Case Studies

Thrombosed Aneurysm of the Posterior Inferior Cerebellar Artery and Lateral Medullary Ischemia as the Initial Presentation of Polyarteritis Nodosa: Case Report and Literature Review

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A 27-year-old woman with a previously undiagnosed polyarteritis nodosa (PAN) developed lateral medullary stroke related to a thrombosed posterior inferior cerebellar artery (PICA)-origin aneurysm. A concurrent thrombosis of the PICA was identified on high-resolution 3-dimensional CUBE T1 magnetic resonance imaging sequence at 3 T. Body computed tomography angiography, magnetic resonance imaging–magnetic resonance angiography, and digital angiography revealed multiple tiny aneurysms of the visceral arteries and bilateral kidney infarcts. On the basis of these findings and of laboratory data, the patient was diagnosed as having PAN. Intracranial aneurysms (IAs) are extremely rare in PAN and usually manifest as subarachnoid or cerebral hemorrhage. Ischemic manifestation of small thrombosed IA is a rare occurrence. This case highlights (1) an uncommon complication in patients with PAN (16 other cases of IAs in patients with PAN found in the literature), (2) an unusual initial presentation of PAN, and (3) a thrombosed PICA-origin aneurysm responsible for an ischemic stroke and for secondary thrombosis of the parent vessel. **Key Words:** Polyarteritis nodosa (PAN)—posterior inferior cerebellar artery (PICA)—cerebral aneurysms—ischemic stroke—lateral medullary infarct—vasculitis.

Introduction

Polyarteritis nodosa (PAN) is a systemic necrotizing vasculitis that involves medium-sized arteries, leading to thrombus, infarct, and aneurysm formation. These aneurysms occur most commonly in visceral arteries. Intracranial aneurysms (IAs) in patients with PAN are extremely rare. In the literature, we identified 16 additional cases. These aneurysms usually manifest with subarachnoid hemorrhage (SAH) or intracerebral hemorrhage (ICH).

We report a case of lateral medullary stroke (LMS) as an initial presentation of PAN and related to a thrombosed posterior inferior cerebellar artery (PICA) aneurysm.

Case Presentation

A 27-year-old woman with a medical history of Raynaud syndrome and Sjögren syndrome was referred to the emergency department for potential thrombolysis 2 hours after the acute onset of headache, vomiting, vertigo, and right-side paresthesia.

Neurological examination showed right facial palsy, right facial and 2-limb hypoalgesia, weak uplift of the right

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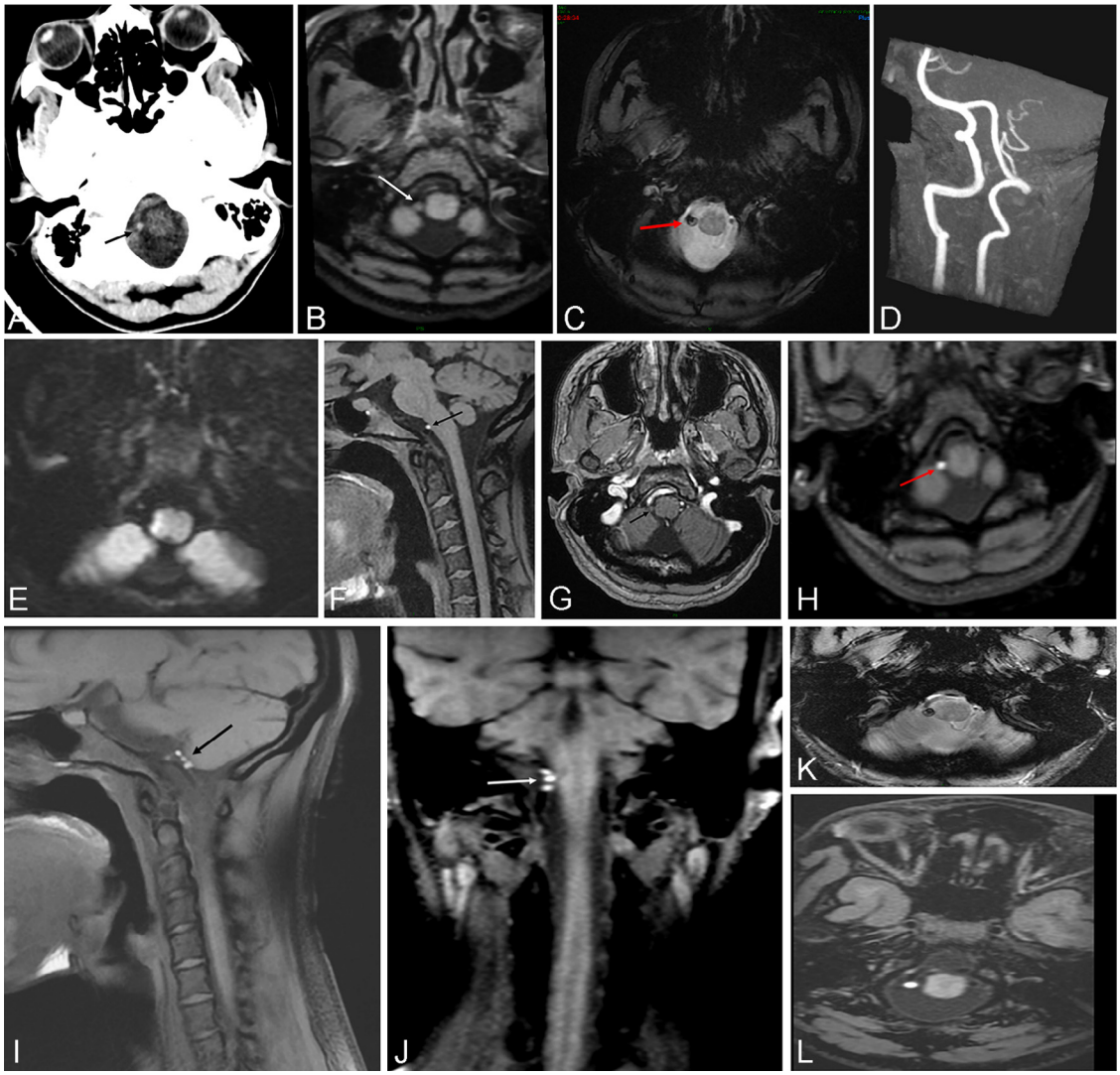

Figure 1. *Imaging at admission. Noncontrast brain computed tomography shows a round hyperdense structure on the right side of the medulla (A, arrow) and MRI shows that this structure has an isointensity on T1 sequence, corresponding to a fresh clot (B, arrow) and a strong hyposignal on T2* (blooming effect) consistent with the early stage of the thrombosed aneurysm of PICA origin (C, arrow). The right PICA is not identified on 3D time-of-flight magnetic resonance angiography (D). Follow-up MRI 15 hours later identifies the ischemic stroke of the lateral medulla on the diffusion-weighted image (E). HR 3D CUBE T1 (midline sagittal reconstruction) shows hyperintensity of the thrombus within the PICA, adjacent to the signal void of the patent vertebral artery (F, arrow). On 3D postcontrast, the thrombus does not enhance (G, arrow). MRI at day 8: on HR 3D CUBE T1, the hyperintensity of the thrombus within the PICA is constant on the axial image (H, arrow). Reconstructions in sagittal (I, arrow) and coronal (J, arrow) planes of HR 3D CUBE T1 show hyperintensity within the PICA consistent with a thrombus. On T2*, the blooming effect at the site of the thrombosed aneurysm is constant (K). At the 3-month follow-up MRI, the pattern of the thrombosed aneurysm at the PICA origin is unchanged on HR 3D CUBE T1 (L). 3D, 3-dimensional; HR, high resolution; MRI, magnetic resonance imaging; PICA, posterior inferior cerebellar artery.*

soft palate, mild paresis of the right limbs, and severe limb ataxia. The patient was also found to be hypertensive.

A small round structure, hyperdense on computed tomography (Fig 1, A), with isosignal magnetic resonance intensity on T1 (Fig 1, B) and dark signal intensity on T2* (Fig 1, C), was identified just adjacent to the right patent vertebral artery, at the supposed origin of the right PICA.

These findings suggested an early-stage of intra-aneurysmal thrombus.

On 3-dimensional (3D) time-of-flight magnetic resonance angiography (MRA), the right PICA was not identified (Fig 1, D).

At 15 hours' follow-up, diffusion-weighted images showed an acute LMS (Fig 1, E), not identified on admission magnetic resonance imaging (MRI). Fluid-attenuated inversion recovery sequence did not identify SAH.

The round structure at the site of the PICA origin presented a hyperintensity on high-resolution (HR) 3D CUBE T1 (MR 750, GE Medical System, Milwaukee, Wisconsin, USA) (Fig 1, F).

Cerebral digital subtraction angiography showed a filling defect of the origin of the right PICA. The thrombus did not enhance after contrast (Fig 1, G).