# **Parent artery occlusion**

When aneurysms are treated endovascularly, the diameter of the parent vessel may be too narrow to allow passage of a microcatheter to the aneurysm and the configuration of the aneurysm may not be amenable to coil placement so that occlusion of the parent vessel may be the preferable treatment.

Parent artery occlusion for intractable aneurysms or sinus packing for dural arteriovenous fistulas (DAVFs) is sometimes difficult and requires many expensive coils to accomplish complete occlusion.

### Case series

### 2016

From January 2012 to December 2013, seven consecutive patients were treated by endovascular embolization with 0.035 coils. Reasons for intervention were parent artery occlusion for carotid blowout (n = 1), internal carotid artery aneurysm (n = 2), traumatic vertebral artery injury (n = 2), vertebral AVF (n = 1), and transverse sinus-sigmoid sinus DAVF (n = 1). In our cases, a mean of 20.1 ± 8.5 coils per vessel were placed, and mean total coil length was 258.4 ± 91.5 cm per vessel. All procedures were safely performed and complete occlusions achieved.

From the initial experience and treatment results, we believe endovascular parent artery occlusion or sinus packing with 0.035 coils to be useful in terms of reducing the number and expense of coils and also accomplishing immediate occlusion <sup>1</sup>.

### 2009

Cui et al., report the clinical and angiographic outcome of 12 patients with cerebral aneurysms located peripherally. In the past five years, 12 patients, six females and six males, presented at our institution with intracranial aneurysms distal to the circle of Willis and were treated endovascularly. The age of our patients ranged from four to 58 years with a mean age of 37 years. Seven of the 12 patients had subarachnoid and/or intracerebral hemorrhage upon presentation. Two patients with P2 dissecting aneurysms presented with mild hemiparesis and hypoesthesia, one patient with a large dissecting aneurysm complained of headaches and two patients with M3 dissecting aneurysms had mild hemiparesis and hypoesthesia of the right arm. Locations of the aneurysms were as follows: posterior cerebral artery in seven patients, anterior inferior cerebellar artery in two, posterior inferior cerebellar artery in one, middle cerebral artery in two. Twelve patients with detachable coils. No patient developed neurologic deficits. Distally located cerebral aneurysms can be treated with parent artery occlusion when selective embolization of the aneurysmal sac with detachable platinum coils or surgical clipping cannot be achieved <sup>20</sup>.

## **Case reports**

A 51-years-old male patient presented with a headache and mild right hemiparesis. He had a Giant serpentine aneurysm (GSA) arising from the left fetal-type posterior cerebral artery (fPCA) that was

out of follow-up for six years. Radiological images revealed midline shifting and mesencephalon compression. They performed endovascular parent artery occlusion with coil. The symptoms of the patient improved at the first-month follow-up. Even if there is a mass effect in GSAs, deconstructive EVT is a safe and feasible method for managing these lesions <sup>3)</sup>.

#### 1)

Yamaguchi S, Horie N, Hayashi K, Fukuda S, Morofuji Y, Hiu T, Izumo T, Morikawa M, Matsuo T. Pointby-point parent artery/sinus obliteration using detachable, pushable, 0.035-inch coils. Acta Neurochir (Wien). 2016 Nov;158(11):2089-2094. PubMed PMID: 27586124.

Cui L, Peng Q, Ha W, Zhou D, Xu Y. Parent artery occlusion for intracranial aneurysms. Interv Neuroradiol. 2009 Sep;15(3):309-15. Erratum in: Interv Neuroradiol. 2010 Jun;16(2):213. PubMed PMID: 20465914; PubMed Central PMCID: PMC3299377.

Civlan S, Yakar F, Coskun ME, Sato K. Endovascular occlusion of giant serpentine aneurysm: A case report and literature review. J Cerebrovasc Endovasc Neurosurg. 2022 Jan 14. doi: 10.7461/jcen.2022.E2021.06.003. Epub ahead of print. PMID: 35026888.

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