OHSU Neurological Surgery

# Neurosurgical Case of the Month by Aclan Dogan, MD

## *December 2009: Right Frontotemporal Mass-Giant Aneurysm*

### Patient history and diagnosis

An otherwise healthy 59-year-old male developed a sudden left facial droop and speech difficulties associated with LUE weakness, described as a transient onetime occurrence, lasting only minutes, subsequently returning to normal. He reported a severe right-sided headache behind the eye. There were no previous medical problems and no past medical or surgical history. On admit to OHSU it was initially thought the patient was having a stroke and was given acetylsalicylic acid (aspirin). A head computed tomography (CT) revealed a large right frontal temporal mass (Fig. 1). The patient was referred for neurovascular intervention.

**Figure 01:** A CT reveals a large frontotemporal mass with surrounding edema.

***Neurological Examination Results:***

Mental status: Normal consciousness, orientation, affect and fluency
Cranial Nerves: 2nd - 12th intact on detailed examination
Motor: Normal strength, muscle bulk, and tone
Sensory: Intact to pinprick and light touch
Cerebellar: Normal finger-to-nose and rapid alternating movements
Gait: Normal, tandem and romberg negative
Deep Tendon Reflexes: Present and normo-active
Pathologic Reflexes: Absent

### Plan and Surgical Treatment

The large right frontal temporal mass was determined to be a giant middle cerebral artery (MCA) aneurysm (Fig. 2). Treatment of thrombosed giant MCA aneurysms is challenging and carries a significantly high risk of occlusion of the distal branches with a clip or by emboli. Clip application to a giant aneurysm neck can be extremely difficult due to the firm thrombus inside of the aneurysm dome, especially for an aneurysm of this size. An alternative plan should always be ready such as revascularization of the distal branches with bypass surgery.

***Surgical plan was as follows:***

1. Preparation of the right superficial temporal artery (STA) at the beginning of surgery
2. Widely opening the right sylvian fissure to expose the right internal carotid artery (ICA) and MCA for proximal control of possible bleeding
3. Barbiturates ready in the case of burst suppression and possible long term temporary clipping of the proximal MCA
4. Opening the aneurysm dome using a CUSA (ultrasonic aspirator) for clot and thrombus removal from the inside of the aneurysm and making the aneurysm dome soft enough for clip application to the neck of the aneurysm
5. During thrombus removal, apply a temporary clip to the MCA to control bleeding as soon as bleeding is observed
6. Immediately, dissect the neck of the aneurysm and applying a permanent clip to the neck and remove the temporary clip
7. Check for distal blood flow in the distal MCA branches and if necessary perform STA-MCA bypass

All steps were followed in the operating suite, the aneurysm neck was successfully clipped, and the aneurysm completely resected without complication.

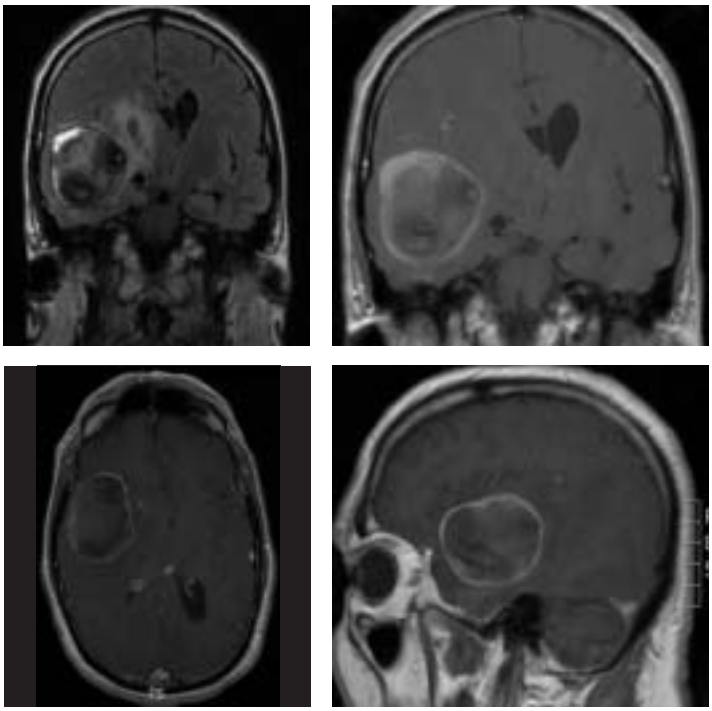

**Figure 02:** A fairly well circumscribed 5.7 x 4.8 x 4.5 cm mass is appreciated in the right temporal lobe. The lesion demonstrates heterogeneous T1 and T2 internal signal. Also seen is a dilated tubular structure centrally within the mass. Following contrast administration there is peripheral enhancement. The lesion exerts mass effect on the thalamus and midbrain with effacement of the right perimesencephalic cistern and medial uncal deviation. There is 1.2cms of leftward midline shift. Adjacent high T2 signal is appreciated in the subcortical white matter of the right cerebral hemisphere particularly posterior and superior to the mass. Findings are indicative of a thrombosed giant right MCA aneurysm.

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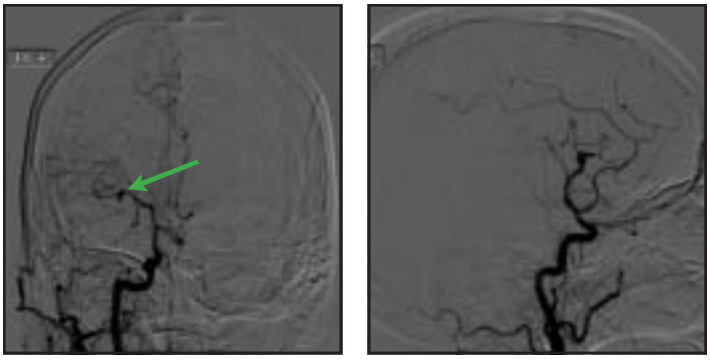

**Figure 03:** Cerebral angiography shows neck filling the right MCA aneurysm (arrow) with significant distortion of the MCA branches.

## Outcome

Postoperatively, the patient was awake, alert and oriented to person, place and time. He was able to move all extremities without weakness. The patient was discharged on postoperative day four. No physical therapy was required.

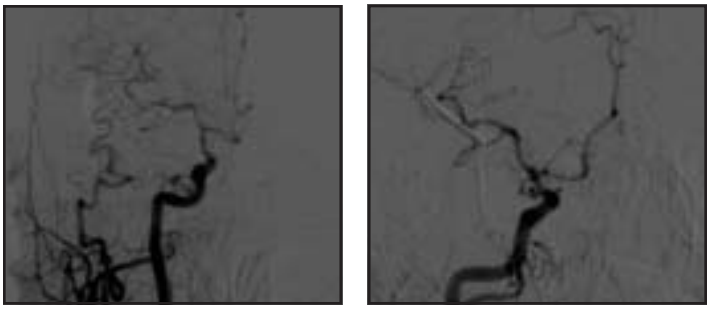

**Figure 04:** Postoperative cerebral angiogram shows complete clipping of the aneurysm neck and patent distal MCA branches.

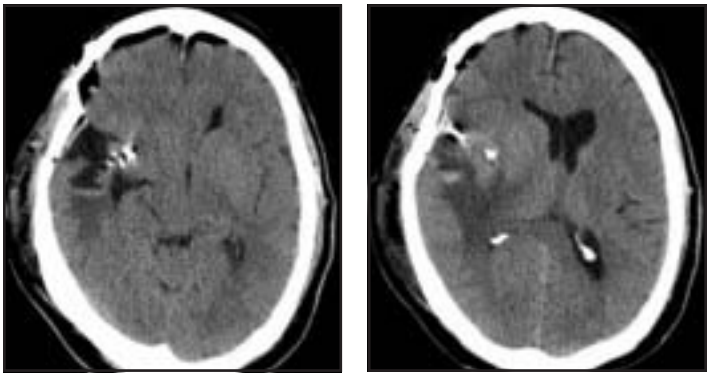

**Figure 05:** Postoperative head CT shows complete resection of the aneurysm without hemorrhage.

## For more information or to refer a patient, contact:


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## To watch online movie of the procedure, click here:

**Figure 06:** Image shows the 6 cm aneurysm mass completely resected from the right sylvian fissure.