Neurosurgical Case of the Month
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Right Cavernous ICA Giant Aneurysm
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Patient history and diagnosis
A 54 year-old female was admitted with: 3 weeks of severe headache, progressive double vision and severe retro orbital pain. Past medical history included: shingles and osteonecrosis. Past surgical history included: an appendectomy, and a hip replacement.

Brain magnetic resonance imaging revealed:
- 2.1 x 2.2 cm saccular right cavernous internal carotid artery (ICA) aneurysm
- mass effect on the adjacent cavernous sinus, Meckel's cave, and right temporal lobe

Neurological Examination Results:
Mental status: Normal consciousness, orientation, affect and fluency
Cranial Nerves: II-XII intact on detailed examination
Motor: Normal strength, muscle bulk, and tone
Sensory: Intact to pinprick and light touch
Cerebellar: Normal finger-to-nose and rapid alternating movements
Gait: Normal, Tandem and Romberg negative
Deep Tendon Reflexes: Present and normoactive
Pathologic Reflexes: Absent

Plan and Surgical Treatment
Indications for cavernous ICA aneurysms are:
- Debilitating pain
- Vision loss
- Diplopia
- Sphenoid sinus erosion

Treatment of giant cavernous aneurysms includes:
- ICA occlusion after balloon test occlusion
- Occlusion of the aneurysm with a covered stent
- Coil embolization of the aneurysm with/without stent
- Occlusion of the ICA with extracranial to intracranial (EC/IC) bypass

The patient tolerated the balloon test occlusion, however since there is 5-22% delayed ischemic complication and 5% mortality risk after a successful balloon test occlusion, an ICA occlusion with EC/IC bypass was selected.

The patient was taken to the operating room and a radial artery graft was harvested and right external carotid artery to middle cerebral artery by-pass surgery using the radial artery graft was performed without complication. Immediately after surgery the patient was taken to the angio-suite and the right ICA and aneurysm occluded with coils.

Outcome
The patient tolerated the procedures well without complication and was discharged home on postoperative day three.