



Acute HSV Meningoencephalitis in a Pediatric Patient

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Clinical Presentation

- A previously healthy 12-year-old female presented with a 48-hour history of altered mental status and seizure-like activity.
- She was evaluated at an outside hospital where CT head with and without contrast and blood work were unremarkable. Subsequently discharged after returning to baseline.
- The following morning, she experienced two more episodes of seizure-like activity accompanied by urinary incontinence and tongue injury prompting her arrival to the emergency department.
- In the ED, she was afebrile with leukocytosis. CT venogram with and without contrast showed no acute intracranial findings.
- An LP was performed revealing elevated CSF glucose, normal protein, and a low number of RBCs.
- CSF PCR returned positive for HSV, and she was started on IV acyclovir.

Imaging

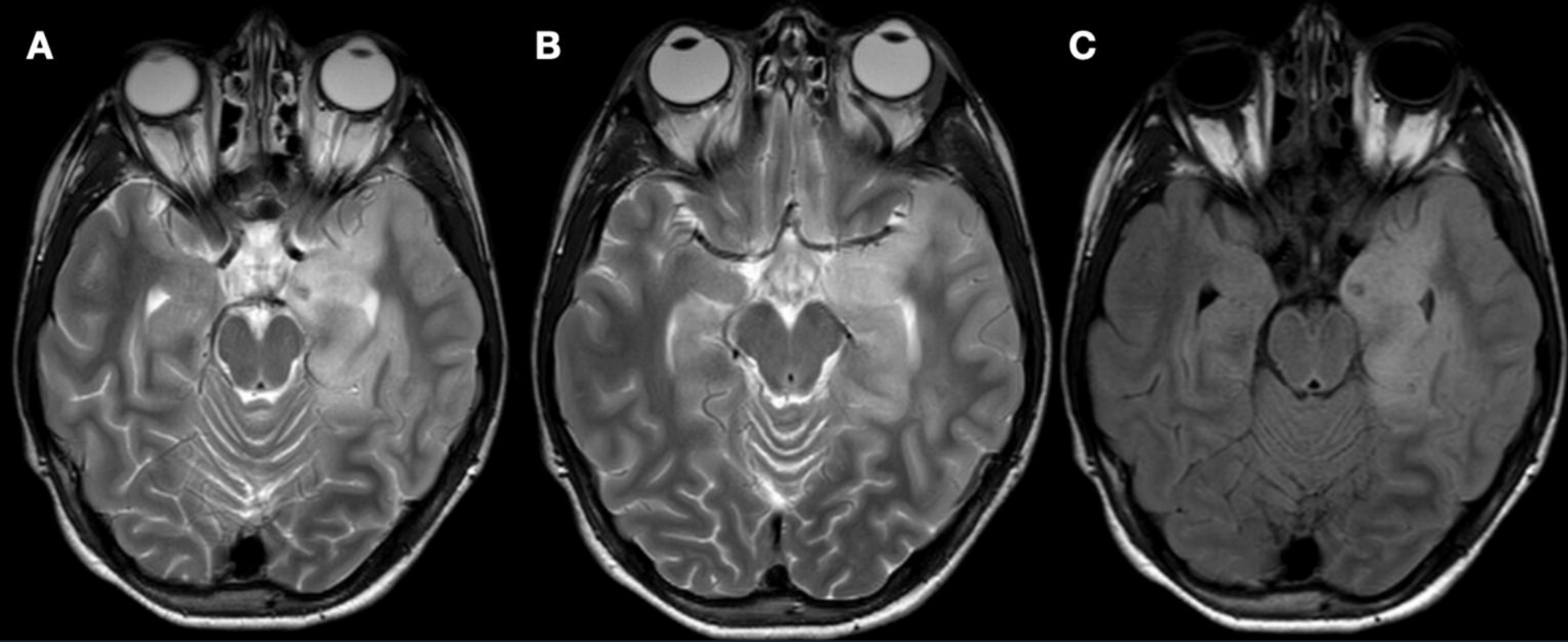


Figure 1. Axial T2 (Images A and B) and FLAIR (Image C) cross sections with hyperintense signal involving the left medial and anterior temporal lobes. A small punctate microhemorrhage is seen in the left medial temporal lobe.



- Cytotoxic edema as evidenced by extensive low diffusivity and T2/FLAIR hyperintense signal involving the left medial and anterior temporal lobes with extension into the left insular cortex and minimally within the left inferior frontal lobe.
- There is associated mass effect and sulcal effacement within the left anterior medial temporal lobes.
- There is linear low diffusivity adjacent to the right temporal horn.
- A small punctate microhemorrhage is demonstrated in the left medial temporal lobe.



Management

- In the emergency department, she was started on empiric ceftriaxone.
- Once CSF PCR returned positive for HSV, treatment with IV acyclovir 365mg Q8H for a total of at least 21 days of therapy was started.
- She was subsequently admitted to the medicine service. Continuous EEG monitoring confirmed multiple seizures from the bilateral temporal lobes.
- For seizure control, she was placed on Keppra 1000mg BID and Vimpat 90mg BID.



Outcome

- At the time of writing this abstract, she is on hospital day 11 and has returned to the floor after a brief stay in the PICU.
- Her seizures have been well controlled with Keppra and Vimpat, although she has yet to return to neurologic baseline.
- Her current status necessitates further inpatient treatment, but she is showing slow improvements.
- Approximately half of children will have some type of neurological sequelae despite antiviral therapy (e.g. mental or motor disabilities and seizures)¹

1. Rocha, N.D., de Moura, S.K., da Silva, G.A.B. *et al.* Neurological sequelae after encephalitis associated with herpes simplex virus in children: systematic review and meta-analysis. *BMC Infect Dis* 23, 55 (2023). <https://doi.org/10.1186/s12879-023-08007-3>



Take Home Points

- HSV encephalitis can present abruptly in children with seizures and altered mental status and can result in significant morbidity and mortality without early treatment.
- Timely antiviral and antiepileptic treatment are essential for improved neurologic outcomes in these patients.
- Radiologists play a vital role in early recognition and communication with the ordering provider in order to initiate treatment promptly.