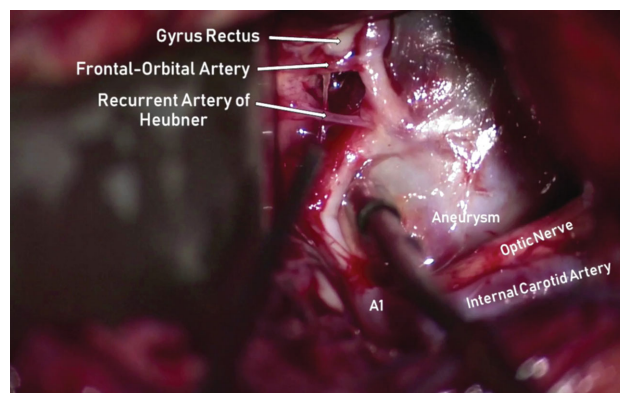


# Microsurgical Clip Placement for a Giant Anterior Communicating Artery Aneurysm With Intraluminal Thrombus: 2-Dimensional Operative Video

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Giant brain aneurysms account for approximately 5% of all intracranial aneurysms. Although treatment modalities can vary widely, none is ideal for every patient. Endovascular treatment is usually preferred, especially when the large size of the aneurysm limits visualization of the brain parenchyma and parent vessels that arise from the aneurysm, making surgical clip placement across the neck a difficult task. However, despite the higher chances of morbidity, microsurgery is an effective treatment modality due to lower recurrence rates. Surgically, a wide neck, calcifications, or atheroma are complicating factors to be considered while planning the best treatment. Thus, with an appropriate case selection, a favorable outcome is feasible in most cases. Here, we present the case of a 27-yr-old female who presented with a severe headache for 7 mo and 3 mo of progressive left temporal vision loss, which was confirmed by visual field perimetry using

the Humphrey visual field analyzer. Magnetic resonance angiography and digital subtraction cerebral angiography showed an anterior communicating artery complex inferiorly and medially oriented aneurysm measuring 25.4 × 16.5 mm, with a 3 mm neck. It was fed by the right A1, associated with a hypoplastic left A1, incorporating the proximal right and left A2 segments, with an intraluminal thrombus and causing mass effect on the optic chiasm and hypothalamus. This video demonstrates the microsurgical steps required to perform this operation, through a right orbitozygomatic craniotomy. At a 3-mo follow-up, the patient was neurological intact without complaints.

The patient signed the Institutional Consent Form, which allows the use of his/her images and videos for any type of medical publications in conferences and/or scientific articles.

**KEY WORDS:** Anterior communicating artery, Giant aneurysm, Thrombectomy, Cerebrovascular surgery, Fenestration

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## Disclosure

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

## COMMENT

The authors present a video case report of management of a complex anterior communicating artery aneurysm using a right frontotemporal, orbital zygomatic approach. Certainly there are a number of

alternative endovascular techniques that could be considered if available, perhaps with less potential morbidity, but in the end the technique and the video are very good as was the outcome achieved, including decompression of the optic apparatus and improvement of the patient's vision. The technique is not novel but it is very nicely demonstrated. Interestingly the video demonstrates the surgeon beginning the aneurysmorrhaphy and debulking of the aneurysm prior to application of temporary clips. Typically I would use trapping of the aneurysm with temporary clipping from the very beginning of the aneurysmorrhaphy. If the initial aneurysmorrhaphy did not enter the lumen of the aneurysm, then I might use multiple applications of temporary clippings with periods of temporary clip removal to allow reperfusion if the length of temporary clipping might be more extended.

The surgeon uses micro Doppler to confirm patency of the involve branches which is reasonable, but other modalities such as "fluorescence

microsurgical angiography" with indocyanine green (ICG) or fluorescein or intraoperative catheter angiography are typically more definitive if available. Doppler can be misleading if there is retrograde flow, for example.

Nonetheless, the authors are to be congratulated on an excellent outcome. I would typically favor delayed follow-up imaging in the years to follow for such a case, as with such a large aneurysm, even with definitive clipping, there is some potential for aneurysm recurrence, and for such a young patient with an aneurysm, probably a higher than average risk of future de novo aneurysms.

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