

# A Posterior Communicating Segment Aneurysm of the Supraclinoid Internal Carotid Artery Treated with an Extracranial to Intracranial Bypass and Trapping

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## Abstract

Surgical treatment of giant aneurysms often poses significant challenges. Endovascular techniques have evolved exponentially over the last decades, and most of these complex aneurysms can be treated with flow-diverting techniques; however, successful obliteration of all giant aneurysms is not always possible with endovascular flow-diverting techniques. Although the need for microsurgical intervention has undoubtedly diminished, a versatile-thinking surgeon should keep in mind that obliteration of these aneurysms combined with revascularizing the distal circulation via extracranial–intracranial bypass techniques can provide a potentially life-long durable solution. The key to curing these pathologies is to utilize interdisciplinary decision making with a robust knowledge of the pros and cons of different treatment approaches. Herein, we present a case of a giant posterior communicating segment aneurysm of the left supraclinoid internal carotid artery (ICA), which was treated by obliteration (–Fig. 1). Extradural anterior clinoidectomy was used to provide exposure of the supraclinoid ICA proximal to the aneurysm, and revascularization of the distal circulation was achieved with a common carotid artery to M2-superior trunk bypass using a radial artery interposition graft (–Fig. 2). The patient was a 62-year-old female who presented with vision loss in her left eye but was otherwise neurologically intact. She had a history

## Keywords

- giant aneurysm
- cerebral bypass
- revascularization
- anterior clinoidectomy



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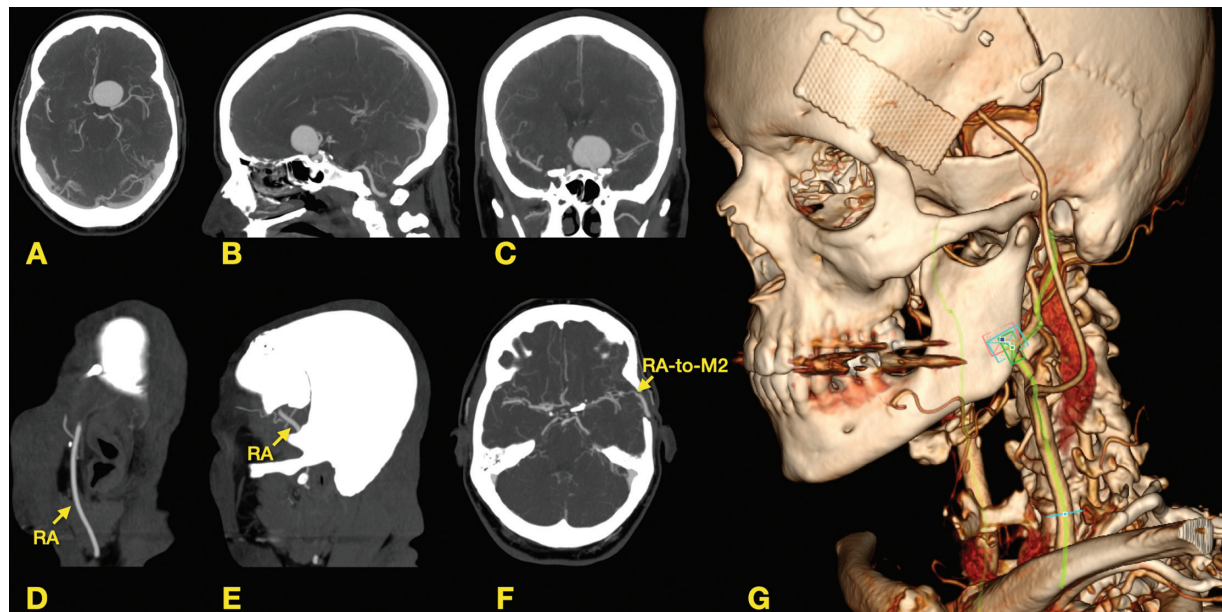
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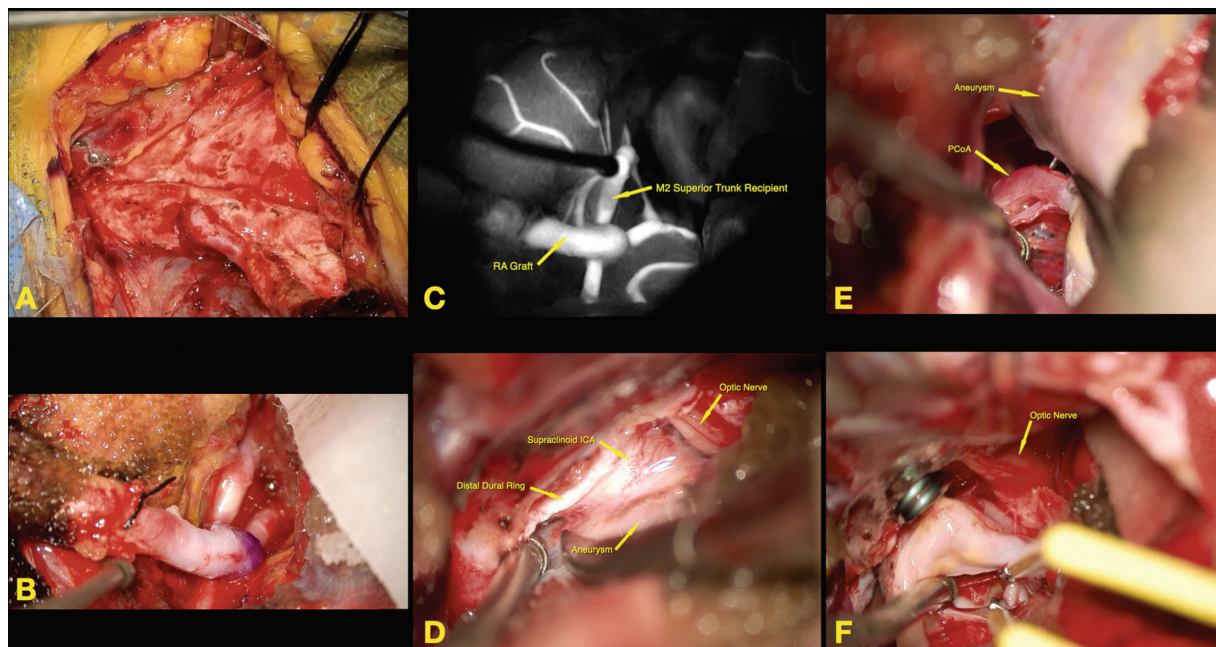
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of two unsuccessful flow-diverting stent placement attempts 2 months prior to this surgery. Postoperatively, the patient woke up without any deficits, with her left eye vision partially recovered and ultimately returning to normal at 1-year follow-up. Computed tomography (CT) angiography at a 1-year follow-up showed complete obliteration of the aneurysm and successful revascularization of the distal circulation. The link to the video can be found at: <https://youtu.be/DsluJjj1l4>.



**Fig. 1** Preoperative axial (A), sagittal (B), coronal (C), and postoperative sagittal (D, E), axial (F), and 3D reconstructed computerized tomography angiography of the patient. 3D, three-dimensional; RA: radial artery, RA-to-M2: radial artery to M2 superior trunk anastomosis.



**Fig. 2** Intraoperative photomicrographs showing the common carotid artery to radial artery interposition graft anastomosis (A); radial artery to M2 superior trunk anastomosis (B) and photomicrograph of the indocyanine green video angiography (C); view of the supraclinoid internal carotid artery, distal dural ring, optic nerve, and aneurysm after extradural anterior clinoidectomy (D); the relationship of the aneurysm with the posterior communicating artery (E); decompressed optic nerve after complete trapping and incision of the aneurysm. ICA, internal carotid artery; PCoA, posterior communicating artery.

#### Note

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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.

#### Conflict of Interest

None declared.