

## Image Diagnosis: Headache and an Isolated Oculomotor Nerve Palsy

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<http://dx.doi.org/10.7812/TPP/12-137>**Case Study**

A 55-year-old woman presented to the Emergency Department with complaints of headache, diplopia, and double vision (Figure 1). Patient noted 2 weeks of an aching right-sided headache and a “droopy eyelid.” Three days before our evaluation, her symptoms worsened and she began to develop diplopia. On exam, she demonstrated right-sided ptosis, a dilated pupil with a sluggish light response, and a downward and lateral deviation of the right eye. The remainder of neurologic exam was within normal limits.

The patient underwent a stat unenhanced computed tomography (CT) scan of the brain. This study was negative for bleed, mass, or acute cerebral vascular accident. Because there was high clinical suspicion for a vascular emergency, neurology was consulted and magnetic resonance angiogram imaging of the brain was ordered. This revealed a 3 mm x 7 mm posterior communicating aneurysm.



Figure 1. Patient with headache and right-sided oculomotor nerve palsy—ptosis, mydriasis, diplopia

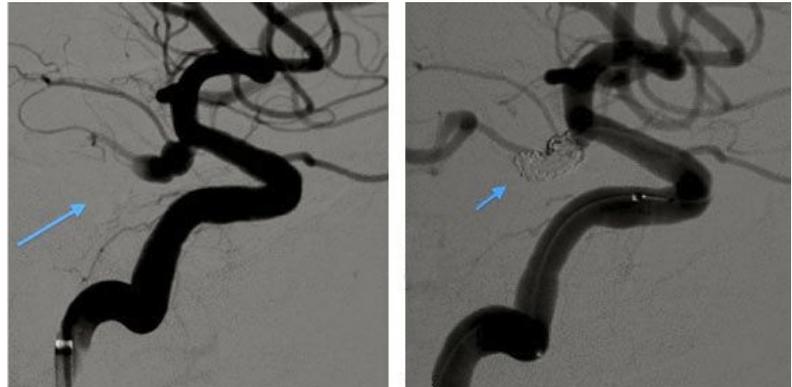


Figure 2. Image on left demonstrates a posterior communicating aneurysm before embolization (long arrow). Image on the right demonstrates aneurysm status postsuccessful embolization (short arrow).

Diagnostic cerebral angiogram confirmed the diagnosis and successful endovascular coiling of the aneurysm was performed (Figure 2). The patient was discharged home on postoperative day 1 with resolution of headache but persistence of her third nerve palsy. Unfortunately, the patient has since been lost to follow-up.

**Discussion**

Posterior communicating aneurysms account for 25% of all intracranial aneurysms. Although symptomatic patients typically present with subarachnoid hemorrhage, roughly 20% will present with an isolated oculomotor nerve palsy.<sup>1</sup> This results when the aneurysm compresses the oculomotor nerve and the parasympathetic nerve fibers that run with it. As a result, patients will develop ptosis and mydriasis (from a disruption in parasympathetic innervation) and a “down-and-out” deviation of the eye (from a disruption in the oculomotor nerve innervation).

Patients presenting with an isolated third-nerve palsy with pupillary involvement must be considered to have a poste-

rior communicating aneurysm until proven otherwise. Early intervention can improve return of neural function and avoid a catastrophic rupture, which carries an unacceptable rate of morbidity and mortality.<sup>2</sup>

Conventional unenhanced CT scan and magnetic resonance imaging have high false-negative rates and therefore cannot exclude the diagnosis. Patients must therefore undergo magnetic resonance angiogram or CT angiography, which have sensitivity up to 97%.<sup>3</sup> Definitive treatment includes surgical clipping or endovascular coil embolization. ❖

**References**

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