Distal posterior inferior cerebellar artery aneurysm with basilar artery stenosis

Case illustration

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Distal posterior inferior cerebellar artery (PICA) aneurysms are particularly rare, constituting 15 to 30% of all such PICA lesions. We describe an aneurysm that arose from the medial trunk of the right PICA, distal to the choroidal point, and was associated with basilar artery (BA) stenosis.

This 52-year-old man presented with a sudden onset of headache, followed by an abrupt decline in consciousness. A neurological examination on admission revealed cerebellar dysfunction on the left side. A computerized tomography (CT) scan demonstrated an intracerebellar, intraventricular subarachnoid hemorrhage (Fig. 1). On a cerebral angiogram of the posterior circulation, an aneurysm 6 mm in diameter was seen to arise from the medial trunk of the right PICA, distal to the choroidal point (Fig. 2). The BA was faintly opacified by stenosis of unknown origin. The right anterior inferior cerebellar artery (AICA) and the superior cerebellar artery (SCA) were hypoplastic and compensated for by the right PICA (Fig. 2). The patient underwent a midline suboccipital craniotomy and aneurysmectomy after clipping of the parent artery. He was discharged home 2 months after surgery.

A distal PICA aneurysm in the fourth ventricle is extremely rare. The telovelotonsillar segment of the PICA often has a rostrally convex loop near the roof of the fourth ventricle. At this location the aneurysm may project into the fourth ventricle through the tela choroidea. In the case presented here, the course of the right PICA was unusual. The apex of the cranial loop was inferior to the level of the midportion of the tonsil, and the medial trunk of the right PICA was elongated into the fourth ventricle. Also, the BA had severe stenosis and the right AICA and SCA were hypoplastic. Perhaps altered flow and hemodynamic stress through the PICA facilitated aneurysm formation.

Usually, PICA aneurysms arise at branching sites on a curve of the parent vessel and point in the direction in which the vessel would have continued, had the curve not been present. In our case, the aneurysm originated from a nonbranching site and had a broad neck. Resection of the aneurysm together with end-to-end anastomosis would have been superior to proximal clipping of the parent vessel as the proper treatment.

References


Fig. 1. Preoperative CT scan revealing an intracerebellar, intraventricular subarachnoid hemorrhage.

Fig. 2. Right vertebral artery angiograms, anteroposterior (left) and lateral (right) views, demonstrating an aneurysm 6 mm in diameter arising from the medial trunk of the right PICA, distal to the choroidal point. The BA is faintly opacified by stenosis. The right AICA and SCA are hypoplastic and compensated for by the right PICA.