

AMSER Case of the Month: July 2019

85 year old female presents with dizziness, gait disturbance and tremors



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Allegheny
Health Network



Patient Presentation

HPI: 85 year old female presents with the chief complaint of dizziness, gait disturbance and tremors. She states that on a recent morning, she woke up with severe, generalized body shaking. She also endorses that she has been falling to her left side with ambulation. In addition, she has been feeling a “tightness” sensation in her head/neck and has been having trouble seeing the right side of her visual fields. She denies fever, loss of consciousness, incontinence, trauma, tinnitus, hearing changes, numbness, or difficulty swallowing. Of note, she had a recent normal EEG.

PMHx: hypertension, hyperlipidemia

Surgical Hx: cholecystectomy

Family Hx: non-contributory

Social Hx: Denies current or past smoking/chewing tobacco use. Denies alcohol and illicit drug use.

Physical Exam and Labs

- The patient was assessed using a thorough neurological exam, including mental status testing, cranial nerve testing, motor function, reflexes, sensation, coordination, and gait
- Patient was awake, alert, and oriented to person, place, and time. She has normal memory (past and present), attention span, and concentration. Speech is fluent without errors.
- Cranial nerve exam was significant for **mild to moderate right homonymous hemianopsia** (remaining cranial nerves were unremarkable)
- She has a mild postural and action tremor in her right hand > left hand
- Normal 5/5 muscle strength UL/LL bilaterally with 2+ DTR's throughout
- Normal sensation bilaterally, normal finger-to-nose testing
- **Gait is mildly unsteady** with no veering
- She is **afebrile** and her **white blood cell count is within normal limits**

What imaging should we order?

ACR Appropriateness Criteria

Variant 3: Ataxia. No history of trauma. Suspected intracranial process. Stroke intervention not a consideration. Initial imaging.

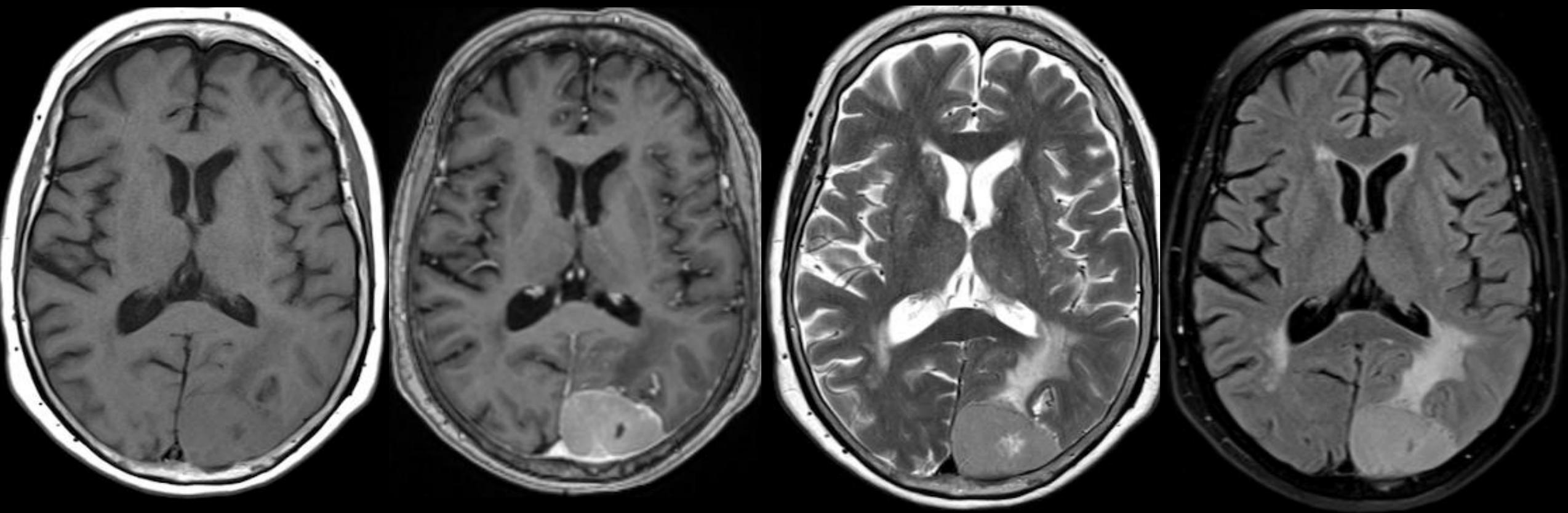
Procedure	Appropriateness Category	Relative Radiation Level
MRI head without and with IV contrast	Usually Appropriate	0
MRI head without IV contrast	Usually Appropriate	0
CT head with IV contrast	May Be Appropriate	☼☼☼
CT head without IV contrast	May Be Appropriate	☼☼☼
CT head without and with IV contrast	May Be Appropriate	☼☼☼

Variant 7: Nonischemic visual loss. Chiasm or post-chiasm symptoms. Initial imaging.

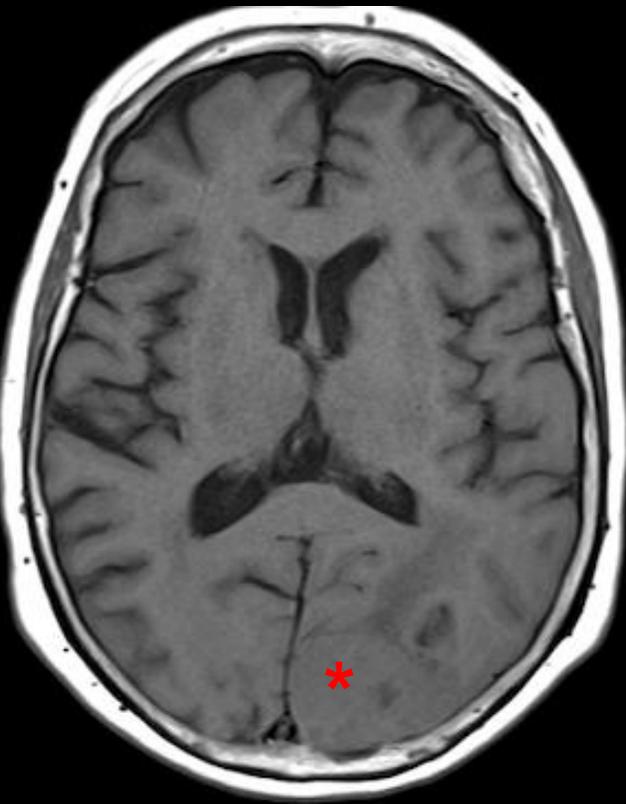
Procedure	Appropriateness Category	RRL
MRI head without and with IV contrast	Usually Appropriate	0
MRI head without IV contrast	Usually Appropriate	0
CT head with IV contrast	May Be Appropriate	☼☼☼
CT head without and with IV contrast	May Be Appropriate	☼☼☼
CT head without IV contrast	May Be Appropriate	☼☼☼

This imaging modality was ordered by the physician.

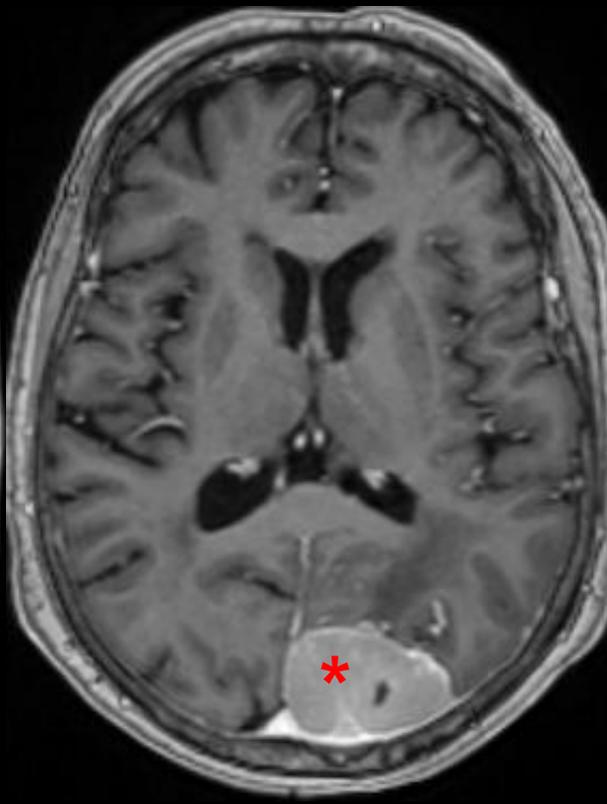
MRI Brain With and Without Contrast (Unlabeled)



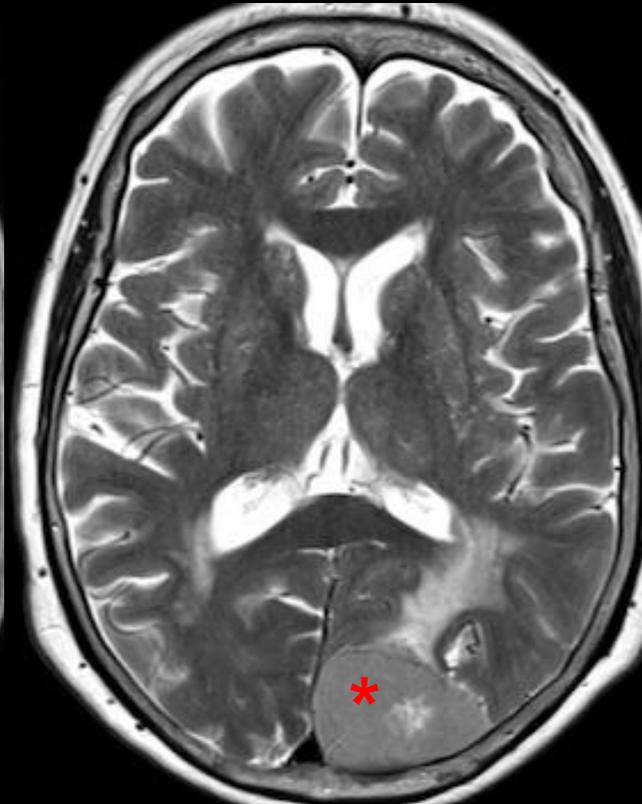
MRI Brain With and Without Contrast (Labeled)



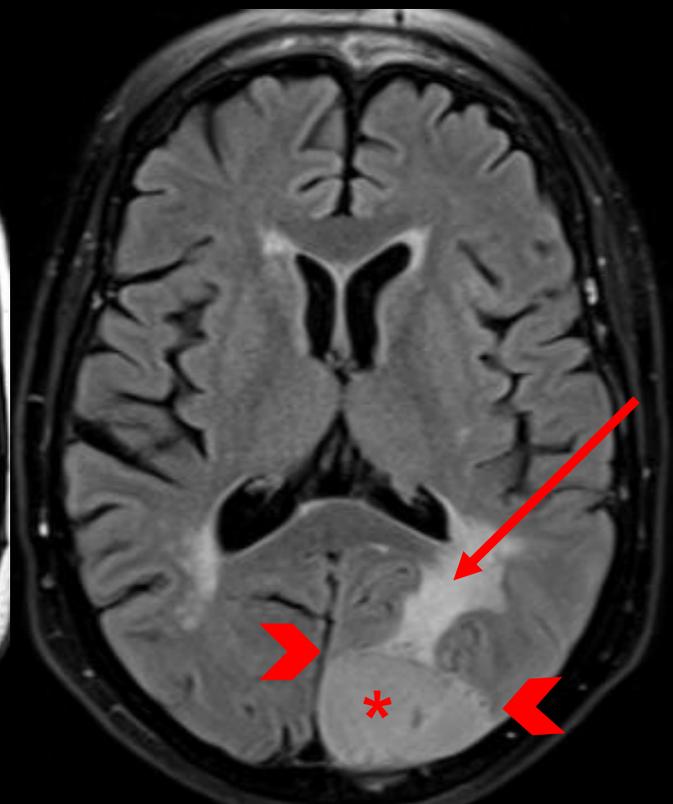
T1 W/O CONTRAST



T1 W/ CONTRAST



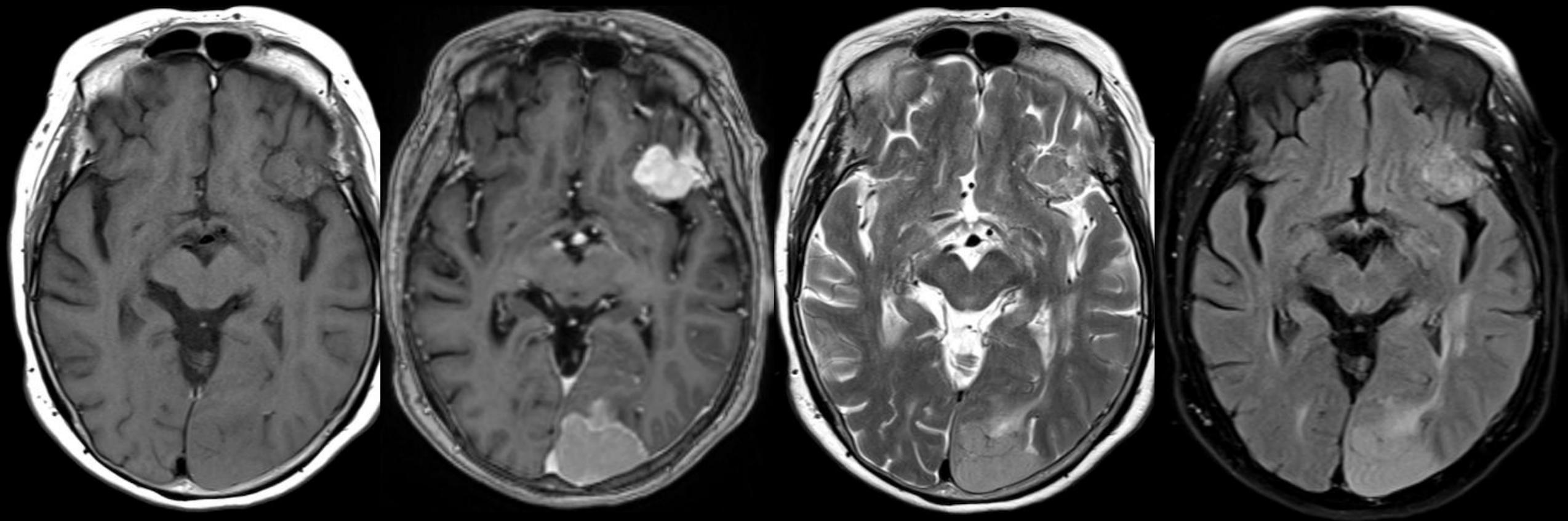
T2



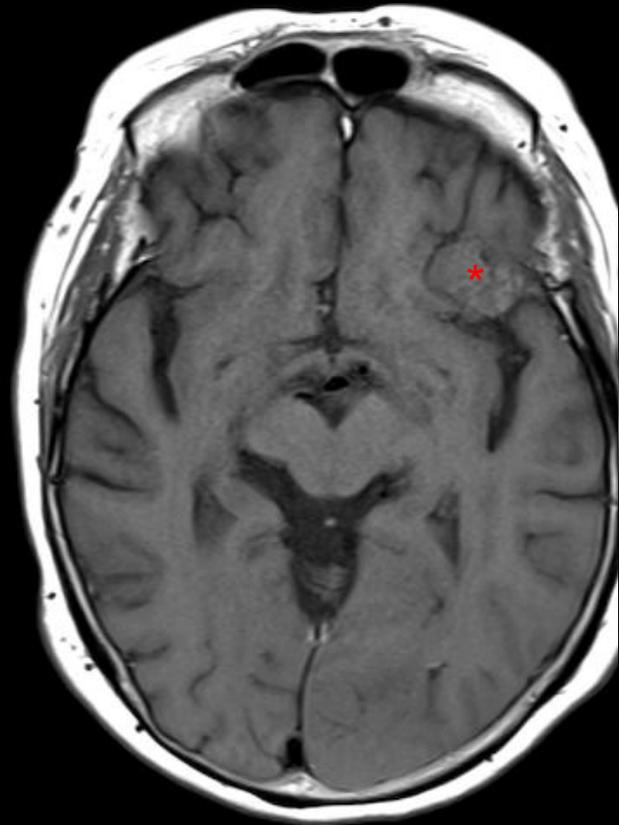
T2 FLAIR

- A 53 x 40 x 34 mm extra-axial dural based mass (asterisk) overlies the posterior left occipital convexity. The mass shows intense homogeneous enhancement with administration of IV contrast. There is mass effect (arrowheads) on adjacent brain tissue. Vasogenic edema extends from the mass to the left lateral ventricle (full arrow)

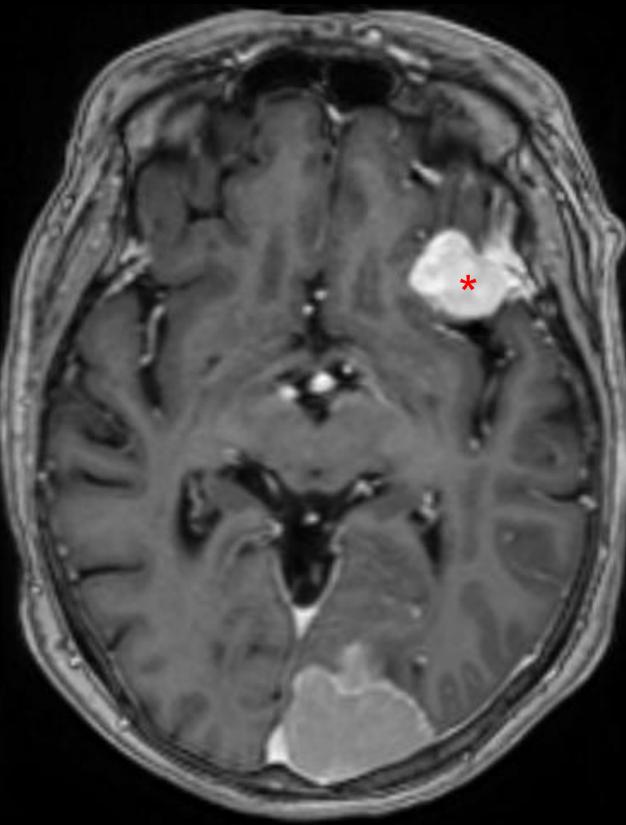
MRI Brain With and Without Contrast (Unlabeled)



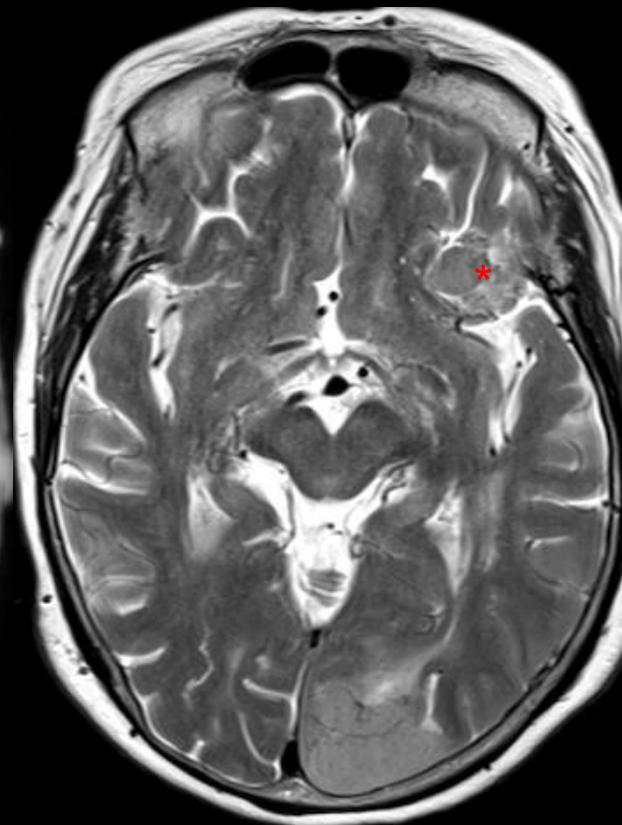
MRI Brain With and Without Contrast (Labeled)



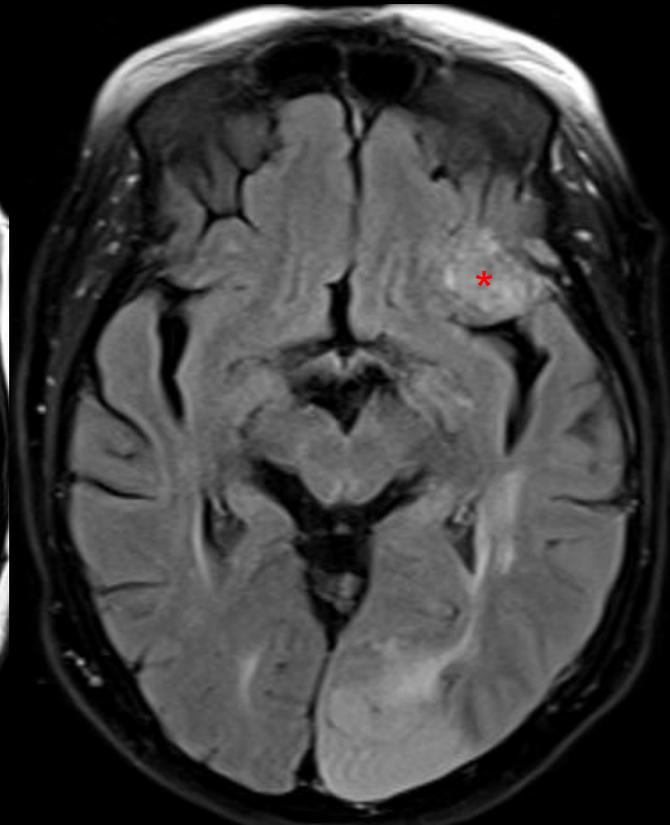
T1 W/O CONTRAST



T1 W/ CONTRAST



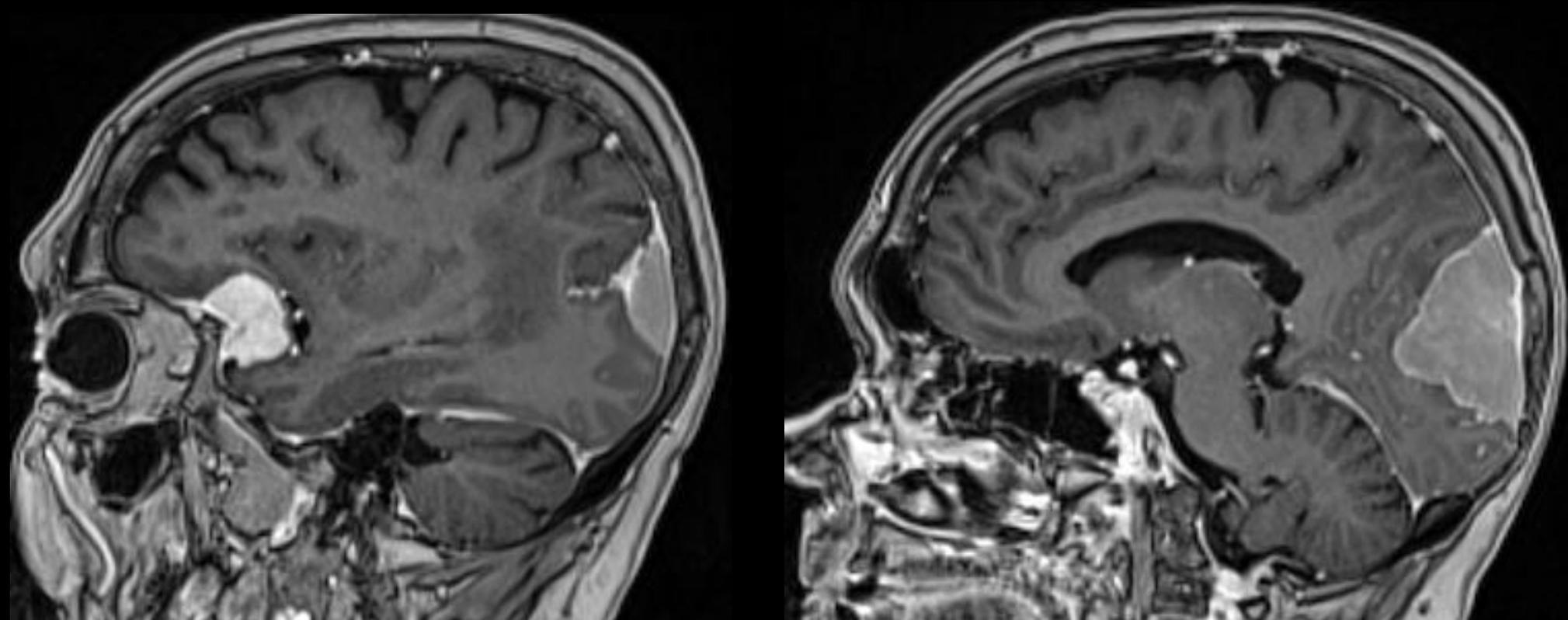
T2



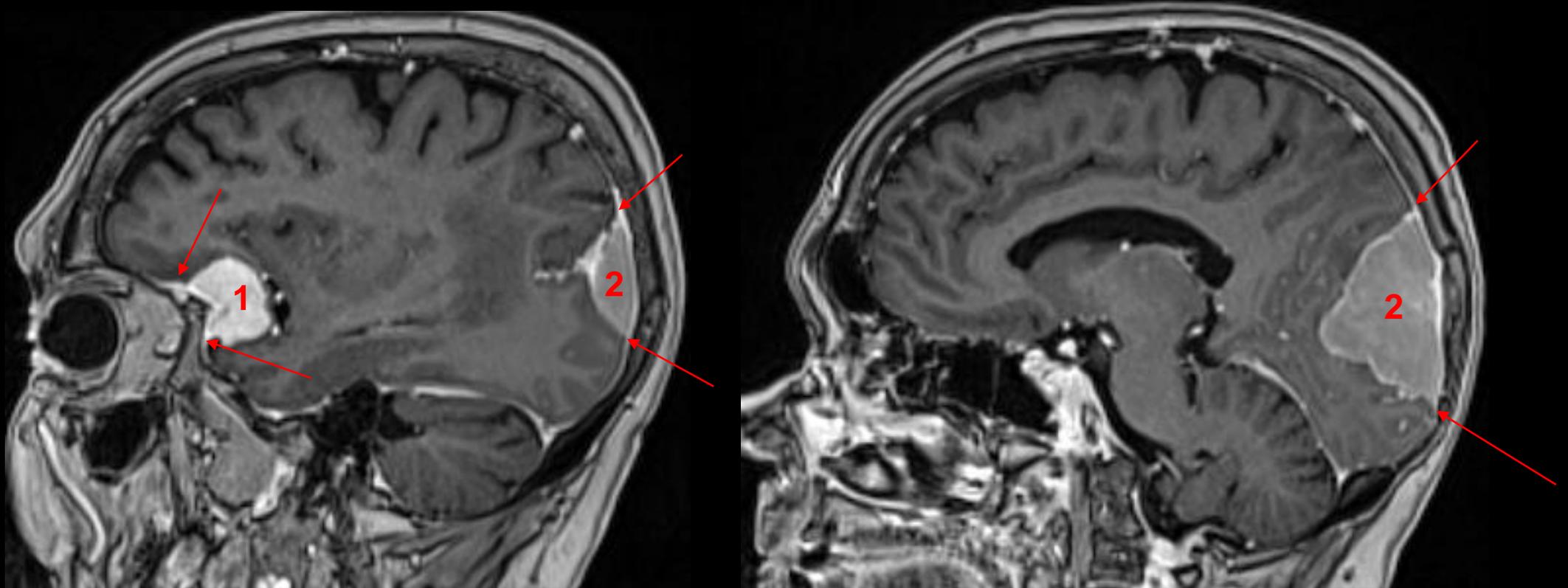
T2 FLAIR

- A **second mass**: 24 x 24 x 23 mm extra-axial dural based mass (asterisk) located along the left greater wing of the sphenoid. This mass also shows intense homogeneous enhancement with administration of IV contrast. Compared to the occipital mass, there is less mass effect and no associated vasogenic edema.

MRI Brain With and Without Contrast (Unlabeled)



MRI Brain With and Without Contrast (Labeled)



T1 W/ CONTRAST

- Sagittal images show masses along the greater wing of the sphenoid (1) and posterior occipital convexity (2) with associated enhancing dural tails (arrows).

Differential Diagnosis

- Meningiomas
- Metastases
- Lymphoma
- Solitary fibrous tumors of the dura

Final Diagnosis:

Multiple Meningiomas

Case Discussion

- Meningiomas are **benign (usually), extra-axial tumors** that **arise from arachnoid meningotheelial cells**.
- Found most often near the surface of the brain; however, can also occur in the spinal canal
- Demographics: female > male, most commonly after the fifth decade of life
- Majority occur spontaneously, but some risk factors may include:
 - Previous radiation exposure
 - Genetic disorders – neurofibromatosis type 2 (especially if the tumors are multiple)

Case Discussion

- **MRI** is the imaging modality of choice
 - Characteristic appearance: **homogeneously enhancing mass with enhancing dural attachment “tails”**
- CT may be used as an adjunct to better detect calcification, which is common, or surrounding bone changes
- Often asymptomatic, but patients may show signs of seizures or focal neurologic deficits
- Diagnosis: suggested by imaging, confirmed by biopsy and histology
- Treatment: surgical resection +/- radiation

References

- Alyamany, M., Alshardan, M. M., Jamea, A. A., ElBakry, N., Soualmi, L., & Orz, Y. (2018). Meningioma Consistency: Correlation Between Magnetic Resonance Imaging Characteristics, Operative Findings, and Histopathological Features. *Asian journal of neurosurgery*, *13*(2), 324–328. doi:10.4103/1793-5482.228515
- Saloner, D., Uzelac, A., Hetts, S., Martin, A., & Dillon, W. (2010). Modern meningioma imaging techniques. *Journal of neuro-oncology*, *99*(3), 333–340. doi:10.1007/s11060-010-0367-6
- Watts, J., Box, G., Galvin, A., Brotchie, P., Trost, N., & Sutherland, T. (2014). Magnetic resonance imaging of meningiomas: a pictorial review. *Insights into imaging*, *5*(1), 113–122. doi:10.1007/s13244-013-0302-4