Giant and Large Aneurysms of the Intracranial Distal Arteries Treated by Endovascular Occlusion of the Parent Artery

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Purpose
The treatment of giant and large fusiform aneurysms of the intracranial distal arteries often is difficult. The purpose of our study was to evaluate the therapeutic indications as well as the clinical and radiologic follow-up in patients with large or giant aneurysms of distal intracranial arteries treated by endovascular occlusion of the distal parent artery.

Materials & Methods
Retrospective study was carried out in nine patients, 4 males and 5 females (ranging in age from 16 to 64 years, mean age 42.1 years), with a large or giant aneurysm treated by endovascular occlusion of the parent artery. Only patients with at least 1-year follow-up after treatment were included in the study. Seven lesions were supratentorial and distal to the circle of Willis and one aneurysm was infratentorial. The three giant aneurysms were partially thrombosed (1 aneurysm of the superior branch of the middle cerebral artery bifurcation and 2 aneurysms of the P2-P3 segments of the posterior cerebral artery) and the six large aneurysms were fusiform (3 aneurysms of a distal cortical branch of the middle cerebral artery, 2 aneurysms of the pericallosal artery, and another lesion was located distally on the PICA). An occlusion test of the parent artery was performed in five cases (with a small balloon in 3 cases and with a coil in 2) in order to evaluate the clinical and angiographic tolerance to the occlusion. After careful analysis of the leptomeningeal collaterals, the occlusion of the parent artery was performed at the level of the aneurysm using coils in seven cases and glue in two. In all patients, CT and/or MR studies before treatment were available. Clinical and imaging follow-up was performed from 1 to 6 years (mean: 43 months) after treatment.

Results
A complete and persistent exclusion of the aneurysm was obtained in all cases. No complications were observed except for one patient, with a posterior cerebral artery giant aneurysm, who presented transient paresthesies and oculomotor paresis which completely regressed in 1 week. In the patients with giant partially thrombosed aneurysms, CT and MR follow-up studies showed an important shrinkage of the aneurysmal thrombosed...
compartment and disappearance of the mass effect.

**Conclusion**

In some anatomical configuration, endovascular occlusion of the parent artery appears a safe and efficacious technique in the treatment of giant and large distal aneurysms of the intracranial distal arteries. Follow-up studies confirm exclusion of the aneurysm and good clinical tolerance to the occlusion.