AMSER Case of the Month December 2024

68 yo presenting with dizziness, gait changes, and recent fall with head injury.

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Patient Presentation

- A 68 yo with history of pancreatic cancer, breast cancer, and vulvar cancer presented for worsening dizziness, gait changes, and urinary incontinence over the last two months. The patient also reported a fall on concrete with head injury one week prior, but denied headache, N/V, or vision change.
- Vital signs WNL.
- On exam, the patient was neurologically intact. A soft tissue hematoma was noted around her right eye.

What Imaging Should We Order?

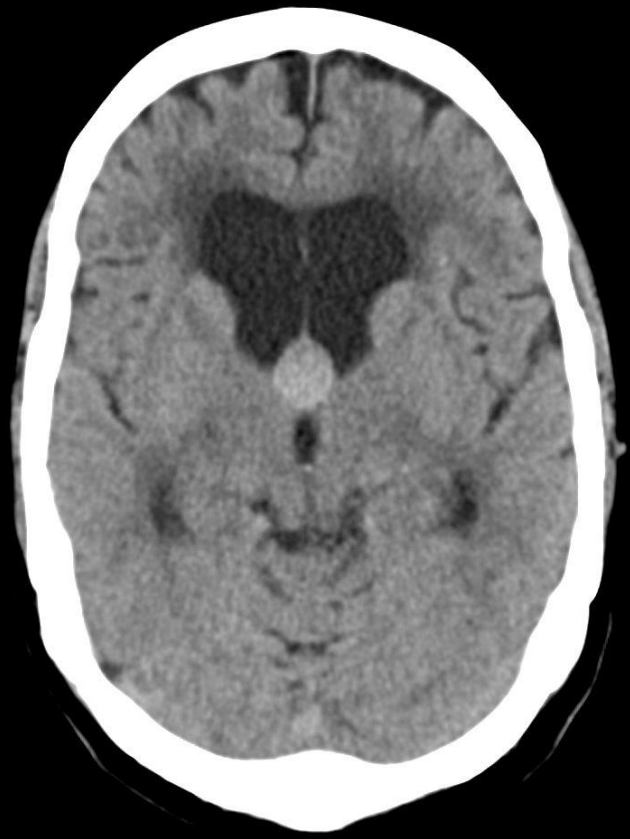
Select the applicable ACR Appropriateness Criteria

Variant 7: **Subacute or chronic head trauma with unexplained cognitive or neurologic deficit(s). Initial imaging.**

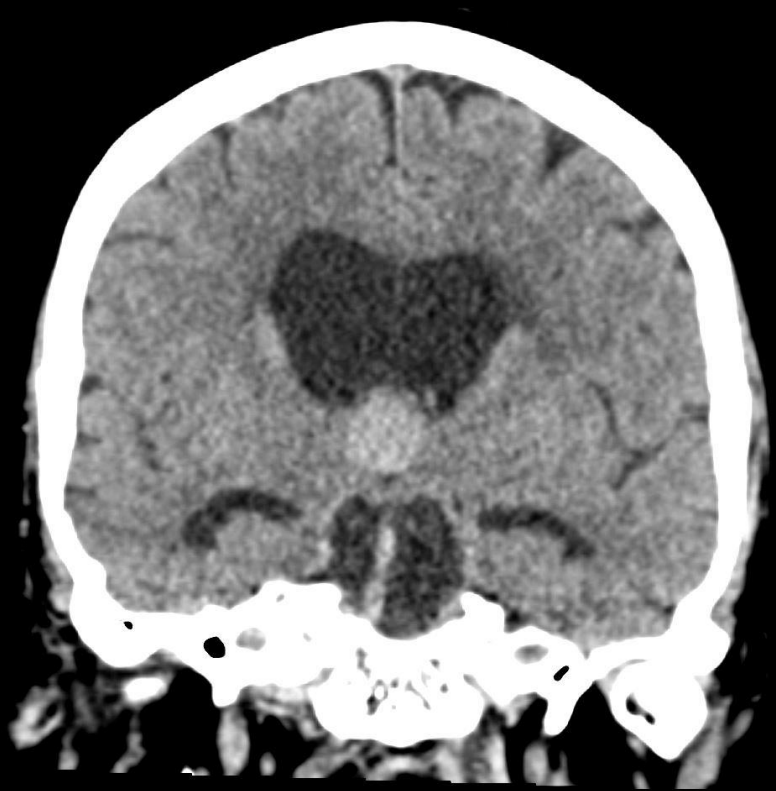
Procedure	Appropriateness Category	Relative Radiation Level
MRI head without IV contrast	Usually Appropriate	O
CT head without IV contrast	Usually Appropriate	☢☢☢
Radiography skull	Usually Not Appropriate	☢
Arteriography cervicocerebral	Usually Not Appropriate	☢☢☢
MR spectroscopy head without IV contrast	Usually Not Appropriate	O
MRA head and neck with IV contrast	Usually Not Appropriate	O

This imaging modality was ordered by the ER physician

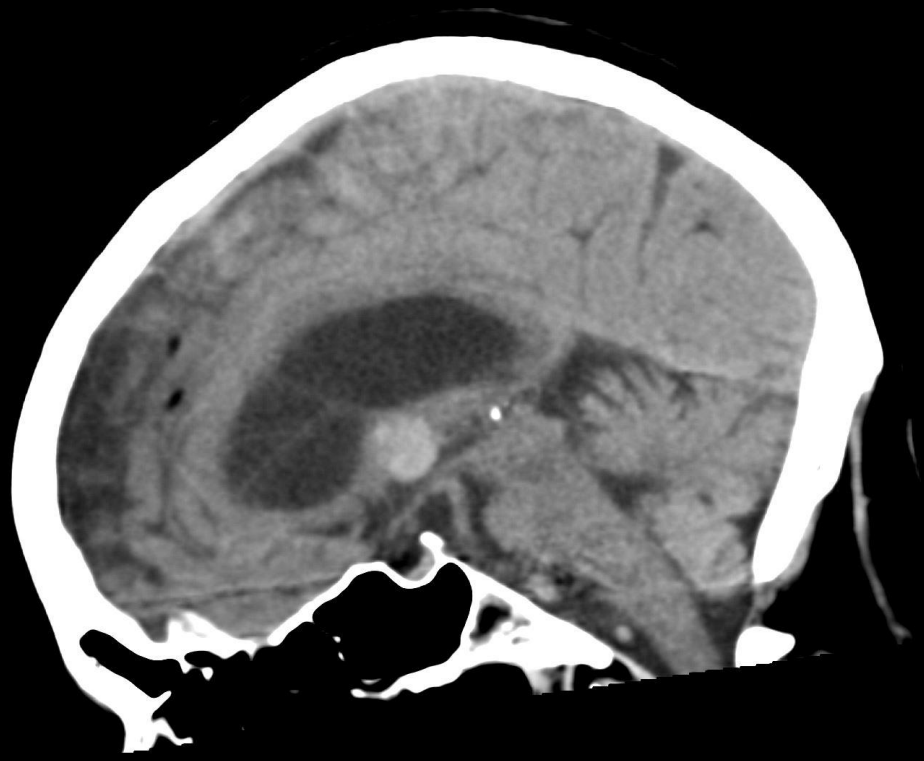
Findings (unlabeled)



CT Axial



CT Coronal



CT Sagittal

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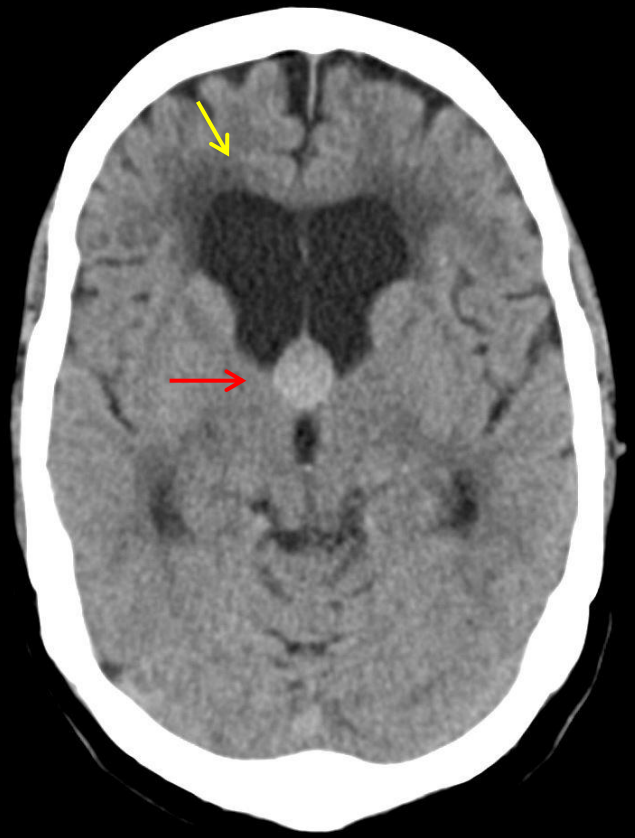
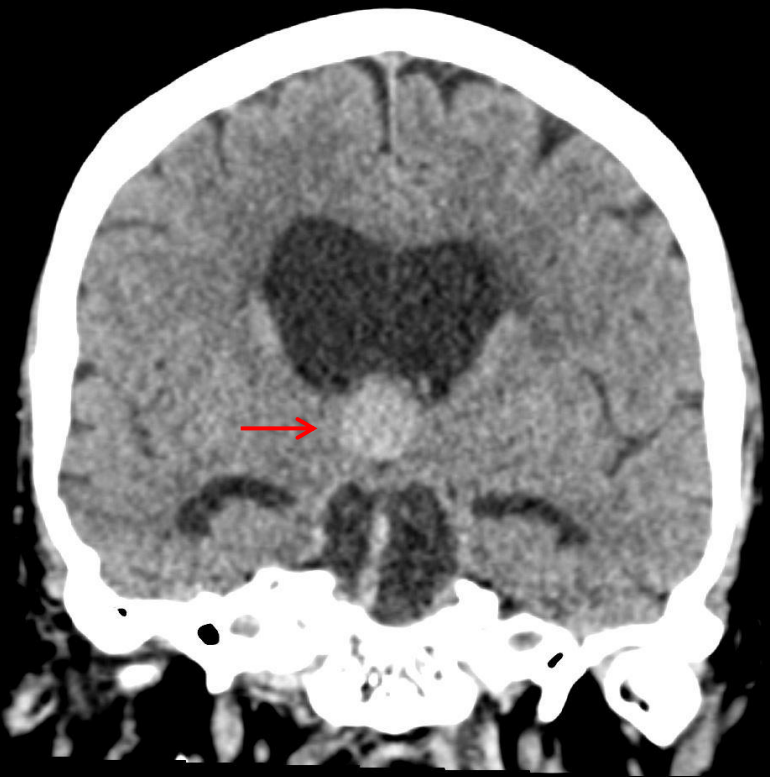
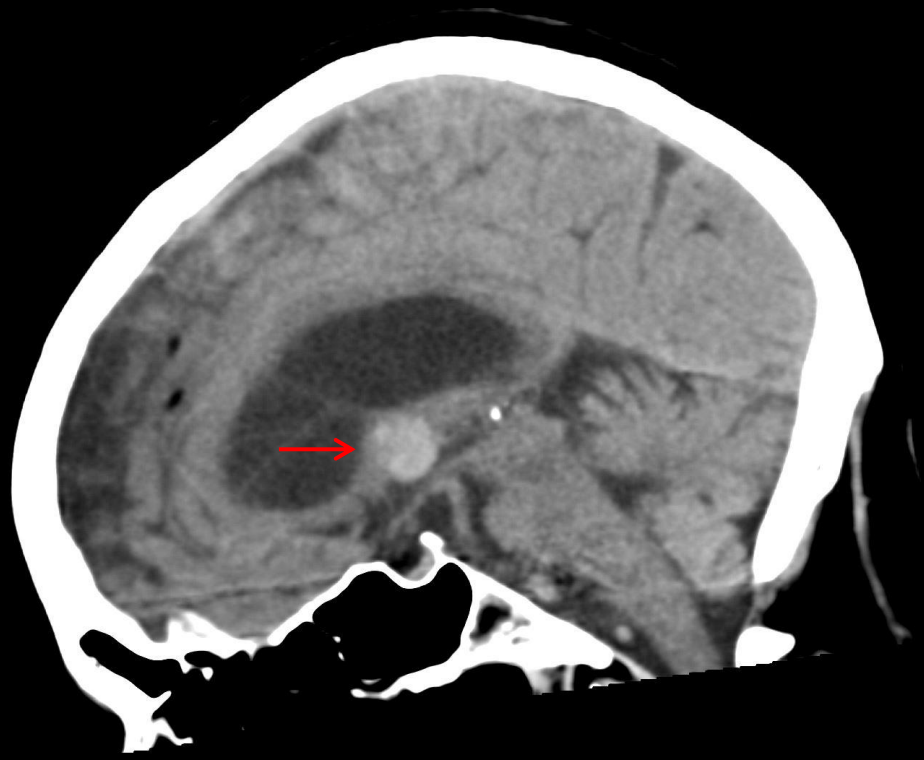
Findings (labeled)



CT Axial



CT Coronal



CT Sagittal

Rounded hyperdense structure in the 3rd ventricle with hydrocephalus. Recommend MRI.

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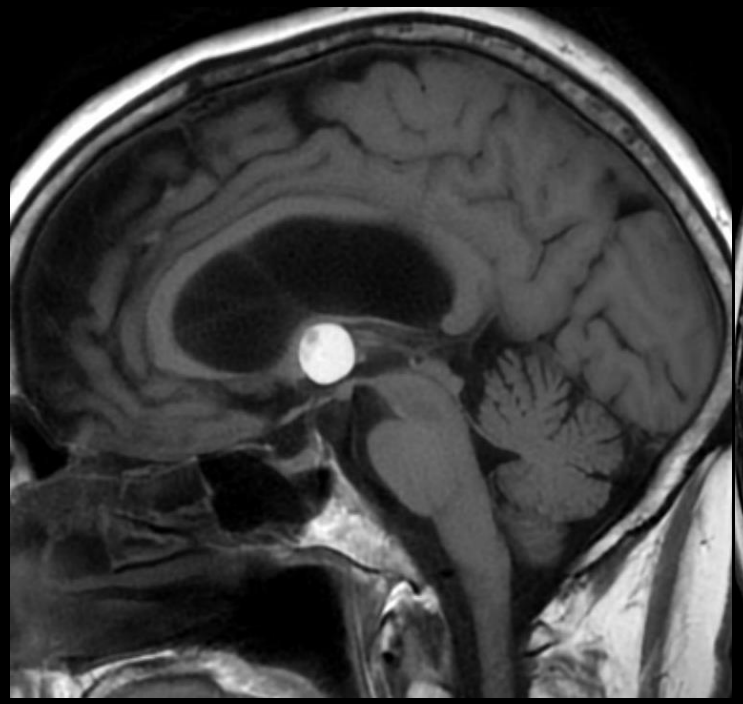
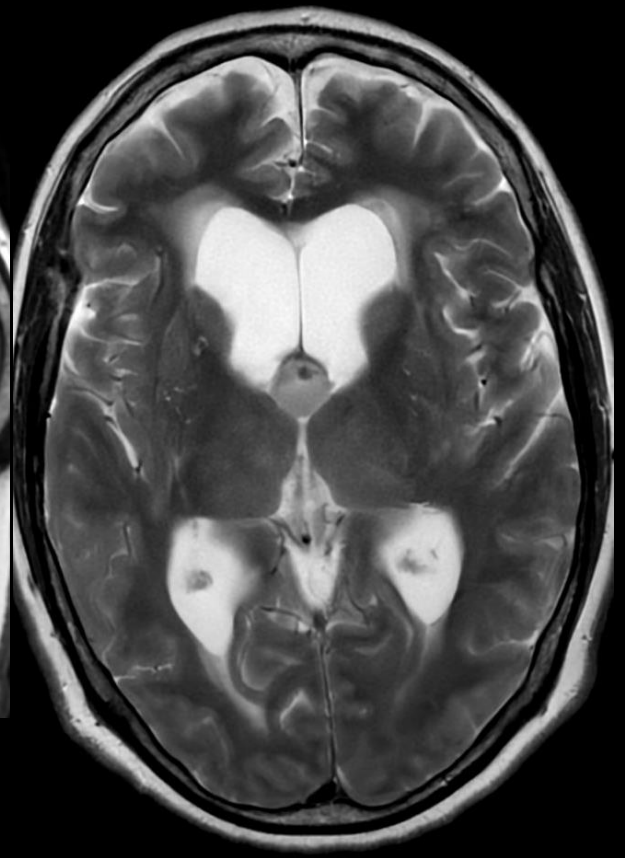
Findings (unlabeled)

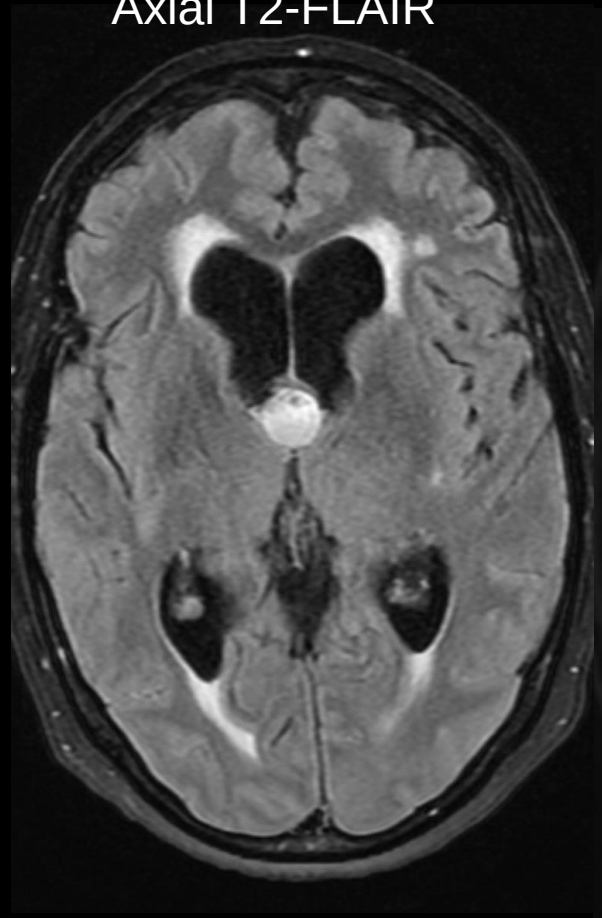
Sagittal T1



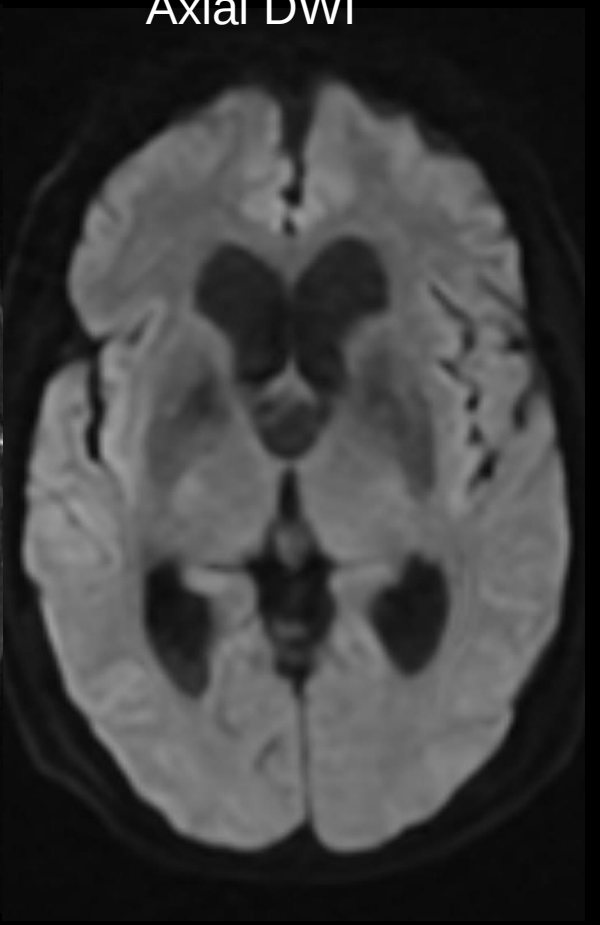
Axial T2



Axial T2-FLAIR

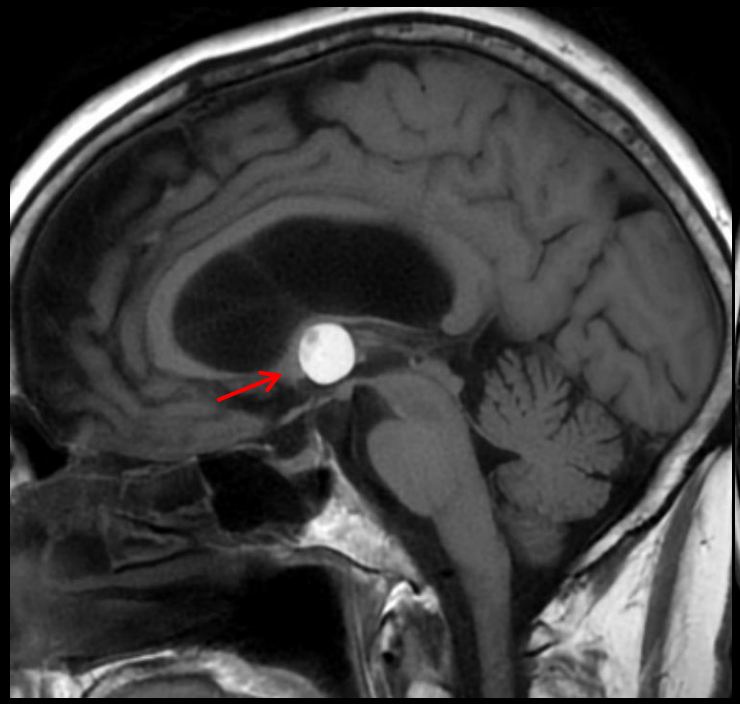


Axial DWI

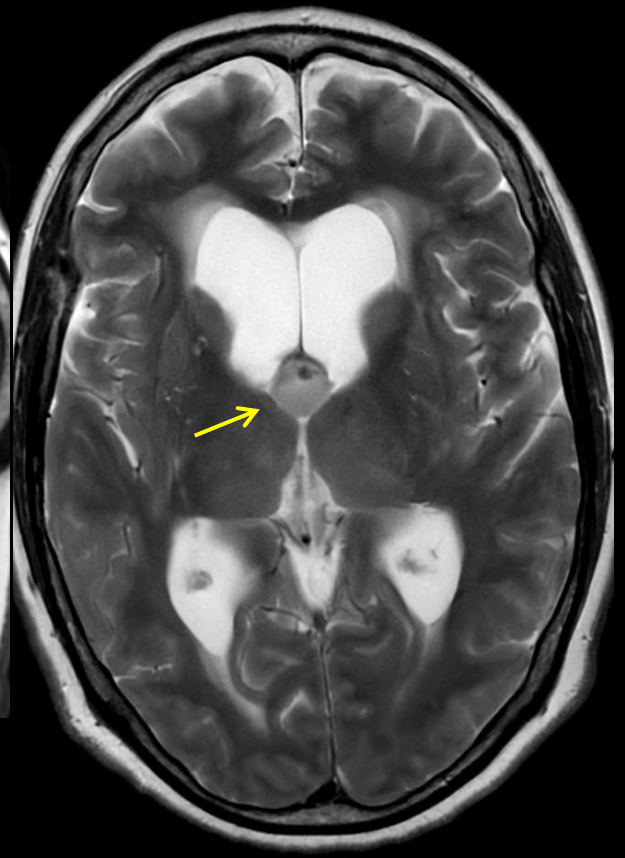


Findings (labeled)

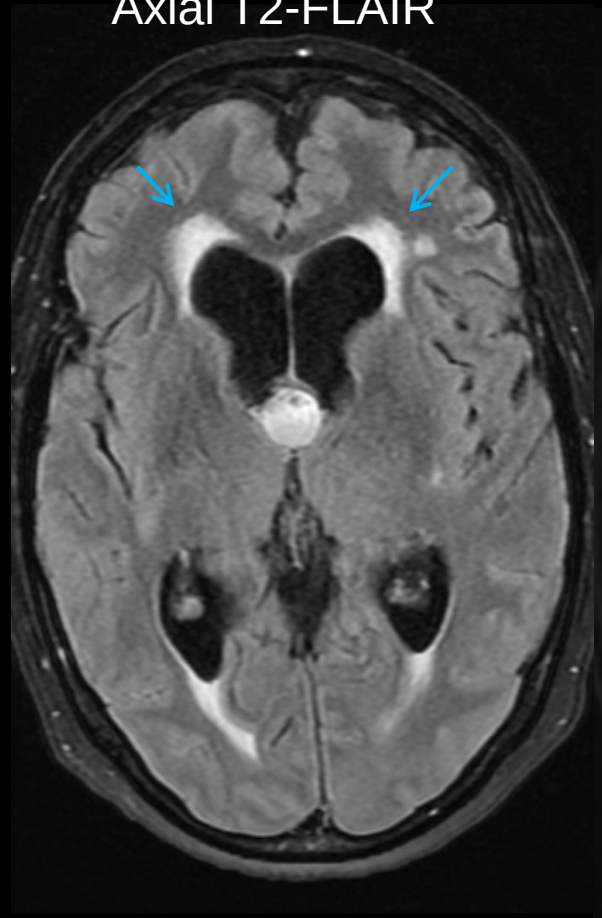
Sagittal T1



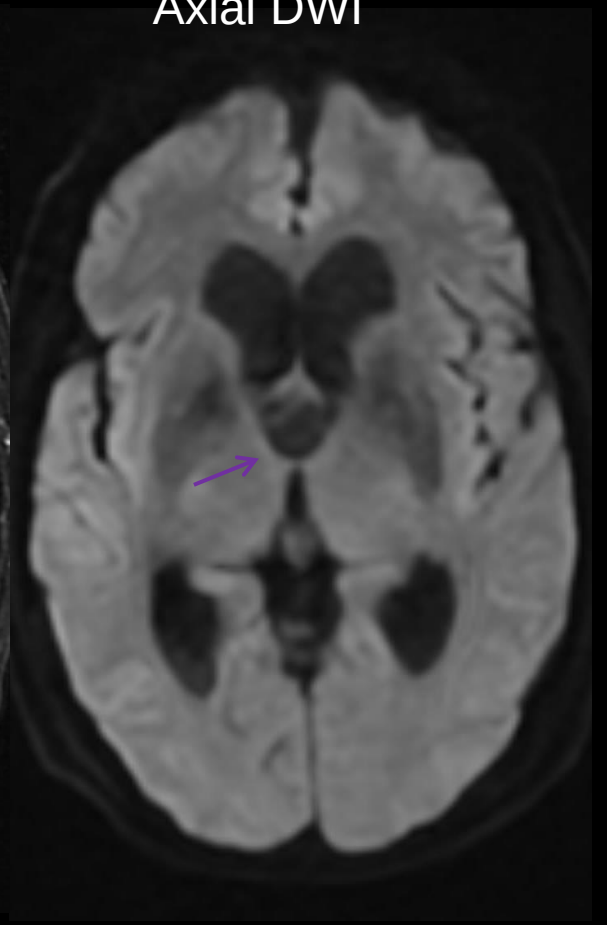
Axial T2



Axial T2-FLAIR



Axial DWI



Rounded mass in the 3rd ventricle has T1 hyperintense and intermediate T2 signal without diffusion restriction. Hydrocephalus and signs of "trans-ependymal CSF flow" are also present.

Final Dx:

Colloid Cyst

Case Discussion

- Presentation
  - Typically asymptomatic with most found incidentally
  - Symptomatic cases are usually related to effects of obstructive hydrocephalus
    - Symptoms include nausea, vomiting, dizziness, headaches, lethargy, urinary incontinence, trouble walking, falls, altered mentation
  - Most likely to present in an adult after the third decade
- Pathology
  - Colloid cysts contain a variable mixture of different materials including mucin, old blood, and cholesterol which causes a variety of imaging appearances

Case Discussion

- Diagnosis
  - Both CT and MRI can be used to diagnosis colloid cyst.
  - On CT
    - Colloid cyst will typically be a round hyperdense mass arising from the roof of the third ventricle. This can occasionally be mistaken for intraventricular hemorrhage.
    - Less commonly it be isodense, hypodense, or calcified.
  - On MRI
    - T1WI has inconsistent characteristics due to variable levels of mucin and blood product. Colloid cysts can be T1 hyperintense, isotense, or hypointense, but will not enhance.
    - Typically hypointense on T2 weighted imaging, but variable.
    - Most colloid cysts will have low signal on diffusion-weighted imaging.

Case Discussion

- Treatment
  - Symptomatic patients require treatment with shunting or surgical resection.
  - Asymptomatic patients can be monitored for symptoms and with imaging as needed.
- Prognosis
  - Asymptomatic colloid cysts can be monitored for years. Cysts <10mm are unlikely to cause obstructive symptoms.
  - Enlarging colloid cysts typically grow slowly but can eventually cause symptoms. With complete surgical resection, it is rare for them to reoccur.
  - Sudden death from acute obstructive hydrocephalus is a rare complication from colloid cysts, but emphasizes the importance of continued monitoring.

References:

- Algin O, Ozmen E, Arslan H. Radiologic manifestations of colloid cysts: a pictorial essay. Can Assoc Radiol J. 2013 Feb;64(1):56-60. doi: 10.1016/j.carj.2011.12.011. Epub 2012 May 9. PMID: 22575594.
- Yadav YR, Yadav N, Parihar V, Kher Y, Ratre S. Management of colloid cyst of third ventricle. Turk Neurosurg. 2015;25(3):362-71. doi: 10.5137/1019-5149.JTN.11086-14.1. PMID: 26037175.
- Tenny S, Thorell W. Colloid Brain Cyst. [Updated 2022 Sep 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470314/

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