

Aneurysm of the Vein of Galen

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Section: Paediatric radiology

Imaging Technique: MR

Imaging Technique: MR-Angiography

Case Type: Clinical Cases

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Patient: 6 days, male

Clinical History:

Congestive cardiac failure and macrocephaly.

Imaging Findings:

Congestive cardiac failure and macrocephaly with a bruit over cranium. MRI and MRA to evaluate.

Discussion:

The Vein of Galen aneurysm is a rare congenital intracranial arterio-venous malformation. The pathological connections between choroidal, anterior cerebral, and thalamoperforator arteries and the vein of Galen or the persisting embryonic median prosencephalic vein of Markowski can be extremely complex. The majority of cases in the neonate are of the choroidal type with multiple small arterial feeders draining into the dilated medial prosencephalic vein at different sites. There is haemodynamically significant shunting and patients may present with macrocephaly and cardiac failure requiring urgent treatment. Older infants present with hydrocephalus, fits and developmental delay but little cardiac involvement. The malformation is typically of the mural type with fewer but larger arterial feeders which converge into one terminal fistula which drains into the prosencephalic vein. An association with aortic coarctation and atrial septal defects is well described. The diagnosis is suspected by detection of a hypoechoic midline lesion on transcranial ultrasound with rapid flow on Doppler studies. Corroborating evidence of volume overload should be sought. Recently the diagnosis has been made prenatally using 3D-Power angiography. MRI and MR Angiography are the standard non-invasive diagnostic tools to evaluate the brain parenchyma and the anatomy of the malformation. Virtual cisternography using data from MRA or CTA might be a useful addition in the delineation of complex vascular architecture. 2D-cerebral Digital Subtraction Angiography is the definite test and embolisation of the varix via arterial or venous approach is the curative or palliative treatment option of choice in carefully selected patients.

Differential Diagnosis List: Aneurysm of the Vein of Galen

Final Diagnosis: Aneurysm of the Vein of Galen

References:

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Figure 1

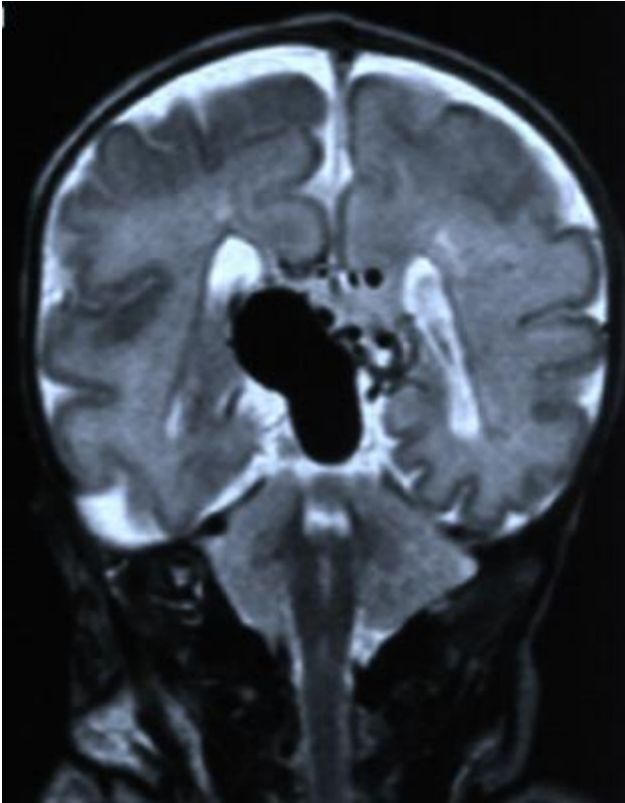
a



Description: Midline sagittal T1W MRI showing a large dilated vascular structure and minor prominence of the extra axial CSF space. **Origin:**

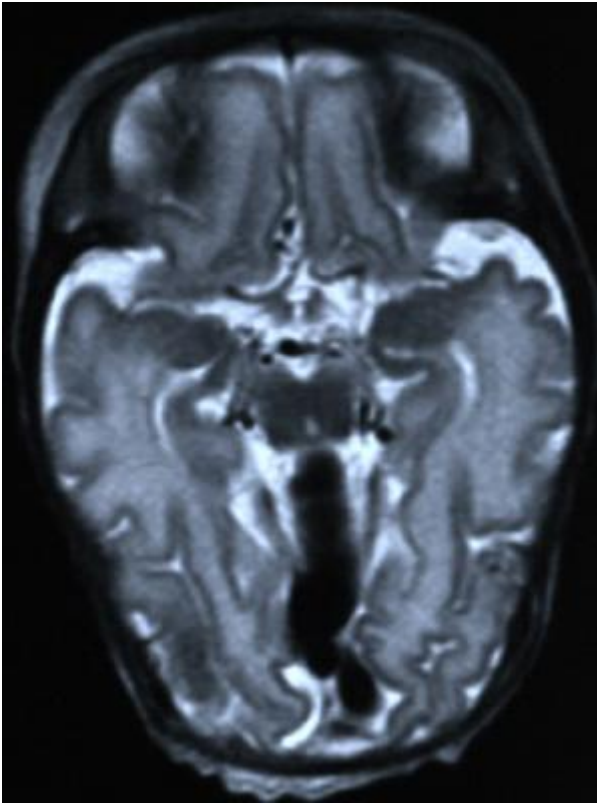
Figure 2

a



Description: Coronal T2W image showing the arteriovenous malformation and its feeders. **Origin:**

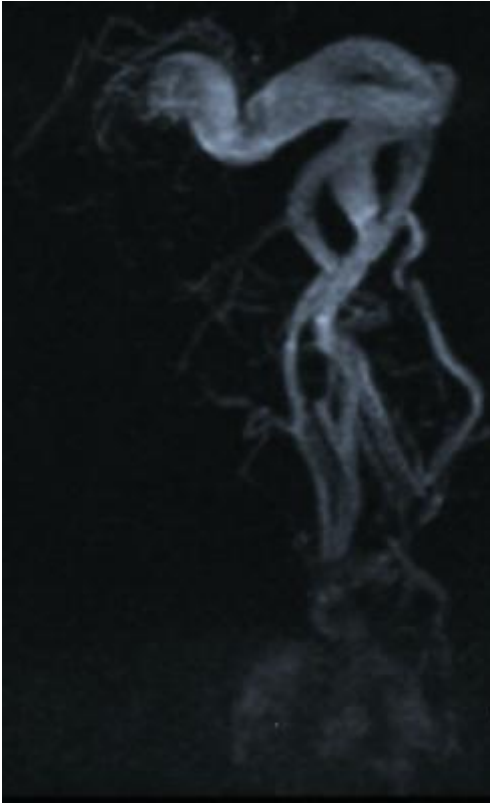
b



Description: Axial T2W image showing AVM and feeders. **Origin:**

Figure 3

a



Description: Phase contrast T1 FFE (20 cm/sec) showing large venous dilatation and numerous feeding vessels posterior to the thalami more marked on the left. Some of these vessels arise from around the brain stem and others have a pericallosal origin. **Origin:**