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## Background

Venous angioma also known as Developmental Venous Anomaly (DVA) is a congenital malformation. Silent lesion because of their dynamic slow flow and low pressure vascular structures draining to normal brain tissues.

Composed of dilated medullary veins converging centripetally into a large collecting venous system that drains into the superficial or deep venous system.

Venous angioma result from the focal arrest of the normal parenchymal vein development or occlusion of the medullary veins as a compensatory venous system.

Radiologic imaging especially MRI, has an important role in diagnostic venous angioma because clinical and laboratory examination often give a normal results.

Interventional radiology, such as staged sclerotherapy and endovascular embolization is a treatment of choice to reduce stroke-like symptoms or as a supportive role to surgical treatment

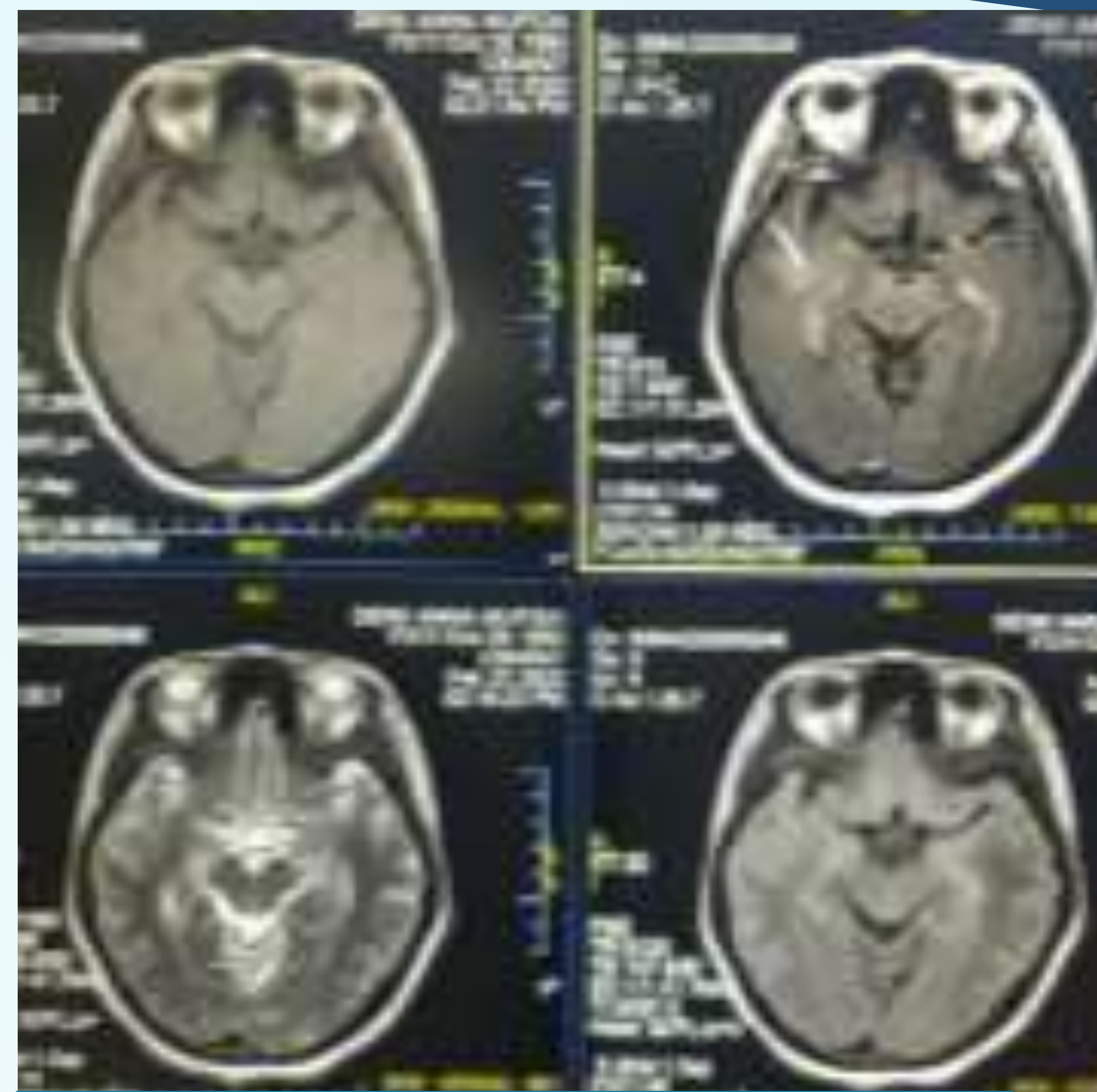


Figure 2. Axial BRAIN MR



Figure 3. Caput medusae sign at right temporal region

## Materials and method

A 31 years old female patient admitted to Kariadi Hospital due to chronic headache for years with a stabil general condition. No abnormality was found in general and neurological examination. Brain CT scan was performed and showed no abnormality. Contrast enhanced brain MR was performed with 1,5T MRI using T1, T2, FLAIR, DWI-ADC, SWI, MRA sequences and found a dilated of right medullary venous seen as caput medusae sign, which in turn drains into dural vein at right temporal region

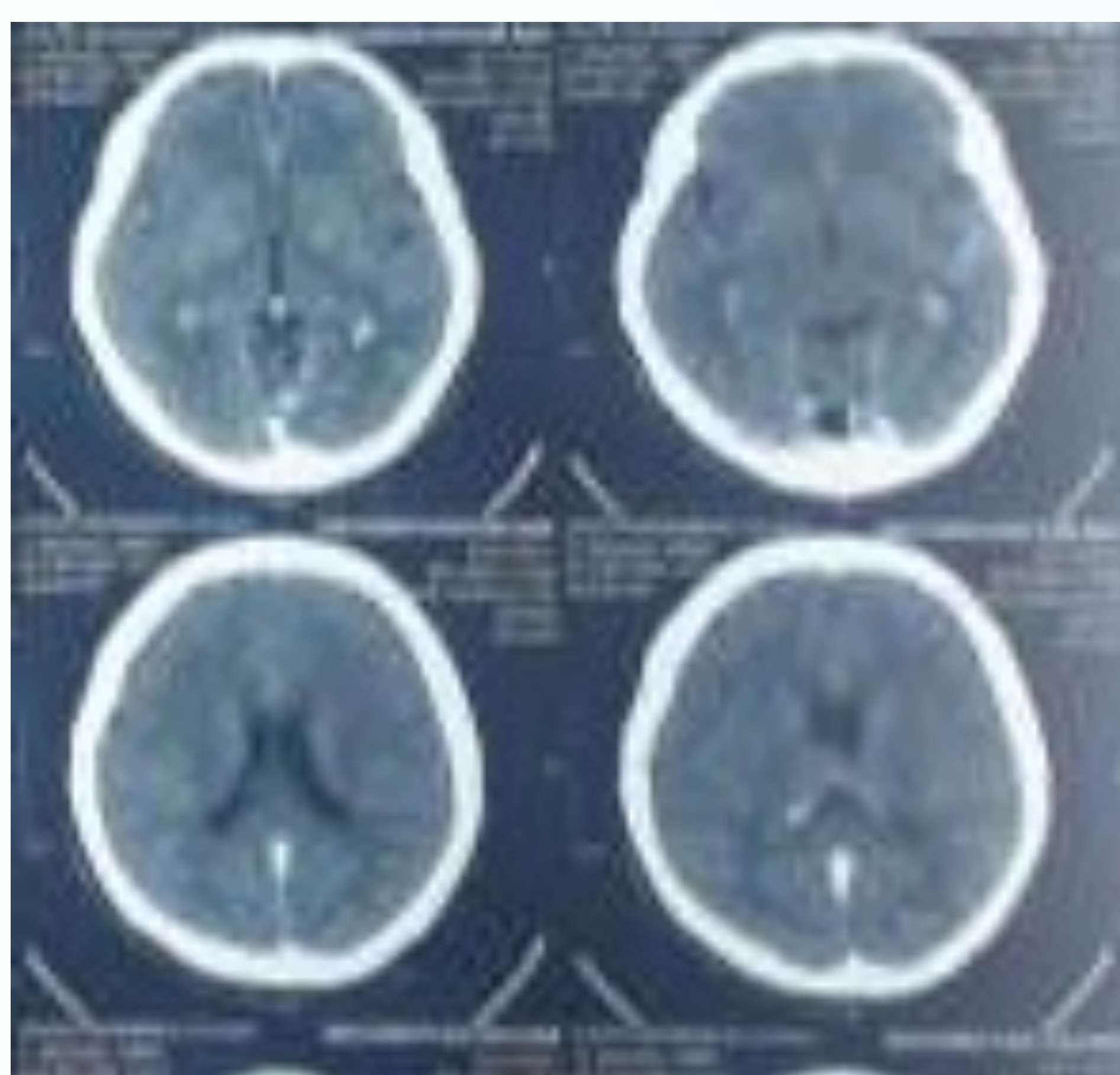


Figure 1. Axial BRAIN NCCT

## Result

Brain NCCT showed no abnormality. Brain MR showed a flow void lesion in T1 and T2 as a dilatation of right medullary venous with centripetal branches that seen as a caput medusae sign, which drains into right temporal dural vein.

The presence of radially oriented clusters of blood vessels connecting to the larger vessels as caput medusae, spoke wheel, or umbrella pattern fits the description of venous angioma.

Venous angiomas are hard to identified on non contrast CT scan, unless accompanied by other abnormalities such as cavernous angioma.

## Conclusion

Brain MR provides a better imaging of venous angioma than brain CT, in addition to its higher sensitivity and specificity. Most of the cases easily seen on postcontrast T1 sequences and susceptibility weighted imaging (SWI). MRI can be used to evaluate the association of DVA with cavernous malformations.

## Reference

1. Althobaiti E, Felemban B, Abouissa A, Azmat Z, Bedair M. Developmental venous anomaly (DVA) mimicking thrombosed cerebral vein. Radiology Case Reports. 2019 Jun 1;14(6):778-81.
2. Michael A. Mooney and Joseph M. Zabramski. Developmental venous anomalies. Handb Clin Neurol. 2017;143(3):279-8
3. Reynolds MR, Lanzino G, Zipfel GJ. Intracranial dural arteriovenous fistulae, Stroke. 2017 May;48(5):1424-31