Anastamosis of the Posterior Inferior Cerebellar Arteries Associated with Distal PICA Aneurysms and Arteriovenous Malformation

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Purpose
Most posterior inferior cerebellar artery (PICA) aneurysms originate at the origin of the PICA from the vertebral artery (1). Aneurysms of the peripheral branches of the PICA are very rare (1, 2). Reports of anastomotic branches between the PICAs are also extremely rare (3, 4). Our purpose is to present a unique case, that includes two distal right PICA aneurysms intermittently visualized through left PICA anastomotic branches associated with a posterior fossa AVM. To our knowledge, there is no previous report of such a case in the literature.

Materials & Methods
A 55-year-old woman presented with sudden onset of right-sided headache. Head CT showed parenchymal hemorrhage in the right cerebellar hemisphere. Further imaging work up included head MR imaging and diagnostic cerebral angiogram. The patient underwent embolization of the AVM and right PICA.

Results
A total of four angiograms were performed as follows: Initial arteriogram showed an AVM supplied by right superior cerebellar (SCA) and right PICA, as well as two aneurysms of the inferior vermian branch of the right PICA. Four days later, an arteriogram performed before embolizing the AVM, demonstrated that the right PICA had occluded spontaneously. The SCA branches supplying the AVM were embolized with N-butylcyanoacrylate (NBCA). Despite the right PICA occlusion, the right inferior vermian branch aneurysms were visualized persistently, being now supplied by the left PICA. That evening the patient rebled into the posterior fossa and evacuation of the hematoma and resection of the AVM was undertaken. A subsequent right vertebral arteriogram, obtained 8 days after the AVM embolization, showed recanalization of the right PICA showing the two inferior vermian artery aneurysms. Supply of the right PICA aneurysms via left PICA branches was no longer seen. In the final angiogram, performed after embolization of the inferior vermian branch of the right PICA, the collateral supply from left PICA to right PICA branches was no longer visualized.
Conclusion
In posterior fossa embolization procedures and surgery, we should be aware of the existence of anastomotic branches between the PICA territories and other PICA anatomical variations.

References