

# 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/m<sup>2</sup>
- **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

**Clinical Condition:** Headache

**Variant 3:** Sudden onset of severe headache (“Worst headache of my life”, “thunderclap headache”).

| Radiologic Procedure                  | Rating | Comments   | RRL* |
|---------------------------------------|--------|--|------|
| CT head without IV contrast           | 9      |  | ☼☼☼  |
| CTA head with IV contrast             | 8      |  | ☼☼☼  |
| MRA head without and with IV contrast | 7      |  | ○    |
| MRA head without IV contrast          | 7      |  | ○    |
| Arteriography cervicocerebral         | 7      |  | ☼☼☼  |
| MRI head without IV contrast          | 7      | This procedure may be helpful after CT depending on CT findings. Include FLAIR and GRE or SWI in this procedure. | ○    |
| MRI head without and with IV contrast | 6      | Include FLAIR and GRE or SWI in this procedure. This procedure may be helpful after CT depending on CT findings. | ○    |
| CT head without and with IV contrast  | 5      |  | ☼☼☼  |
| CT head with IV contrast              | 3      |  | ☼☼☼  |

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

**Rating Scale:** 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

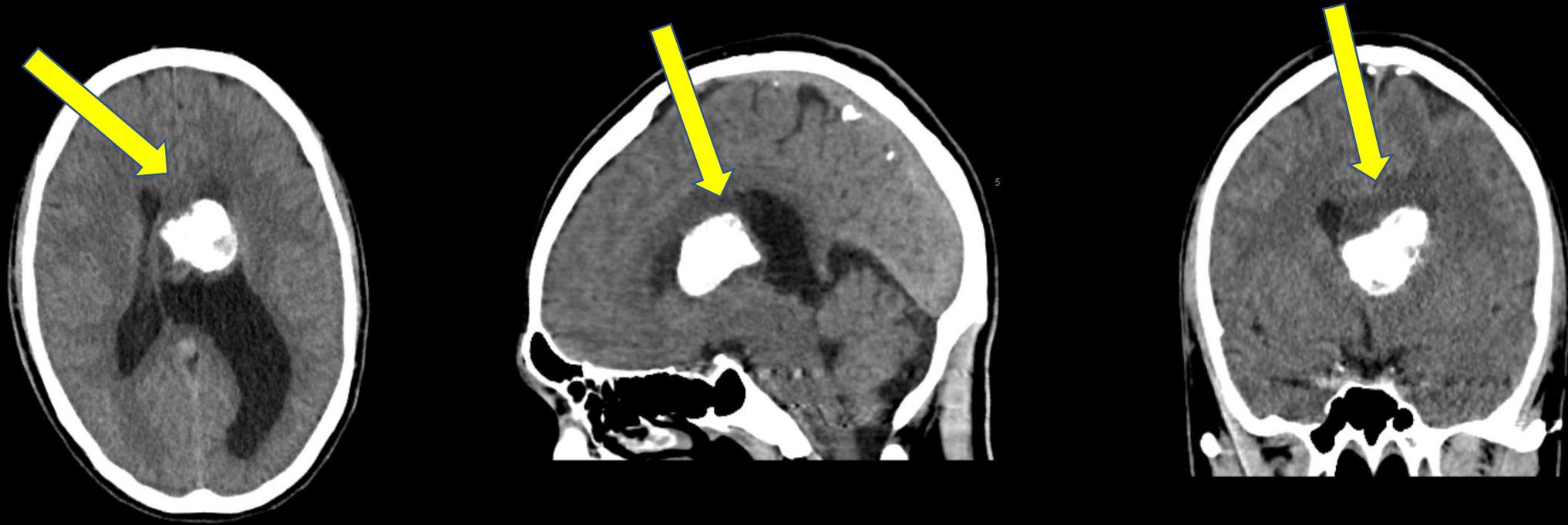
\*Relative Radiation Level



# Non Contrast CT

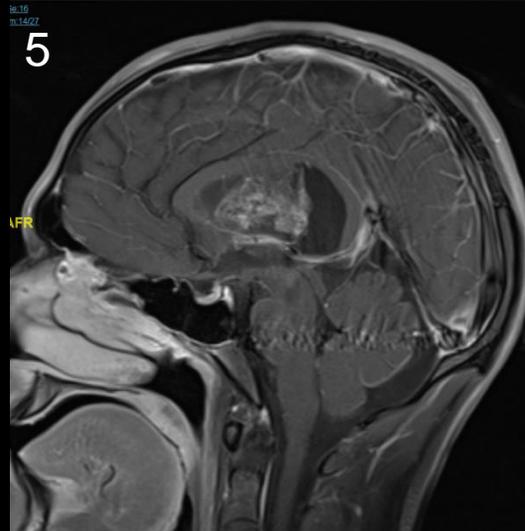
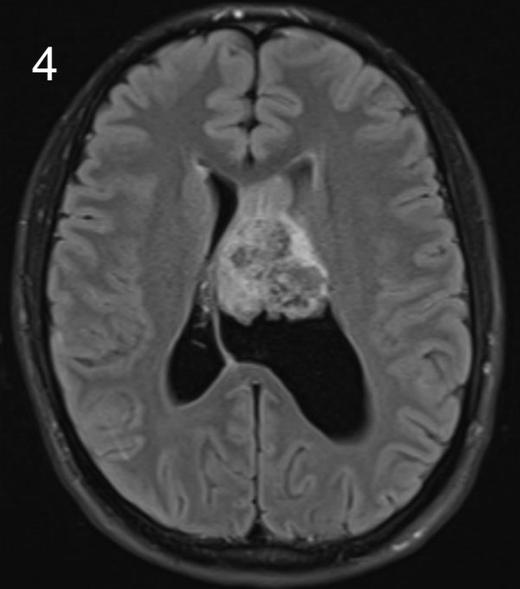
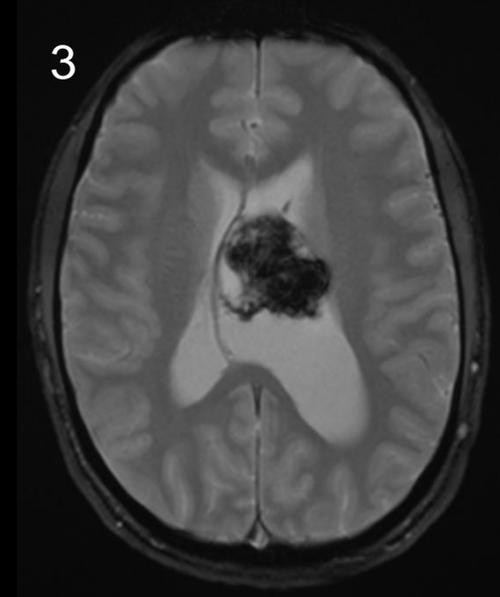
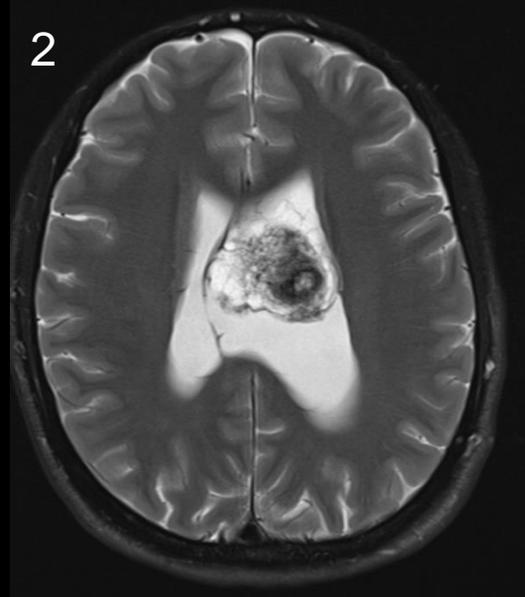
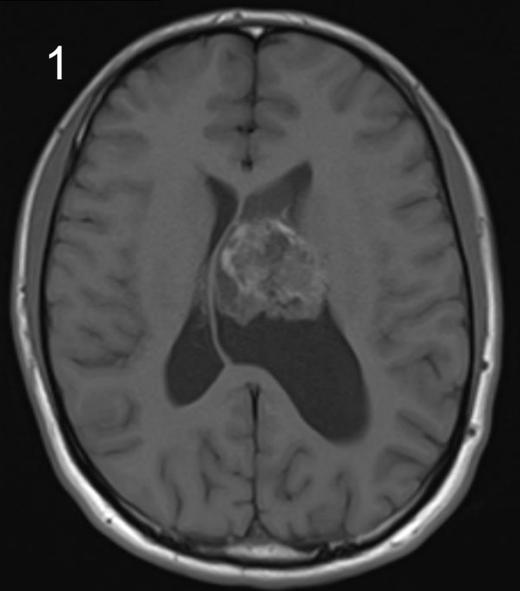


# Findings



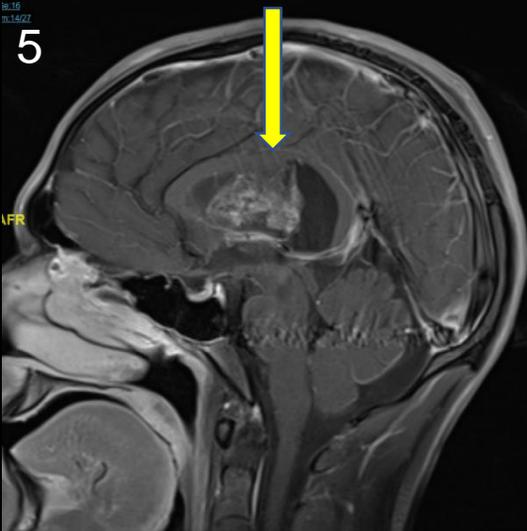
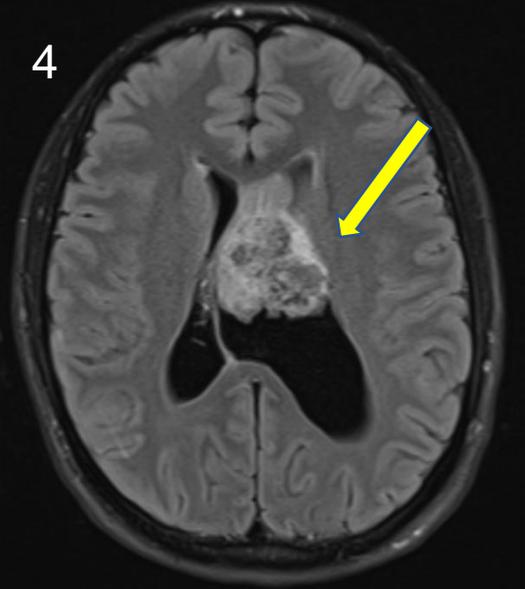
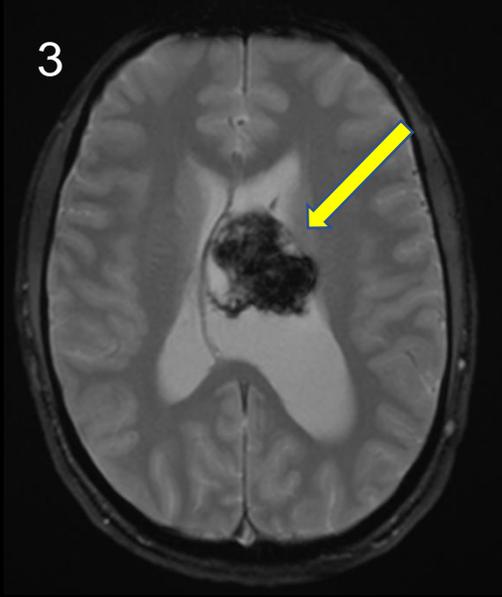
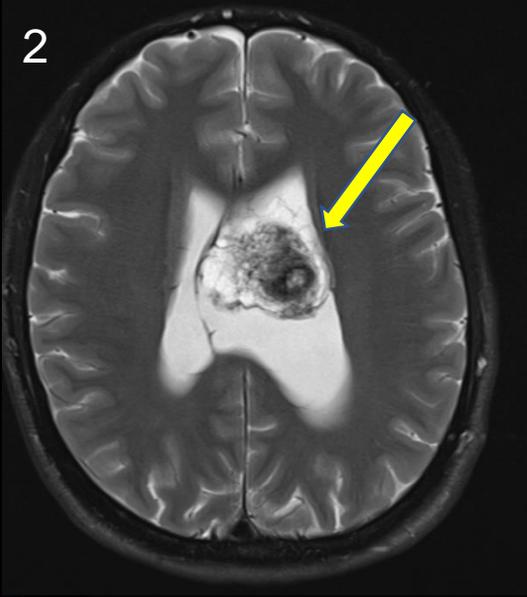
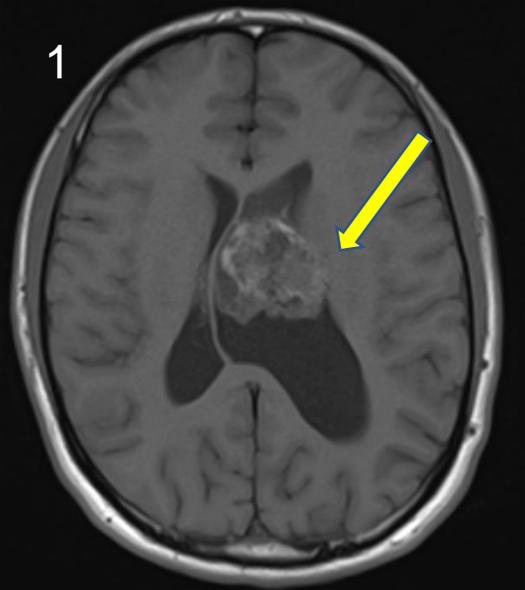
**Yellow arrows:** Intraventricular calcified mass in the left lateral ventricle causing ventricular dilatation and obstruction with midline shift

# 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>

**Clinic Neurology and Neurosurgery**

<https://www.sciencedirect.com/science/article/pii/S0303846707002843>