AMSER Case of the Month: November 2019

25 y/o male with worsening headache

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Patient Presentation

• **CC:** Worsening headache

• **HPI:** Pt. presented to the ED reporting 1 week hx of symptoms, while in ED, pt. complained of worsening headache and feeling sleepy.

• **PMH:** Concussion at age 16, no residual deficits.

• **PSH:** None

• **Meds:** None

• **Allergies:** NKA

• **FH:** Mother died at 40 from colon and uterine cancer.

• **SH:** Non smoker, drinks alcohol occasionally, does not use recreational drugs.

• **Vitals:** BP 145/83 | Pulse 92 | Temp 98.7 °F (37.1 °C) (Oral) | Resp 14 | Ht 1.778 m (5' 10") | Wt 70.3 kg (155 lb) | SpO2 100% | BMI 22.24 kg/m²

• **P/E:** AOx3, Neuro exam: CN 2-12 grossly intact, 5/5 strength BUE and BLE, normal finger to nose, no drift, neg rhomberg, remainder of p/e is unremarkable.
Pertinent Labs

- CBC – WBC 13.03
- BMP – Unremarkable
- UA – Unremarkable
- GC/Chlamydia – Negative
- HIV-Non Reactive
- Blood Cx – No growth, Throat Cx – Normal resp flora
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

This imaging modality was initially ordered by the ER physician, followed by MRI w, w/o contrast.

<table>
<thead>
<tr>
<th>Clinical Condition:</th>
<th>Radiologic Procedure</th>
<th>Rating</th>
<th>Comments</th>
<th>RRL*</th>
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<td>Headache</td>
<td>CT head without IV contrast</td>
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<td>CTA head with IV contrast</td>
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<td>MRA head without and with IV contrast</td>
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<td>MRA head without IV contrast</td>
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<td>Arteriography cervicocerebral</td>
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<td>MRI head without IV contrast</td>
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<td>This procedure may be helpful after CT depending on CT findings. Include FLAIR and GRE or SWI in this procedure.</td>
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<td>MRI head without and with IV contrast</td>
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<td>CT head without and with IV contrast</td>
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<td>CT head with IV contrast</td>
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Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level
Non Contrast CT
Findings

Yellow arrows: Intraventricular calcified mass in the left lateral ventricle causing ventricular dilatation and obstruction with midline shift
MRI W, W/O Contrast

1. T1 axial
2. T2 axial
3. GRE axial
4. FLAIR axial
5. T1 POST sagittal
Findings

Yellow Arrows: Large heterogenous, calcified mass in the left ventricle resulting in obstructive hydrocephalus and rightward midline shift.
Differential Diagnosis

- Subependymoma
- Ependymoma
- Subependymal giant cell astrocytoma
- Choroid plexus papilloma and carcinoma
- Intraventricular metastasis
- Intraventricular meningioma
- Metastasis
Final Dx:
Central Neurocytoma (CN)
Epidemiology

• Benign tumor, more common in young adults ages 20-40
• <1% of all primary intracranial neoplasms
• Approximately 10% of intraventricular neoplasms
• About 50% of intraventricular tumors in patients between ages 20-40
• No gender predominance

Clinical Presentation

Increased intracranial pressure, obstructive hydrocephalus and mass effect causing:

• Progressive headaches
• Vomiting
• Decreased consciousness
• Altered mental status
• Seizures
Imaging

• Typically found in the lateral or third ventricles close to septum pellucidum and foremen of Monro.
• On CT, appears as cystic and mixed solid mass with calcification, may be complicated by hemorrhage.
• On MRI, appears isointense to grey matter on T1WI, and isointense to hyperintense on T2WI

Treatment

• Surgical management with total resection is currently the treatment of choice for central neurocytomas, it has excellent prognosis and minimizes the chances of recurrence.
References:

NCBI
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114192/

American Journal of Neuroradiology
http://www.ajnr.org/ajnr-case-collections-diagnosis/central-neurocytoma-0

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https://radiopaedia.org/articles/central-neurocytoma?lang=us

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