Treatment of an Anterior Inferior Cerebellar Artery Aneurysm With Microsurgical Trapping and In Situ Posterior Inferior Cerebellar Artery to Anterior Inferior Cerebellar Artery Bypass

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Introduction

• Anterior inferior cerebellar artery (AICA) aneurysms are rare lesions whose treatment can involve microsurgical and/or endovascular techniques.

• Such treatment can be challenging and may carry a significant risk of neurological morbidity.
Methods

- A 59-year-old male with history of femoral artery stenosis and hypertension, presented with transient diplopia, dizziness, vertigo, and lack of coordination.
- Irregular 7-mm aneurysm of the right AICA, was found on the lateral pontine segment approximately 1 cm from the basilar artery (BA). The aneurysm originated from the caudal trunk immediately after the bifurcation of the main AICA trunk.
Results

• Revascularization of the AICA distal to the trapped segment was desired due to the proximal, pre-meatal location of the aneurysm on the AICA and the AICA-dominant flow to the right cerebellar hemisphere.

• The caudal branch of the right AICA was noted to be low lying and in close proximity to the right PICA near the caudal loop, making side-to-side bypass feasible.

R=Rostral trunk of AICA; A=Caudal trunk of AICA; P=PICA
Results

- The aneurysm and the distal segments of AICA and PICA were exposed with a retrosigmoid and far lateral approach.
- A side-to-side anastomosis was performed between the adjacent caudal loops of PICA and AICA. The AICA aneurysm was then treated by trapping the aneurysm-bearing segment of the parent vessel between 2 clips.
Results

- Postoperative angiogram demonstrated a patent PICA-AICA bypass and complete occlusion of the AICA aneurysm.
- There were no complications, and the patient made an excellent recovery.

R=Rostral trunk of AICA; A=Proximal AICA; P=Proximal PICA; A’=Distal AICA; P’=Distal PICA
Discussion

- The combination of parent vessel sacrifice and bypass remains an excellent option for certain difficult-to-treat aneurysms.
- Our case involving PICA-AICA bypass to treat an AICA aneurysm serves as an example of the neurosurgeon’s ability to develop unique solutions that take advantage of individual anatomy.
Summary Points

• A unique case was demonstrated, involving a complex AICA aneurysm that was treated with a unique microsurgical approach involving trapping the aneurysm and performing in situ bypass from PICA to the distal AICA.

• The nuances of AICA aneurysms and revascularization strategies were discussed.