June 2009: Occipital artery to PICA bypass for treatment of VA-PICA aneurysm
Patient history and diagnosis

An otherwise healthy 48-year-old male presented with recent voice changes and hoarseness, vision problems, headache and increasing dizziness.

- was found to have a vertebral artery-PICA dissecting aneurysm.
- has been taking Coumadin for a while.
- denies any difficulties with double vision, numbness or facial weakness, any history of seizures, extremity numbness or weakness, or gait difficulty.

Neurological Examination Results:

Mental status: Normal consciousness, orientation, affect and fluency
Sensory: Intact to pinprick and light touch
Motor: Normal strength, muscle bulk and tone
Cerebellar: Normal finger-to-thumb and tone
Gait: Normal, Tandem and Romberg negative
Deep Tendon Reflexes: Absent

Plan and Surgical Treatment

Endovascular coiling of the PICA dissecting aneurysm presents significant risk for a PICA stroke as the origin is the aneurysm dome. Similarly, surgical clipping and reconstruction of this aneurysm presents the same risk. Therefore right occipital artery to right PICA by-pass anastomosis and trapping of the aneurysm is planned.

A right far lateral craniotomy was performed and the right occipital artery harvested. Initially the occipital artery was anastomosed to the telovelotonsillar segment of the PICA using 10/0 sutures. The aneurysm was then trapped with clips between the proximal PICA and the distal vertebral artery.

Outcome

Postoperatively the patient was neurologically intact with no neurological deficit during postoperative follow up.

Right AP vertebral artery angiogram: Shows dissecting aneurysm and minimal blood flow to the basilar artery.

Left lateral vertebral artery angiogram: Shows hypoplastic vessel and very limited blood flow to the basilar artery.

Right lateral carotid artery angiogram: Shows good size occipital artery for possible by-pass surgery.

Right lateral vertebral artery angiogram: Shows dissecting aneurysm, PICA is originating from the dome of the aneurysm.

Postoperative lateral right carotid angiogram: Shows patent and open anastomosis between occipital artery and PICA.

Postoperative AP left vertebral artery angiogram: Shows no aneurysm filling but basilar artery flow has improved significantly.

Left lateral vertebral artery angiogram: Shows hypoplastic vessel and very limited blood flow to the basilar artery.

Right lateral vertebral artery angiogram: Shows dissecting aneurysm, PICA is originating from the dome of the aneurysm and there is minimal blood flow to the basilar artery.

Right lateral vertebral artery angiogram: Shows dissecting aneurysm, PICA is originating from the dome of the aneurysm and there is minimal blood flow to the basilar artery.

Postoperative lateral right vertebral artery angiogram: Shows occulsion of VA and aneurysm without any residual filling.

Right lateral carotid artery angiogram at 4 months post-op: Shows patent occipital artery to PICA anastomosis.

Occipital artery to PICA bypass for VA-PICA aneurysm.