Unruptured anterior communicating artery aneurysm

- Safety and Effect of Flow Diverters in the Management of Large and Giant Unruptured Intracranial Aneurysms
- Elevated Expression of TGFB1 in PBMCs Is Associated with Intracranial Aneurysm Formation, but TGFB3 Expression Implicated Rupture
- Risk Factors for Unfavorable Angiographic Outcomes after Reconstructive Endovascular Treatments of Unruptured Vertebral Artery Dissecting Aneurysms
- The role of systemic inflammation in the formation and rupture of intracranial aneurysms in moyamoya disease: a retrospective cohort study
- A Case of a Non-giant Intracranial Aneurysm with Spontaneous Occlusion Directly Observed during Clipping Surgery
- Correction: Multi-centric AI Model for Unruptured Intracranial Aneurysm Detection and Volumetric Segmentation in 3D TOF-MRI
- Angiographic Occlusion After Flow Diversion of Ruptured and Unruptured Intracranial Aneurysms Using the Flow Redirection Endoluminal Device-X: A Multicenter Analysis
- Flow diversion for treatment of acutely ruptured intracranial aneurysms: Comparison of complications and clinical outcomes with coil embolization

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Clinical features

Most unruptured AComA aneurysms do not cause symptoms, and they are often discovered incidentally during imaging tests, such as MRI or CT scans, performed for other medical reasons.

Epileptogenic unruptured anterior communicating artery aneurysms are extremely rare and anecdotal.

Patil et al. presented three patients with unruptured anterior communicating artery aneurysms who presented with seizures and were surgically managed. Seizure might be related to the large size, presence of thrombus, microbleeds and surrounding gliosis. They suggested that large thrombosed anterior communicating artery aneurysms should be considered in the differential diagnosis of patients presenting with late onset of seizure and having a suprasellar lesion on imaging. Surgical clipping offers a fair chance of seizure freedom in selected patients [1].

Unruptured cerebral aneurysms sometimes present with visual symptoms due to compression of the visual pathways. However, until now, unruptured anterior communicating artery (ACoA) aneurysms presenting visual field defects have been extremely rare. In cases of visual field defects, an ACoA aneurysm should be included in the differential diagnosis [2].

Rupture risk

Unruptured anterior communicating artery aneurysm rupture risk.

Treatment

Unruptured anterior communicating artery aneurysm treatment.

Multicenter Studies

In a retrospective review of unruptured anterior communicating artery (AComm) aneurysms treated with flow diverters, involving 10 different medical centers. The study presents valuable insights into the demographics, clinical outcomes, and complications associated with this treatment approach. Here is a critical review of this study:

Sample Size and Diversity: The study includes a relatively small sample of 144 patients from 10 centers over a nearly 10-year period. This might not be representative of the broader population with AComm aneurysms. Additionally, the study's geographic and demographic diversity isn't clear, which can limit the generalizability of its findings.

Patient Demographics and Characteristics: While the study provides some basic demographic information, it lacks important details such as comorbidities, which can significantly impact patient outcomes. A more comprehensive analysis of patient characteristics would have been beneficial.

Methodology and Follow-up Period: The study is retrospective in nature, and the follow-up period is

relatively short (median 17 months). This limits the ability to assess the long-term effectiveness and safety of flow diverters for AComm aneurysms. A longer-term follow-up is necessary to draw robust conclusions.

Treatment Efficacy: The study reports a favorable aneurysm occlusion rate (86.4%) and a high rate of functional independence (95.1%). However, it's important to consider that these results may be influenced by patient selection and the relatively short follow-up period. Longer-term outcomes, potential recanalization rates, and functional status should be monitored to evaluate treatment efficacy more comprehensively.

Safety Profile: The study acknowledges both intraprocedural (5.6%) and postoperative (9.7%) complications. While these complication rates are not extremely high, a more in-depth analysis of the nature and severity of these complications would provide a clearer picture of the safety profile of flow diverters. Additionally, the definition of “major complications” is not provided, making it difficult to assess the significance of the 2.1% rate.

Device and Technique: The study mentions the use of the Pipeline Flex device in 32.7% of cases. It would be beneficial to explore the choice of device and specific techniques employed, as different devices and approaches may yield different results.

Recommendations for Future Research: The study appropriately calls for additional prospective studies with longer follow-up periods and independent adjudication. These are necessary to confirm the findings and address the limitations of this retrospective analysis.

In summary, while the study provides some insights into the utility of flow diverters for treating AComm aneurysms, it has several limitations, including its retrospective design, relatively small sample size, and short follow-up period. Therefore, while it suggests positive outcomes, it is essential to interpret these findings with caution and await more robust, prospective, and long-term studies to validate the efficacy and safety of this treatment modality [3)]

Case series

A study evaluated the outcomes of coiling versus clipping of unruptured anterior communicating artery aneurysms (A-com) treated by a hybrid vascular neurosurgeon to suggest the best protocol of management for these conditions.

They retrospectively reviewed the records of 70 patients with an unruptured A-com aneurysm treated with coiling or clipping performed by a hybrid vascular neurosurgeon between March 2012 and December 2019. The patients were dichotomized, into the coil group or clip group. Treatment-related complications, clinical and radiological results were evaluated.

Of the 70 patients identified, 37 underwent coiling and 33 clipping. Procedure-related symptomatic complications occurred in 2 patients (5.4%) in the coil group and 3 patients (9.1%) in the clip group. Poor clinical outcome (modified Rankin Scale [mRS] of 3 to 6) at 6 months of follow-up was seen in only one patient (2.7%) for the coil group, and none for the clip group. The one poor outcome was the result of intra-procedural rupture during coiling. Follow-up conventional angiography data (mean duration, 15.0 months) revealed that the major recanalization rate is 5.6% for the coil group and 10.0% for the clip group.

Management of A-com aneurysms requires more collaboration between microsurgical clipping and

endovascular therapy. Evaluation of patient and aneurysm characteristics by considering the advantages and disadvantages of both techniques could provide an optimal treatment modality. A hybrid vascular neurosurgeon is expected to be a proper solution for the management of these conditions [4].

Case reports

Unruptured cerebral aneurysms sometimes present with visual symptoms due to compression of the visual pathways. However, until now, unruptured anterior communicating artery (ACoA) aneurysms presenting visual field defects have been extremely rare. The authors report the case of a 51-year-old woman who presented with left homonymous hemianopsia. Radiological findings demonstrated an ACoA aneurysm filled with thrombus, that was compressing the optic chiasm and post-chiasmal tract. The patient underwent clipping of the aneurysm, which resolved the visual field defect. In cases of visual field defects, an ACoA aneurysm should be included in the differential diagnosis [5].

References

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