

AMSER Case of the Month

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27-year-old pregnant woman with one week of progressive headache and left-sided numbness

Joseph McKinnerney

Drexel University College of Medicine

Ranliang Hu, MD

Emory University, Department of Neuroradiology

Matthew Hartman, MD

Allegheny Health Network, Department of Radiology



Patient Presentation

- **HPI:** 27-year-old woman, 19 weeks pregnant with one week of progressive left-sided sensory numbness, worsening headache, diplopia, vertigo, visual disturbance, nausea
- **PMHx and PSHx:** No significant past medical or surgical history
- **Vitals:** Normotensive with normal HR and respiratory rate. Normal SpO2 levels.
- **Exam:** Bilateral lower extremity weakness and paresthesia, decreased pinprick and vibration sensation in a stocking/glove distribution.

Pertinent Labs

- Labs including CBC and CMP were all unremarkable

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant: 6 Headache with new onset or pattern during pregnancy or peripartum period. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
MRI head without IV contrast	Usually Appropriate	0
CT head without IV contrast	Usually Appropriate	☼☼☼
MRV head without IV contrast	May Be Appropriate	0
CTV head with IV contrast	May Be Appropriate	☼☼☼
Arteriography cervicocerebral	Usually Not Appropriate	☼☼☼
MRA head with IV contrast	Usually Not Appropriate	0
MRA head without and with IV contrast	Usually Not Appropriate	0
MRA head without IV contrast	Usually Not Appropriate	0
MRI head with IV contrast	Usually Not Appropriate	0
MRI head without and with IV contrast	Usually Not Appropriate	0
MRV head with IV contrast	Usually Not Appropriate	0
MRV head without and with IV contrast	Usually Not Appropriate	0
CT head with IV contrast	Usually Not Appropriate	☼☼☼
CT head without and with IV contrast	Usually Not Appropriate	☼☼☼
CTA head with IV contrast	Usually Not Appropriate	☼☼☼

This imaging modality was ordered by the ER physician

Utukuri PS, Shih RY, Ajam AA, et al; Expert Panel on Neurological Imaging. ACR Appropriateness Criteria® Headache: 2022 Update.

Findings (unlabeled)

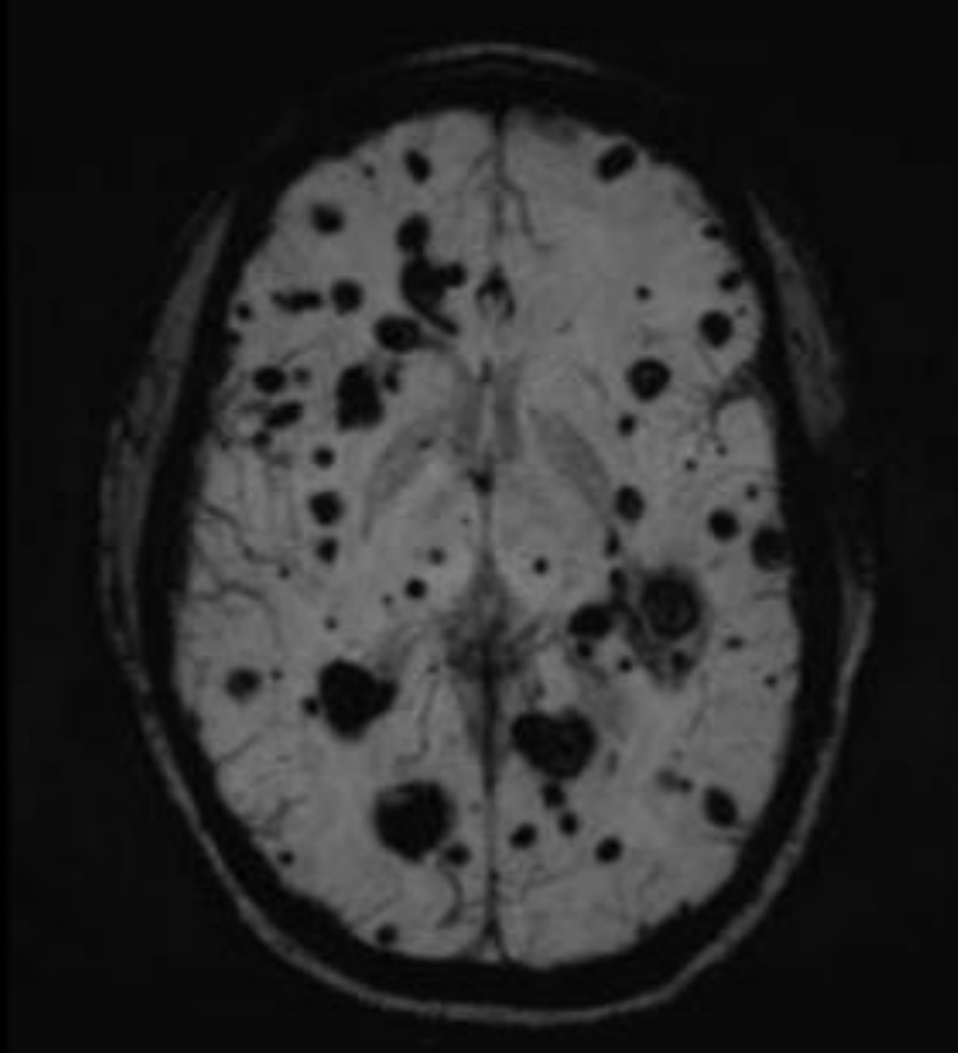


Axial non-contrast CT head



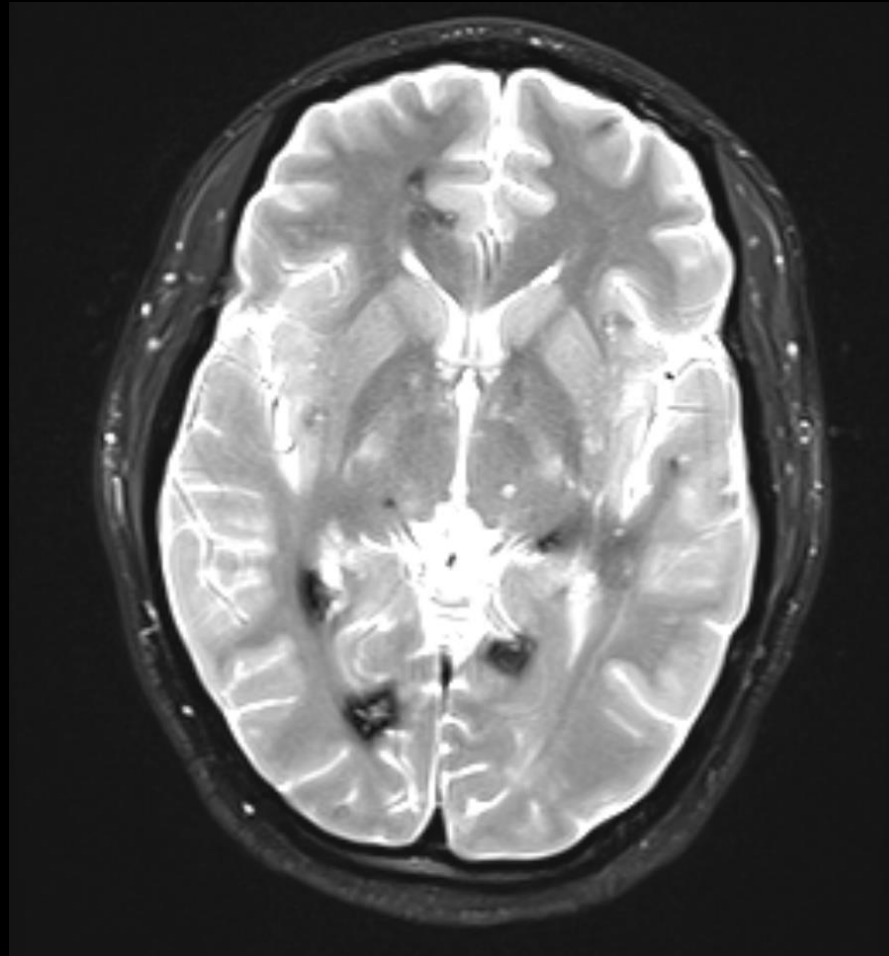
Axial non-contrast CT head

Findings: (unlabeled)



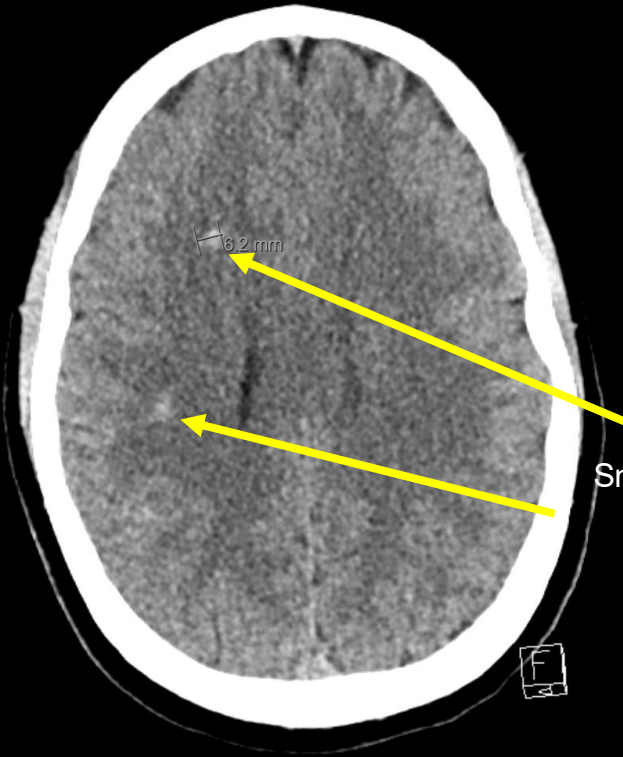
Axial susceptibility-weighted (SWI) MRI

Findings: (unlabeled)



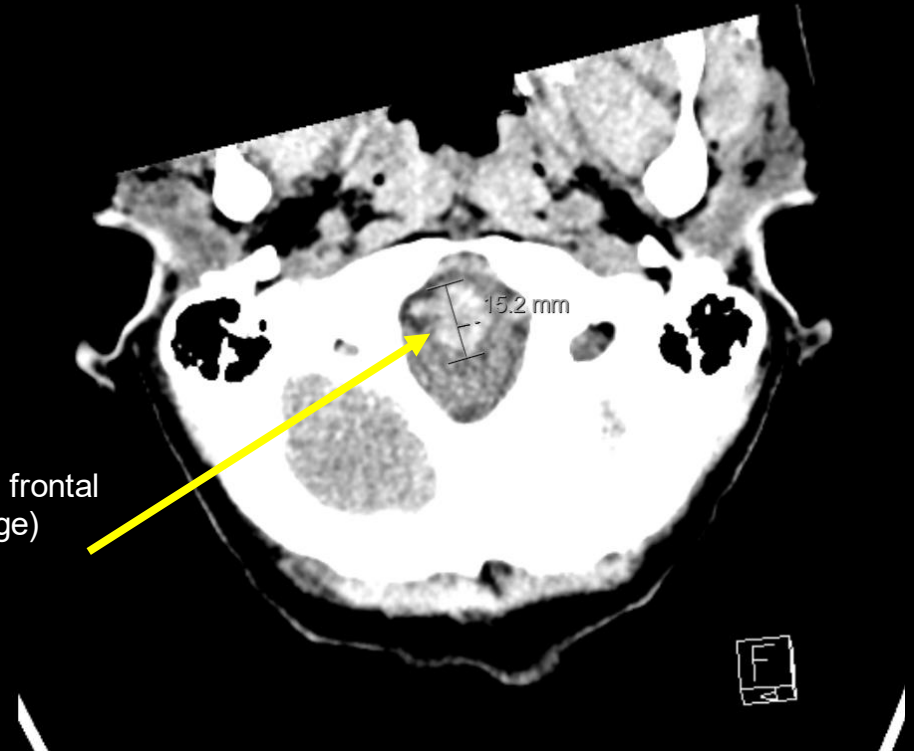
Axial T2 MRI with fat-saturation

Findings (labeled)



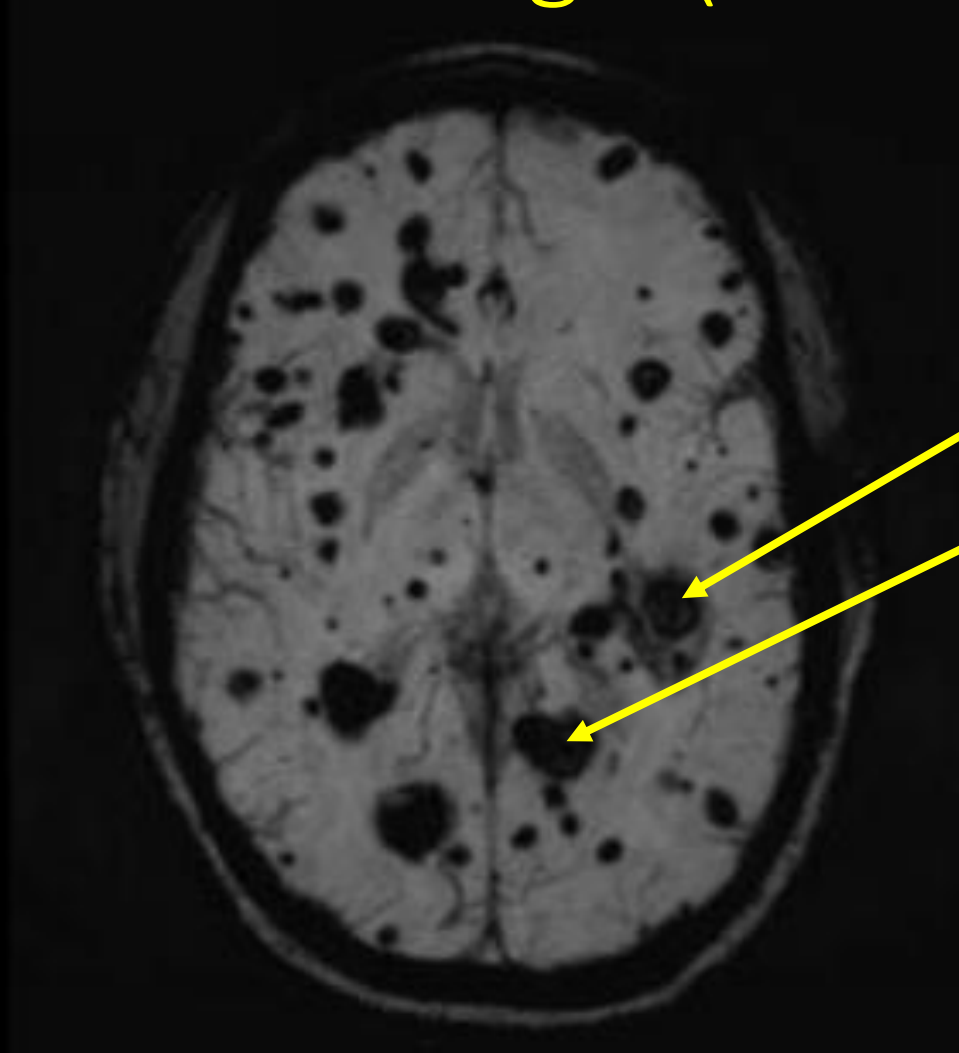
Axial non-contrast CT head

Small focal lesions of hyperdensity in the frontal lobe (left image) and pons (right image)



Axial non-contrast CT head

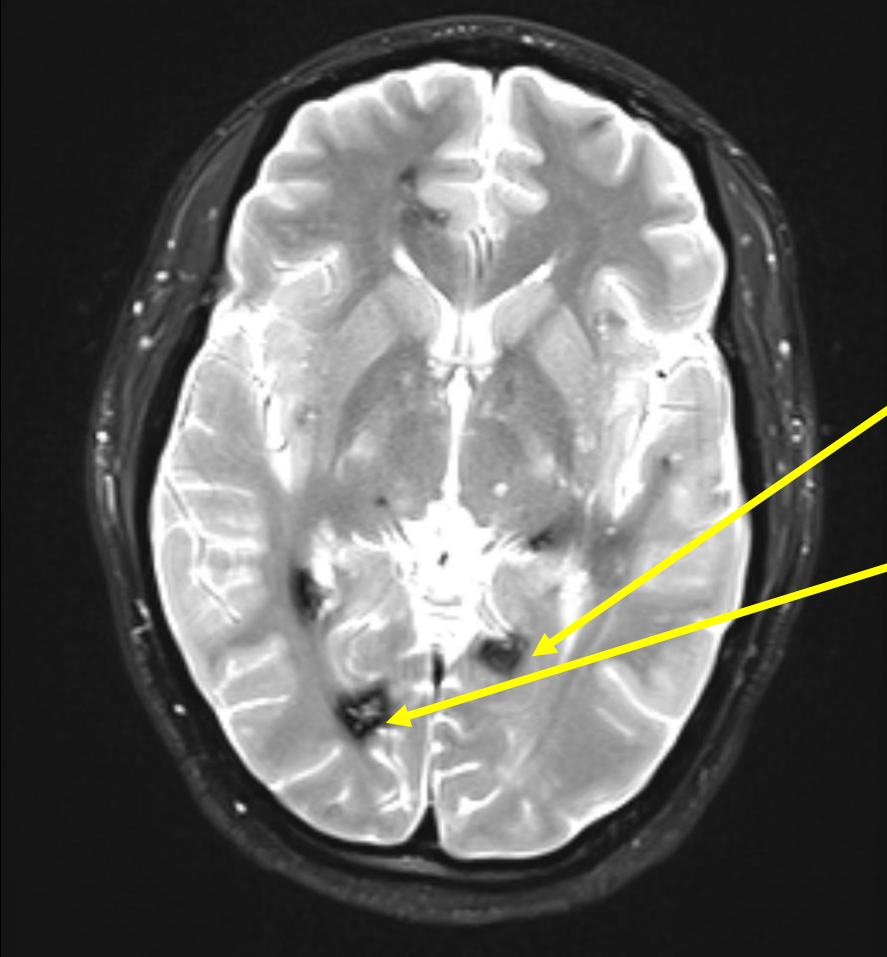
Findings: (labeled)



Numerous “blooming” hypointense lesions, representing a significant amount of blood products, that can represent either acute or chronic blood

Axial susceptibility-weighted (SWI) MRI

Findings: (labeled)



- This MRI sequence demonstrates multiple scattered foci of marked susceptibility blooming, with heterogeneous “popcorn” appearance and surrounding hypointense hemosiderin rims.

Axial T2 MRI with fat-saturation

Final diagnosis:
Familial Cerebral Cavernous Malformation

Case Discussion

- Familial Cerebral Cavernous Malformation (FCCM) is an autosomal dominant disorder that results in formation of diffuse cerebral sinuses that due to wall instability have a tendency to bleed easily.^{1,2}
- However, because blood flow is generally slow through these malformations, significant acute bleeding is uncommon.
- This manifests as chronic blood products scattered throughout the brain, as was seen on the susceptibility-weighted MRI image sequences.³
- FCCM can be asymptomatic in up to 50% of patients, but many will have symptomatology related to acute bleeding from the malformations, such as headaches, seizures, sensory changes, visual disturbances.⁴

Case Discussion

- Management of FCCM is generally conservative, consisting of symptom relief, such as with pain management, anti-emetics and fluids as needed.⁵
- Further intervention may be warranted in patients who are hemodynamically unstable and/or have large acute bleeds.
- This intervention typically consists of surgical removal of the sinuses/malformations by neurosurgery.
- No completely curative or preventative measurement exists for this disorder.

References:

1. Zabramski JM, Wascher TM, Spetzler RF, et al. The natural history of familial cavernous malformations: results of an ongoing study. *J Neurosurg*. 1994;80(3):422-432. doi:10.3171/jns.1994.80.3.0422.
2. Mespreuve M, Vanhoenacker F, Lemmerling M. Familial multiple cavernous malformation syndrome: MR features in this uncommon but silent threat. *J Belg Soc Radiol*. 2016;100(1):51. doi:10.5334/jbr-btr.938.
3. Zafar A, Quadri SA, Farooqui M, et al. Familial cerebral cavernous malformations. *Stroke*. 2019;50(5):1294-1301. doi:10.1161/STROKEAHA.118.022314.
4. Flemming KD, Smith E, Marchuk D, Derry WB. Familial cerebral cavernous malformations. Updated July 27, 2023. In: Adam MP, Bick S, Mirzaa GM, et al, eds. *GeneReviews*® [Internet]. University of Washington, Seattle; 1993-2026. Accessed August 14, 2026.
5. Akers AL, Albanese J, Alcazar-Felix RJ, et al. Guidelines for the diagnosis and clinical management of cavernous malformations of the brain and spinal cord: consensus recommendations based on a systematic literature review by the Alliance to Cure Cavernous Malformation Clinical Advisory Board Experts Panel. *Neurosurgery*. 2026;98(1):3-22. doi:10.1227/neu.00000000000003459
6. Utukuri PS, Shih RY, Ajam AA, et al; Expert Panel on Neurological Imaging. ACR Appropriateness Criteria® Headache: 2022 Update. *J Am Coll Radiol*. 2023;20(5S):S70-S93. doi:10.1016/j.jacr.2023.02.018