



## Isolated dissecting aneurysm of the posterior inferior cerebellar artery

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### Introduction

Documented isolated dissection of the posterior inferior cerebellar artery (PICA) is very rare. PICA dissections most often present as subarachnoid hemorrhages (SAH) but a few cases of brain infarcts are described in the literature. We report a patient with a cerebellar infarct and a dissecting PICA aneurysm revealed by Magnetic Resonance Imaging (MRI).

### Case report

A 65-year-old man, without significant past medical history, experienced vertigo, severe sudden posterior headache and nausea which persisted throughout a week. Initial neurological examination showed an isolated cerebellar ataxia. No predisposing factors were found.

MRI revealed an acute cerebellar ischemia in the territory of the left PICA (Fig. 1A). T2-gradient echo-weighted images revealed an area of hypointensity on the left PICA compatible with an aneurysm (Fig. 1B). Computed Tomography (CT) and conventional angiography showed a proximal left PICA occlusion followed by a 6 mm aneurysmal dilatation, suggesting a dissecting aneurysm (Fig. 1C-D). Aneurysm and PICA's distal segment were supplied by the ipsilateral posterior meningeal artery. Other arteries appeared to be normal and cerebrospinal fluid analysis didn't detect any SAH.

The patient was treated conservatively by aspirin and recovered totally within 10 days. CT scan and clinical follow-up at 3 months showed proximal PICA recanalization (Fig. 2); dissecting aneurysm and neurological examination remained unchanged one year later.

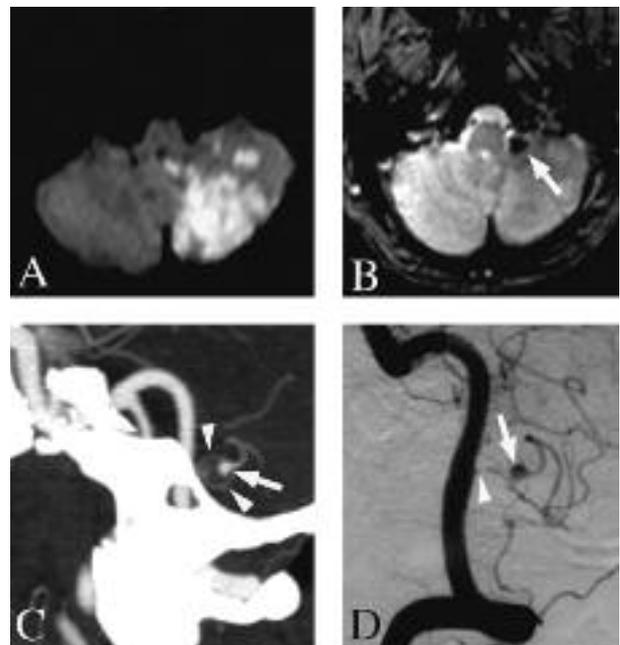


FIG. 1. — (A) Diffusion Weighted MRI shows acute left cerebellar PICA infarction. (B) T2-gradient echo-weighted images reveal a large hypointensity (arrow) which suggests a left PICA aneurysm. (C) CT angiography shows a partial thrombus (arrow) and a circulating lumen in the aneurysm with annular contrast enhancement (arrowheads). (D) Selective angiography of the left vertebral artery (lateral view) confirms proximal PICA occlusion (arrowhead) followed by aneurysm (white arrow). Aneurysm and the distal segment of the left PICA are supplied by collateral circulation.

### Discussion

Intracranial dissections may cause ischemic stroke or SAH. Isolated dissecting PICA aneurysms are extremely rare (Tawk *et al.* 2003) and are more commonly revealed by SAH than ischemia (Korematsu *et al.* 2008). Every segment of the PICA can be

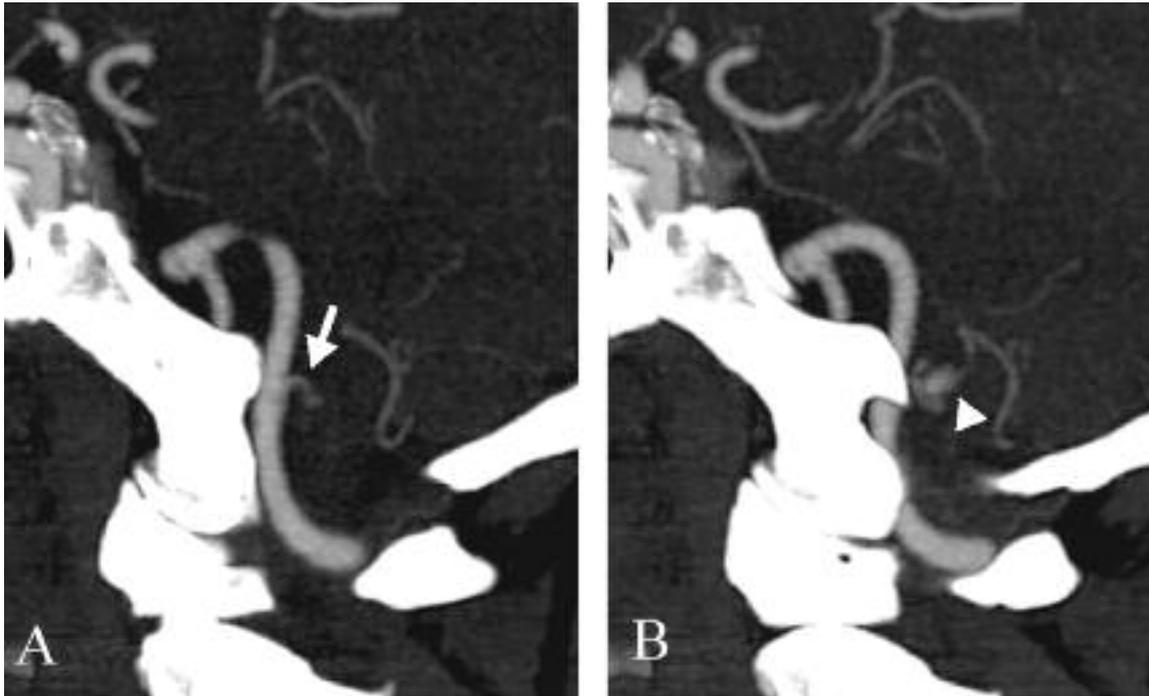


Fig. 2. — (A) CT angiography three months later reveals proximal left PICA recanalization (arrow). (B) Aneurysm remains unchanged (arrowhead).

affected but the first segment is the most frequently involved one. It often causes cerebellar or brainstem ischemia, whereas more distally located lesions are more frequently associated with SAH (Yamakawa *et al.* 2005).

Ischemic-type PICA dissection may be underdiagnosed because some lesions are difficult to detect by routine neuroradiological assessments and cerebral angiography is usually not performed (Sedat *et al.* 2007).

Pathophysiology and natural history of PICA dissections remain unclear. Typically, patients in the fourth decade of life present with neck and occipital pain, and eventually a complete or partial Wallenberg syndrome. In most cases, the cause of PICA dissection is unknown. Some authors suggest that hypertension may play an underlying role (Sedat *et al.* 2007).

In the ischemic cases the prognosis is generally good, except for patients with multiple brainstem lesions. The risk of hemorrhagic rupture remains unclear. Ischemic forms can spontaneously resolve (Korematsu *et al.* 2008), but aneurysmal formations may lead to a risk of delayed bleeding.

The optimal treatment of dissecting PICA aneurysms with ischemic onset remains controver-

sial. Conservative management with medical therapy is considered to be the most appropriate therapeutic plan. The medical treatment includes anticoagulants or antiplatelet drugs and careful clinical and radiological follow up. Endovascular or surgical occlusion of the vessel should be performed in cases of SAH, large pseudo-aneurysms or in cases of recurrent embolic events despite medical treatment (Von Stuckrad-Barre *et al.* 2007). Controlled clinical trials to determine the efficacy of these different treatments are not available due to the small number of patients.

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