

## Aneurysms of anterior communicating artery – comparison of clinical outcomes, anatomic features and early complications in patients treated with endovascular embolization and surgical clipping

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**Introduction:** Anterior communicating artery (ACoA) aneurysms are the most common (30%) cerebral aneurysms. The location of ACoA aneurysms is a difficult challenge for neurosurgical procedures, on the other hand the complexity of the anterior circulation of the brain impedes endovascular treatment. This situation often causes problems choosing the treatment method for ACoA aneurysms. The International Subarachnoid Trial does not show the advantages of endovascular treatment over surgery for a patient with ACoA aneurysms, because the projected outcomes of both methods are complex and sometimes difficult to predict, which makes the decision more complicated. We carried out this retrospective study to assess the impact of choosing an endovascular or neurosurgical procedure on the treatment effects of the ACoA aneurysm.

**Material and methods:** Between the years 2008 and 2013, 126 patients were diagnosed with ACoA cerebral aneurysms, and subsequently qualified for treatment. Medical records and imaging were reviewed for 53 patients for whom the first choice of treatment was endovascular embolization and another 73 patients who underwent surgical clipping as the first choice

of treatment method. Each group was also investigated in subdivisions considering if the treated aneurysm was ruptured or not. All the aneurysms were measured by students and the results were consulted with radiologists.

**Results:** 63% of the aneurysms were ruptured. The early complication rate was 29.3% for coiling and 30.4% for clipping. In the angiographic control of the procedure, complete or near-complete occlusion was noticed in 92.5% of cases. In the intraoperative evaluation of clipping, complete occlusion was affirmed in 100% of cases. The average Glasgow Outcome Scale score on the day of the patient's hospital discharge was  $4.63 \pm 0.96$  in the group, and  $4.00 \pm 1.51$  in the clipping group, there was no significant difference between the groups ( $p = 0.88$ ).

**Conclusion:** Based on our material we have found that the radiological and clinical effects of embolization and clipping are similar. The choice of procedure must be individualized depending on the aneurysm morphology and patient's initial condition.

**Key words:** ACoA, cerebral aneurysms, clipping, embolization, SAH