Endovascular Coil Embolization of Pericallosal Aneurysms

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Purpose
To analyze technical feasibility and efficacy of endovascular occlusion of aneurysms at the pericallosal artery.

Materials & Methods
Fifteen patients harboring 16 pericallosal aneurysms were considered for endovascular therapy using electrolytically detachable coils (GDC, Boston Scientific; EDC, Dendron-MTI). Fourteen patients had a SAH, 10 bled from a ruptured pericallosal artery aneurysm, four patients due to an additional aneurysm (MCA n = 3, Pcom n = 1). Patients with SAH were classified as H&H Grade I (n = 4), II (4), III (2), IV (3), and V (1). Aneurysm size was: < 6 mm (14), 6-10 mm (2). At the time of treatment four patients had severe vasospasm. Occlusion rate was divided into complete (95-100%) and incomplete (< 95%). Follow-up angiography, MR angiography and clinical evaluation based on Glasgow outcome scale (GOS) was performed at 6 months.

Results
In 3/16 aneurysms coil embolization was not feasible because of an unfavorable broad-based aneurysm anatomy (n = 1) and severe vasospasm (n = 2). Two of these patients were treated surgically, one (H&H V) died prior surgery. Embolization with complete occlusion was performed in 13/16 aneurysms. Two patients with severe vasospasm could be embolized following administration of papaverine. Procedural complication included aneurysm perforation without neurologic deterioration (n = 1). There was no procedure-related death. One day after angiography one patient suffered from a hemiparesis by thromboembolic MCA occlusion, which was successfully thrombolized. CT demonstrated remaining MCA infarction. Ischemic infarction was also visible in another pt. on routine CT. During follow-up one patient with initially complete aneurysm occlusion showed recurrent aneurysm, probably due to recanalization of a partially thrombosed aneurysm compartment, which was clipped successfully. During 6 month follow-up no patient rebled. GOS was: GR (n = 5), MD (n = 4), SD (n = 4), V (n = 1).

Conclusion
Endovascular coil embolization of ruptured and unruptured pericallosal aneurysms can be performed effectively and may be a less invasive therapeutic alternative to surgery.
especially during the vulnerable vasospasm period. However, comparable to surgery an unfavorable aneurysm anatomy or severe vasospasm may limit endovascular treatment possibilities in this location.