Usually Not Appropriate | ○ |
| MRV head with IV contrast | Usually Not Appropriate | ○ |
| MRV head without and with IV contrast | Usually Not Appropriate | ○ |
| MRV head without IV contrast | Usually Not Appropriate | ○ |
| CT head with IV contrast | Usually Not Appropriate | ☼☼☼ |
| CT head without and with IV contrast | Usually Not Appropriate | ☼☼☼ |
| CTA head with IV contrast | Usually Not Appropriate | ☼☼☼ |
| CTV head with IV contrast | Usually Not Appropriate | ☼☼☼ |

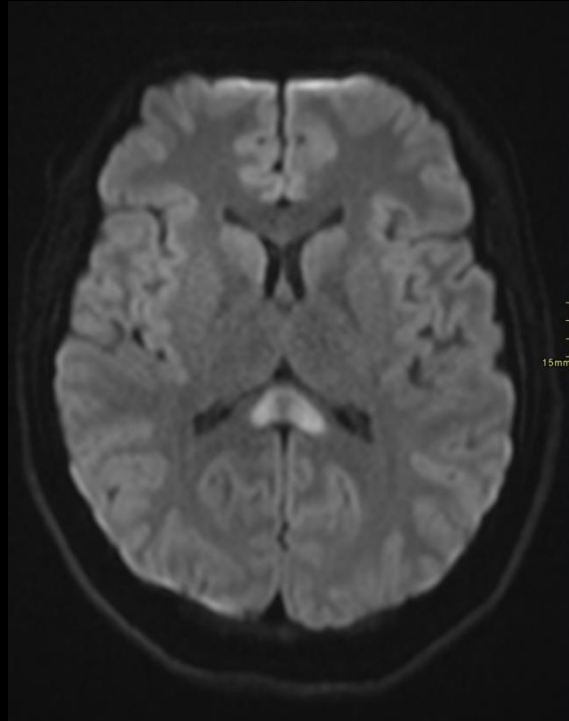


This imaging modality was ordered by the ER physician

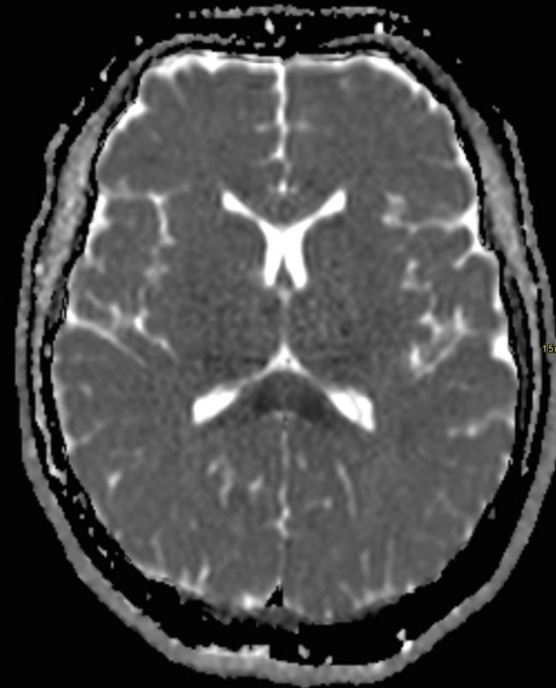
Findings (unlabeled)



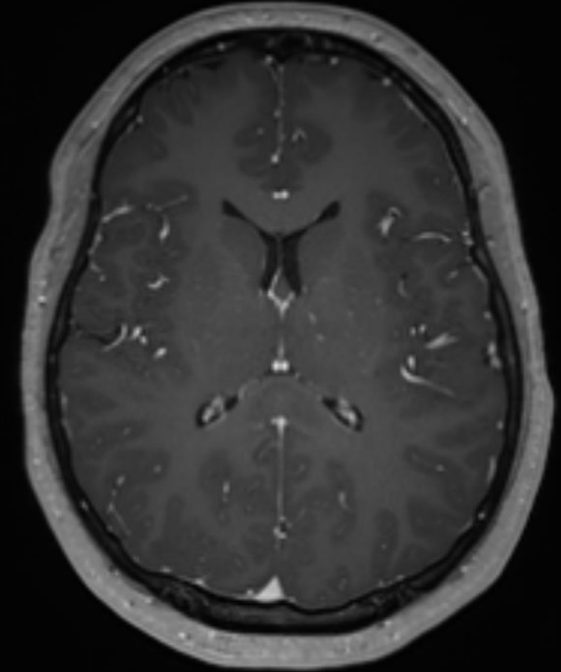
MRI T2



MRI DWI



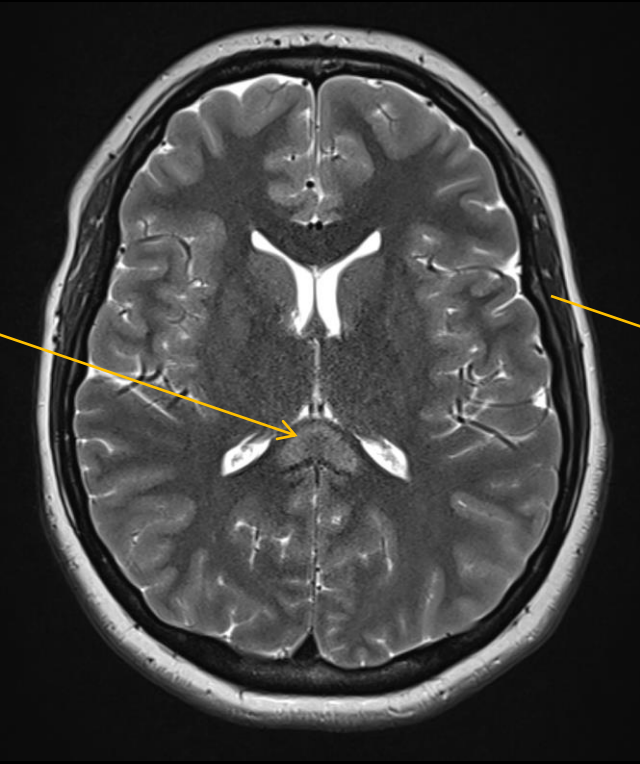
MRI ADC



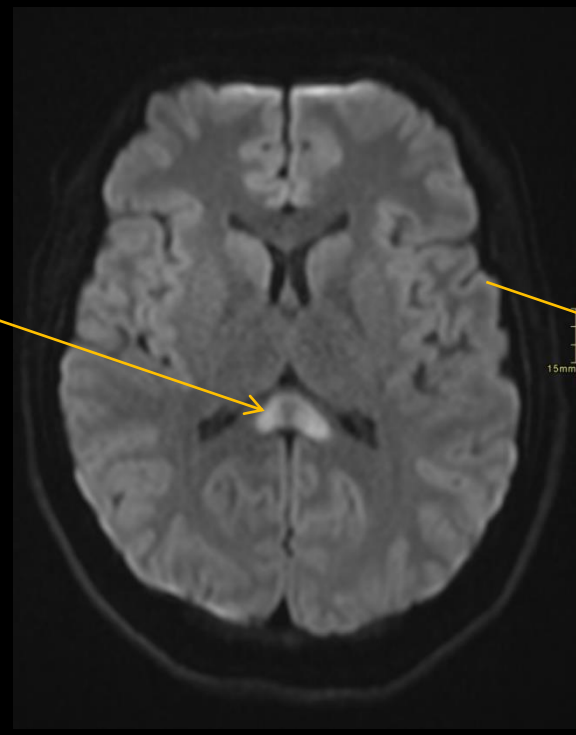
MRI T1 Post Con

Focal area of T2 hyperintensity and diffusion restriction in the splenium of the corpus callosum. Post contrast images demonstrated no enhancement.

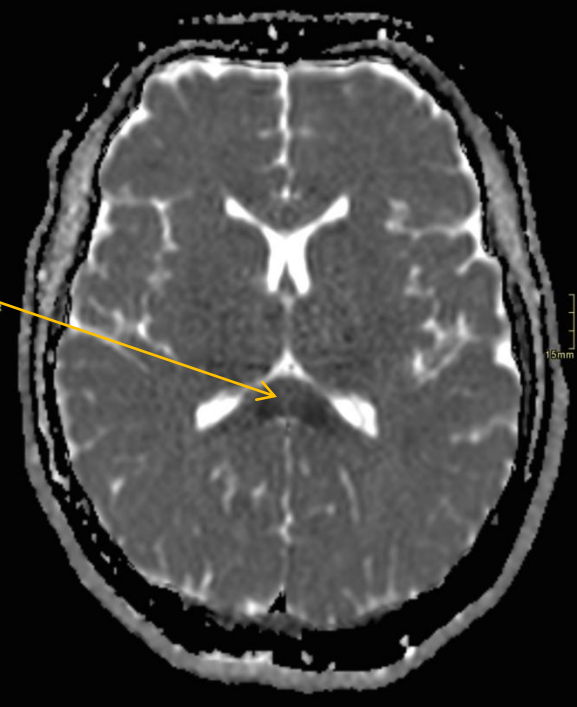
Findings (labeled)



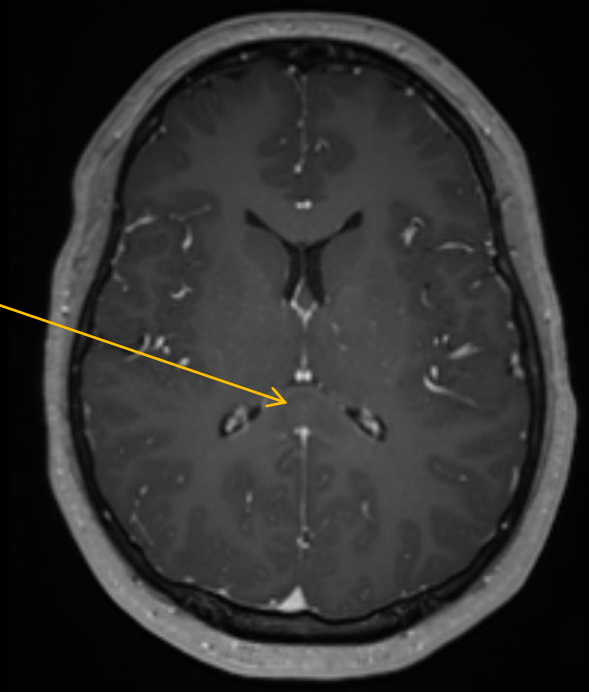
MRI T2



MRI DWI



MRI ADC



MRI T1 Post Con

Final Dx:

Cytotoxic Lesion of the Corpus Collosum (CLOCC)

Cytotoxic Lesion of the Corpus Collosum

- **Definition:** CLOCC refers to transient lesions primarily affecting the splenium of the corpus callosum, often associated with cytotoxic edema. These lesions are currently thought to be caused by either metabolic disturbances, infectious processes, or drug reactions rather than direct traumatic injury.
- **Etiology:** Common causes include
 - Sudden cessation of antiseizure drugs (Most classic cause)
 - Infectious: often viral, ex. Influenza, adenovirus, rotavirus
 - Metabolic : Hypoglycemia, hypernatremia, uremia
 - Toxic: Chemotherapy drugs, immunosuppressants, or antiepileptics
 - Other common associations: High-Altitude Cerebral Edema (HACE), subarachnoid hemorrhage, migraines
- **Clinical Features:** Often nonspecific and dependent on etiology. However, symptoms may present suggesting signs of encephalopathy, with the most common symptom being fever.
 - Some neurologic symptoms include altered mental status, motor deterioration, ataxia, dysarthria, dizziness, and delirium being reported.

Cytotoxic Lesion of the Corpus Collosum

- **Imaging Findings:**
 - CLOCC is generally only appreciable on MRI, and has three distinct patterns
- 1) Well circumscribed, small, oval lesion in the midline of the splenium.
- 2) Larger lesion extending throughout the splenium and into the adjacent hemispheres with well-defined irregularity.
- 3) Even larger lesion that can extend anteriorly into the body of the corpus callosum.
- Smaller lesions are usually correlated with seizures/cessation of antiseizure medications, while larger lesions often have other etiologies such as seizures/epilepsy, vascular disease, or infections

Cytotoxic Lesion of the Corpus Collosum

- **Other Differential Diagnosis:**
 - **Infarction:** Although similar increased DWI signal with corresponding reduced ADC value in acute strokes, given length of time, ADC should have normalized along with enhancement of contrast
 - **PRES:** Appearance of vasogenic edema primarily in the occipital and parietal region. Localization in the splenium is unlikely
 - **Multiple sclerosis:** These usually present as "Dawson fingers", demonstrated as perivenular plaques, not as a singular area of focal diffusion restriction
- **Management:** Treatment of lesions often vary, but most focus around addressing the underlying cause.
- Research has shown no differences between clinical recovery and prognosis among various treatment methods including immunotherapy, antibiotics/antivirals, and supportive care.
 - Many cases, especially ones related to antiseizure medication-related lesions, have good prognoses and patients generally fully recover within 1 month without any lasting damage.

References:

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