AMSER Case of the Month
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34-year-old male with visual disturbance

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Patient Presentation

• **HPI:** 34-year-old male presented to the ED with 2 weeks of “head pressure” and persistent blurry vision in the left central eye

• **PMHx:** Hypertension treated for one month with lisinopril/HCTZ before being lost to f/u during COVID last year

• **SHx:** Never smoker

• **ROS:** Denies headaches, weakness, numbness, CP, SOB, palpitations
Physical Exam

- **Vitals**: BP 241/148, HR 95, Temp 36.7 C, RR 16
- **Gen**: pleasant, non-toxic
- **HEENT**: PERRLA, EOM intact
- **Cardiopulm**: RRR, clear breath sounds bilaterally
- **Abd**: soft, NT/ND
- **Neuro**: CN intact, no obvious visual field defect other than blurry vision in the L central eye, no aphasia/dysarthria, 5/5 strength, sensation intact, normal heel-to-shin
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

<table>
<thead>
<tr>
<th>Radiologic Procedure</th>
<th>Rating</th>
<th>Comments</th>
<th>RRL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI head without IV contrast</td>
<td>8</td>
<td>Parenchymal brain imaging and CT or MR vascular imaging of the head and neck should be considered. Noncontrast head CT is often obtained first to assess for hemorrhage or large infarct. Can be useful if there is a contraindication to contrast. MRI is more sensitive than CT for acute infarct.</td>
<td>O</td>
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<tr>
<td>MRI head without and with IV contrast</td>
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<tr>
<td>MRA head and neck without IV contrast</td>
<td>8</td>
<td>Can be obtained in conjunction with MRI head. Preferred MR vascular imaging of the head and neck includes noncontrast head MRA and contrast-enhanced neck MRA. May be useful in patients with renal failure or contrast allergies.</td>
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<td>CT head without IV contrast</td>
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This imaging modality was ordered by the ER physician.
MRI Findings (unlabeled)
MRI Findings (labeled)

- Scattered FLAIR hyperintense foci in the cerebellar hemispheres & pons
- Foci of sulcal FLAIR hyperintense signal in the occipital lobes
Final Dx:
Posterior Reversible Encephalopathy Syndrome
PRES

• Etiology
  • Uncontrolled hypertension
  • Pre-eclampsia
  • Drug toxicity (chemotherapy)
  • Uremic encephalopathy
  • Autoimmune disease
  • COVID-19

• Symptoms
  • Headaches
  • Nausea and vomiting
  • Altered mental status
  • Seizures
  • Cortical blindness or other visual abnormalities
  • Transient motor deficits
PRES

• Radiographic findings
  • MRI T2/FLAIR hyperintensities in the cortex and subcortical white matter
    • Parietooccipital lobes (≥ 90%), Superior frontal lobes (≥ 60%), Temporal lobes (≥ 60%)
    • Cerebellar hemispheres (≥ 50%), Basal ganglia (≥ 30%), midbrain, pons, medulla (<10-20%)
  • Most commonly bilateral, asymmetric
  • Can cause 3 patterns of hemorrhage: Focal parenchymal hemorrhage, microhemorrhages, convexity SAH

• Treatment
  • Blood pressure reduction
  • Address the underlying autoimmune disorder
  • Magnesium sulfate for pre-eclampsia

• Prognosis
  • Reversible with prompt treatment
  • Delayed treatment by 3-4 days can result in cerebral hemorrhage, ischemia, irreversible neurological deficits, or death
References:


• Tetsuka S et al: Posterior reversible encephalopathy syndrome: a review with emphasis on neuroimaging characteristics. *J Neurol Sci.* 404:72-9, 2019