Neurosurgical Case of the Month by Aclan Dogan, MD

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Large Fusiform Aneurysm of P1-P2 segment
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Patient history and diagnosis
An otherwise healthy 14-year-old male presented with a history of severe headache, nausea and vomiting for approximately 2 weeks:
- unable to keep down food for several days
- denied any visual changes, weakness, or seizure
- no past medical or surgical history.

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 normo-active
Pathologic Reflexes:  Absent

Plan and Surgical Treatment
Headache was most likely due to acute enlargement of a fusiform aneurysm, arising from the posterior communicating artery/posterior cerebral artery on the right side, which was at extreme risk for rupture, catastrophic subarachnoid hemorrhage and death.

An ideal treatment is cutting of aneurysm from the circulation and avoiding stroke by keeping the posterior cerebral artery (PCA) intact.

One approach would be trapping the aneurysm surgically and performing bypass surgery to the distal PCA. In this particular case due to aneurysm locale that would have proved extremely difficult and carried a high risk for distal PCA occlusion.

Alternatively, (after the family agreed) a stent was placed into the PCA from proximal P1 (proximal to the aneurysm neck) to distal P2 (distal to the aneurysm neck) and aneurysm embolization was performed with Guglielmi Detachable Coils (GDC) coils. With this procedure rupture can be prevented by securing the dome of the aneurysm and keeping the PCA intact, although there is always a risk of stent occlusion. Preoperatively, the patient was placed on acetylsalicylic acid (ASA) and plavix. For further protection two stents were placed prior to embolization.

Outcome
Postoperatively, the patient was neurologically intact with no new neurological deficit at postoperative follow up.