A 37-year-old woman presents to the emergency room after loss of consciousness with head-strike

Nicholas Beatty, MS4
Columbia University Vagelos College of Physicians and Surgeons

Pallavi Utukuri, MD
Columbia University Irving Medical Center
Patient Presentation

- 37-year-old woman presents to the ED by ambulance for loss of consciousness and a fall with head-strike. Following return of consciousness, the patient reports generalized weakness, nausea, vomiting, headaches, intermittent blurry vision, and dysarthria.

- Vitals: BP 101/67, P 73, T 36.7, RR 16
- Physical Exam: Appears in mild discomfort, frequently grasping head. Unremarkable physical exam, including extensive neuro exam.
- Labs: unremarkable
What imaging should we order?
Select the applicable ACR appropriateness Criteria

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT head without IV contrast</td>
<td>Usually Appropriate</td>
<td>★★★★</td>
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<tr>
<td>Radiography skull</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>Arteriography cervico-cerebral</td>
<td>Usually Not Appropriate</td>
<td>★★★</td>
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<tr>
<td>MR spectroscopy head without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRA head and neck with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRA head and neck without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
</tr>
<tr>
<td>MRA head and neck without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
</tr>
<tr>
<td>MRI functional (fMRI) head without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRI head with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRI head without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRI head without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>MRI head without IV contrast with DTI</td>
<td>Usually Not Appropriate</td>
<td>★</td>
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<tr>
<td>CT head with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★★★★</td>
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<tr>
<td>CT head without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★★★★</td>
</tr>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>★★★</td>
</tr>
<tr>
<td>HMPAO SPECT or SPECT/CT brain</td>
<td>Usually Not Appropriate</td>
<td>★★★</td>
</tr>
<tr>
<td>FDG-PET/CT brain</td>
<td>Usually Not Appropriate</td>
<td>★★★</td>
</tr>
</tbody>
</table>
Findings (unlabeled)
Findings (labeled)

CT Head without IV contrast

- 2.4 x 1.7 x 2.2 cm hypodense suprasellar mass with peripheral calcifications.
- There is mild effacement of the suprasellar cistern.
Follow-up imaging
Findings (unlabeled)
Findings (labeled)

MRI Head (T1 post-contrast)

- 2.4 x 1.7 x 2.2 cm suprasellar mass that is heterogeneously enhancing on T1 post-contrast.
- The pituitary gland is identified and is otherwise normal.
Likely Dx:

Craniopharyngioma

(pending pathology)
Case Discussion

• Suprasellar Mass Differential Diagnosis:
  • S - Sarcoidosis
  • A - Aneurysm
  • T - Teratoma
  • C - Craniopharyngioma
  • H – Hypothalamic Hamartoma
  • M - Meningioma
  • O - Other
Case Discussion

• Craniopharyngiomas are benign tumors in the sellar/suprasellar region, which often present with headaches and endocrine and visual abnormalities related to mass effect from the tumor.¹

• There are approximately 350 new craniopharyngiomas diagnosed in the U.S. each year (1-3% of all brain tumors).²
Case Discussion

• Craniopharyngiomas are divided into two subtypes: adamantinomatous and papillary craniopharyngiomas.

• Adamantinomatous craniopharyngiomas are more common in children and involve the Wnt signaling pathway. Papillary craniopharyngiomas are more common in adults and involve mutations in the BRAF oncogene.³

• Calcification and T1 signal intensity favor a diagnosis of adamantinomatous craniopharyngioma, but imaging presentation in adults is more variable than in children.⁴
Case Discussion

• Treatment
  • Surgical resection is almost always indicated to treat and diagnose craniopharyngiomas.\textsuperscript{5}
  • Radiation therapy is indicated for sub-total resection or in cases where surgery is not feasible.

• Prognosis
  • 10-year overall survival ranges from 80-96%.\textsuperscript{3}
References:


