Complete Occlusion of a Recurrent Aneurysm by a Spontaneous Thromboembolic Event with no Ischemic Complications

Arango-Vasquez, Julia S.¹; Ferrigno, Ana S.¹; Figueroa-Sanchez, Jose A. MD, MBA.¹,²

¹ Tecnologico de Monterrey, Escuela de Medicina y Ciencias de la Salud.

² Zambrano Hellion Hospital, Department of Neurosurgery, Monterrey, N.L. Mex.
Disclosure

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Introduction

- An intracranial aneurysm, also called cerebral aneurysm, is “blister-like” dilation of an artery in the brain which results from a weakening of the intima of a blood vessel wall.
- Approximately, 3.2% of adults have an intracranial aneurysm (IA).
- If the aneurysm becomes thin enough, it may rupture without warning resulting, in most cases, in a subarachnoid hemorrhage.
- For ruptured IAs, coil embolization has proven to be superior in terms of procedural morbidity and economic cost.
- Complications of this procedure include aneurysm perforation (1-5%), thromboembolic events (2-15%), and aneurysm recanalization (20%).
We present the case of a 41-year-old female with a history of hypertension who presented to the emergency department with severe headache, diplopia and vomiting. Physical examination revealed neck rigidity and left third cranial nerve palsy, but no other focal neurologic deficits (Hunt and Hess grade 2). CT revealed diffuse subarachnoid and intraventricular hemorrhage (Fisher grade IV). Cerebral angiography showed an aneurysm in the posterior cerebral artery as the source of bleeding.
Methods

Successful coiling embolization was performed, with complete obliteration of the aneurysm.

Image A. Coiling of aneurysm.

Image B. Complete occlusion of aneurysm.
Results

- At the 4-month follow-up, cerebral angiography showed partial recanalization of the aneurysm.
- Coil embolization was again undertaken with immediate postoperative angiography demonstrating complete occlusion of the aneurysm.
- At the 6-month follow-up, control angiography revealed recurrent aneurysm recanalization.
- A third coiling embolization procedure was attempted but was not technically possible.
Results

**Image C.** 4 month follow-up showing partial recanalization of aneurysm.

**Image D.** 6 month follow-up showing recurrent aneurysm recanalization.
Results

- Treatment with flow diversion was decided for the following day. However, upon starting the procedure, complete occlusion of the left vertebral artery and absence of the aneurysm was noted. Collateral irrigation of the left PCA territory was achieved through a persistent posterior communicating artery.

- Spontaneous thrombosis of the left vertebral artery resulted in an emboli that lodged in the P1 segment, obliterating the recurrent aneurysm.

- MRI did not showed signs of ischemia.
Results

**Image E.** Green circle showing complete occlusion of aneurysm.

**Image F.** MRI showing collateral irrigation of PCA territory through a persistent posterior communicating artery. No signs of ischemia.
Summary Points

- Ruptured IAs are well managed with coil embolization, preferred over other approaches.
- Thromboembolic complications secondary to endovascular procedures are relatively common.
- The thromboembolic event of this particular case resulted in complete resolution of the IA without any neurologic sequelae.