Anterior communicating artery aneurysm treatment

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- Non-Saccular Aneurysm Shape as a Poor Prognostic Factor in Younger Patients with Spontaneous Subarachnoid Hemorrhage
- Risk Factors for Unfavorable Angiographic Outcomes after Reconstructive Endovascular Treatments of Unruptured Vertebral Artery Dissecting Aneurysms
- Intracranial Aneurysm Predisposing to Terson's Syndrome: Insights From a Systematic Review
- Protective Effect of Resveratrol Against Intracranial Aneurysm Rupture in Mice
- Statin versus no statin after treatment with pipeline embolization device for intracranial aneurysms: a meta-analysis
- Early experience with Target Tetra coils for treatment of small and very small ruptured intracranial aneurysms
- Flow diversion for treatment of acutely ruptured intracranial aneurysms: Comparison of complications and clinical outcomes with coil embolization
- Flow diverter with or without adjunctive coils in the treatment of large and giant intracranial aneurysms: a meta-analysis

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Monitoring and Observation

Small, asymptomatic aneurysms may be monitored regularly using imaging studies (e.g., angiography) to assess their growth or stability. If the aneurysm is stable and not causing symptoms, a conservative approach with close monitoring may be appropriate.

Medical Management

Blood pressure control: Maintaining optimal blood pressure is essential to prevent rupture or further growth of the aneurysm.

Antiepileptic drugs: Seizure prophylaxis may be considered in some cases.

Endovascular treatment

see Anterior communicating artery aneurysm endovascular treatment.

Surgery

see Anterior communicating artery aneurysm surgery. Combined Approaches:

In some cases, a combination of endovascular coiling and surgical clipping may be used to achieve the best outcome. Patient-Specific Factors:

The patient's age, overall health, and medical history will influence the choice of treatment. The presence of symptoms such as headache, visual disturbances, or neurological deficits will also guide the treatment approach.

Post-Treatment Monitoring

Following any intervention, patients will typically undergo regular imaging studies to assess the effectiveness of the treatment and monitor for any potential complications. Rehabilitation and Follow-Up:

Rehabilitation

may be necessary, especially if the patient has experienced neurological deficits. Long-term follow-up is crucial to monitor for any recurrence of the aneurysm or new complications. The choice between endovascular coiling and surgical clipping is often made based on the characteristics of the aneurysm and the patient's individual circumstances. The decision is typically made collaboratively by a team of neurosurgeons, neurologists, interventional neuroradiologists, and other healthcare professionals. It's important for patients to have open discussions with their healthcare providers to understand the risks and benefits of each treatment option in their specific case.

Because Anterior communicating artery aneurysms have relatively complex anatomical structures and anatomical variations and are adjacent to important blood vessels and structures, in the process of microsurgical exposure of an Anterior communicating artery aneurysm, attention should be paid not only to the anatomical characteristics of the aneurysm itself but also to the adjacent important blood vessels and perforating arteries; therefore, both surgical clipping and endovascular embolization are serious challenges for neurosurgeons. No matter which treatment is chosen, it is necessary to determine the structure of the Anterior communicating artery and its perforating arteries as well as whether there is a fenestration deformity of the Anterior communicating artery and the relationship between bilateral A1-A2 before surgery. The shape and size of the aneurysm itself and its location relative to adjacent blood vessels also need to be considered to better complete the procedure, and this is especially true for microsurgical clipping. Clarifying the anatomy before surgery is helpful for better selecting the surgical approach and surgical side, which could affect the intraoperative exposure of the aneurysm and adjacent arteries, the surgical difficulty, the resection rate, and the postoperative complications. Therefore, starting with Anterior communicating artery aneurysms and their adjacent structures and variations, Chen et al. reviewed the latest progress in surgical treatment based on anatomic specificity as well as the most recent clinical studies [1)].

Indications

The aspect ratio, direction of the dome, and fenestration should be examined most meticulously when deciding when to treat an Anterior communicating artery aneurysm [2].

The direction in which the fundus projects was chosen as the morphological criterion between endovascular and surgical methods. Proust et al. proposed that microsurgical clip application should be the preferred option in the treatment of ACoA aneurysms with anteriorly directed fundi and that endovascular packing be selected for those lesions with posteriorly directed fundi, depending on morphological criteria [3].

Endovascular coiling (EC) resulted in a more favorable clinical outcome, and microsurgical clipping (MC) resulted in more robust aneurysm repair, for unruptured ACoA aneurysms. Stent-assisted coiling (SAC) had a higher treatment morbidity risk than EC, without reduction in retreatment rate. All treatments were effective in preventing SAH. The current pooled analysis of treatment outcomes provides a useful aid to pretreatment clinical decision making [4].

Morphological Scoring System of Choi [5].

Morphological scoring system

Click on image to enlarge

Variable	0	1
AN size	Medium	Small or large
D to N ratio	≥2	<2
Vessel incorporation	No	Yes
Multiple lobulation	No	Yes
Neck	<4	≥4

The score is calculated by the summation of the all variables. AN size : aneurysm size, D : dome, N : neck

Unruptured anterior communicating artery aneurysm treatment

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References

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