A case of dural fistula mimicking a cerebellar tumor

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Introduction: Dural arteriovenous fistulas (DAVFs) are abnormal vascular shunts between dural arteries and sinuses and account for 10%–15% of intracranial arteriovenous malformations. The etiology of these lesions remains controversial. Most authors consider DAVFs acquired pathologies due to increased venous pressure. Even though a relationship between DAVFs and sinus thrombosis is suspected and the coexistence with sinus thrombosis has been angiographically demonstrated in several cases, specific pathogenesis is still debated. Presentation symptoms may vary depending on lesion location and pattern of venous drainage, ranging from tinnitus to ophtalmoplegia and dementia. Wide range of clinical presentation and radiological findings can make the diagnosis of this vascular abnormality a real challenge. We report a case of DAVF mimicking a posterior fossa tumor.

Case report: A 63-year-old hypertensive, dyslipidemic woman was admitted to our Neurology department because of 2-month history of global weakness, nausea, weight loss, dizziness and diffuse headache. On neurological examination postural instability and lateropulsion were evident. A brain CT scan showed hypodensity on left cerebellar lobe. Early brain Magnetic Resonance Imaging (MRI) showed a dishomogeneous left cerebellar non-enhancing hyposignal in T1-weighted and hypersignal in T2-weighted image, with evidence of an internal vascular reticulum, severe oedema and compression on the vermis (Fig.1). Under suspicion of a tumoral lesion the patient underwent further investigation: blood exam, CT total body, gynaecological ultrasound, and Position Emission Tomography were within normal limits, meanwhile a dermatologic examination with subsequent biopsy revealed a cutaneous melanoma (II Clark level). A second brain MRI showed a cerebellar leptomeningeal contrast enhancement with venous dilatation. Therefore, a cerebral Angiography study was performed suggesting the presence of DAVF fed by a posterior meningeal artery. The definitive diagnosis of DAVF was reached during surgery for DAVF exclusion (Fig.2). The patient clinically improved after surgery and a cerebral angiography performed on follow up showed no DAVF.

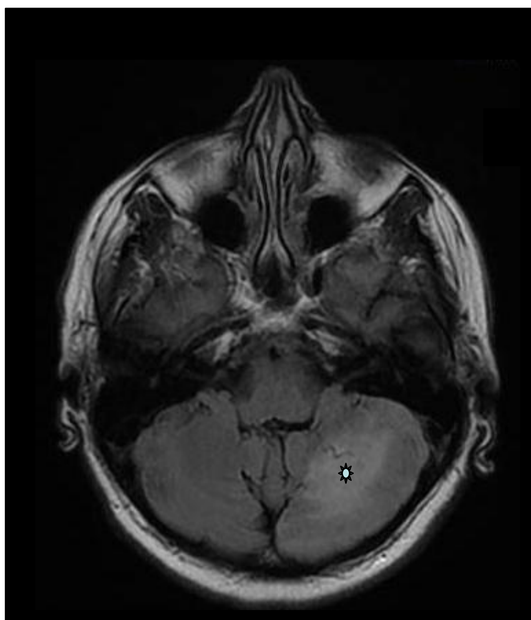
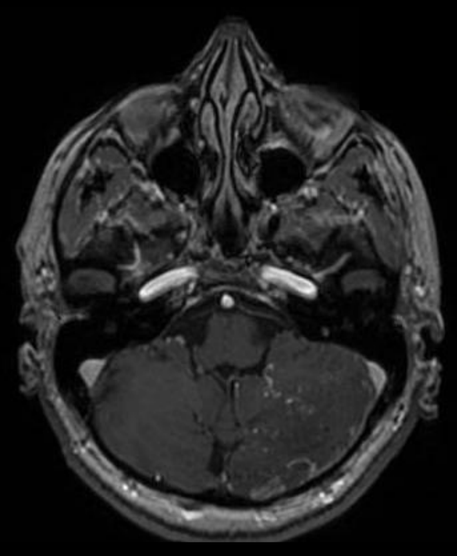
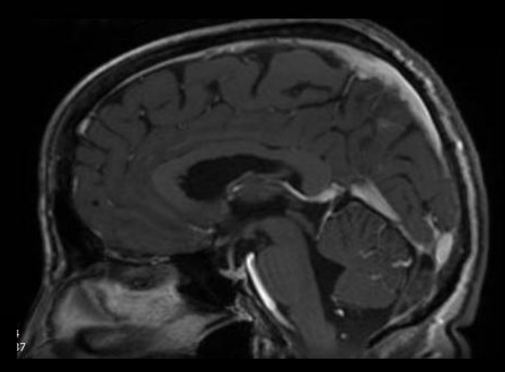


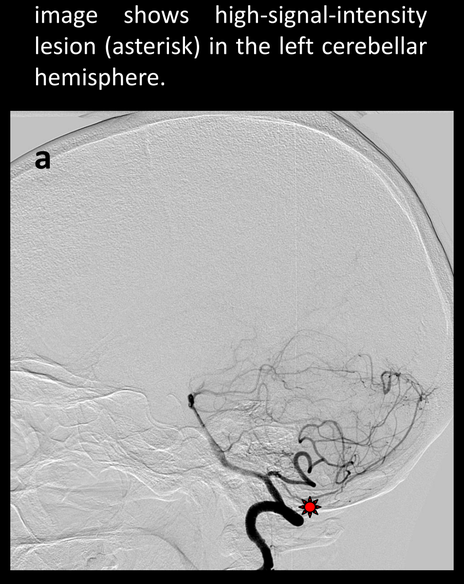
Fig.1: Axial T2-FLAIR- weighted MR image shows high-signal-intensity lesion (asterisk) in the left cerebellar hemisphere.

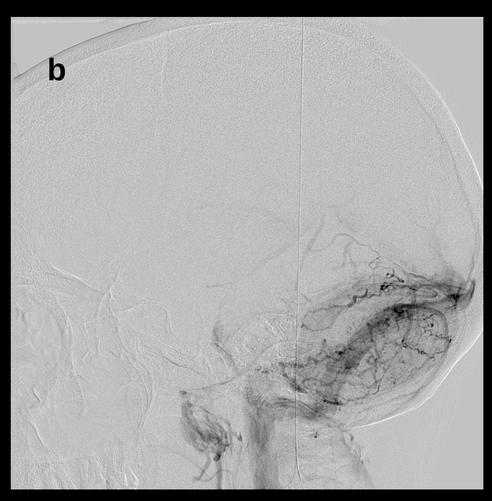


Axial T1 +Gd: dishomogeneous non-enhancing hyposignal with evidence of an internal vascular reticulum.



Parasagittal T1 +Gd





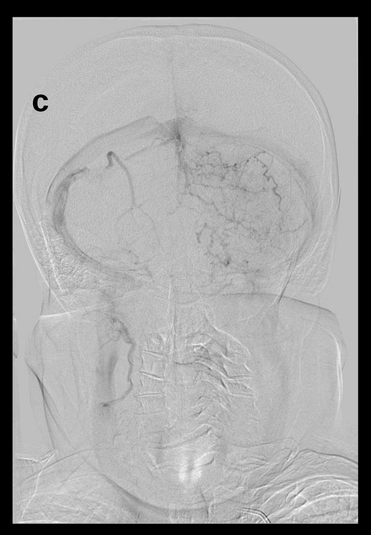
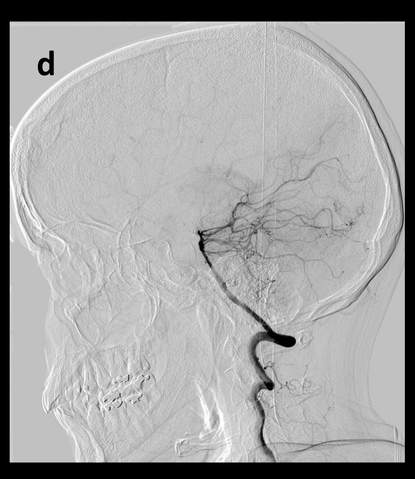
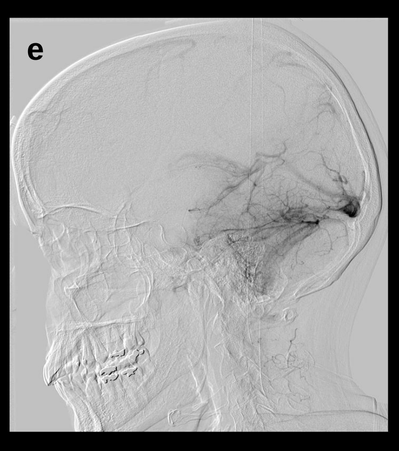


Fig 2. (a.b.c) Left-vertebral artery angiogram showing dural AV fistula fed by posterior meningeal artery





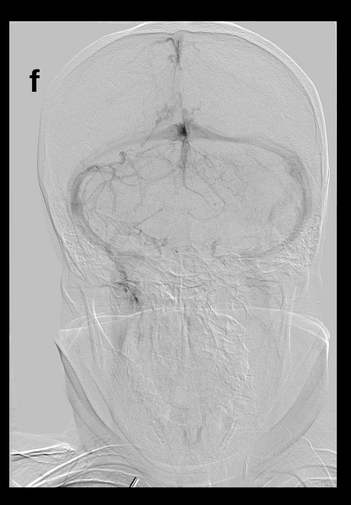


Fig 2.(d.e.f) Right-vertebral artery angiogram. Different views showed.

Conclusion: DAVF is a rare condition with wide range of clinical presentations. Some of the DAVFs are often difficult to distinguish from other vascular disorders or tumors and diagnosis may depend on cerebral angiography. Because of different treatment and prognosis, correct diagnosis is essential.
This case highlights the importance of ruling out DAVF, a relatively rare but tractable condition that can have different clinical and radiological presentations mimicking other threatening disorders.

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