



Neurovascular Service: Tumor Embolization

There are several groups of patients in whom bleeding from a tumor needs to be controlled. This may include pre-operative treatment of brain tumors such as hemangioblastomas, skull base lesions such as meningiomas, hemangiopericytomas or vascular tumors of the spine in preparation for Neurosurgical removal. Patients with head and neck masses such as paragangliomas and juvenile angiofibromas may benefit from closure of the blood supply before ENT Surgery to decrease the time and risk of surgery. These patients are usually treated one day to two weeks prior to surgery. Other patients with radiation and recurrence of head and neck cancers of the tongue or pharynx/larynx may require treatment to stop urgent bleeding while more definitive treatment is implemented.

Many patients undergo medical imaging with CT/CTA or MRI/MRA. If treatment is appropriate for the patient, he or she is brought to MGH Neuroangiography OR and placed under general or awake monitored anesthesia. A sheath is placed in the femoral artery in the groin. A catheter is placed through the sheath and advanced into the aorta and eventually into the internal and external carotid arteries for angiography. Once the diagnostic angiogram is completed, a microcatheter is passed through a guide catheter in the appropriate external carotid artery. Branches of this vessel supplying the tumor are embolized or closed with PVA particles, Gelfoam, coils or other material. Some highly vascular lesions such as hemangiomas, may benefit from treatment using a sclerosing agent, which decreases blood flow. The procedure takes 4-6 hours. Afterward, the patient's leg needs to be kept straight for up to six hours depending on the closure of the arteriotomy.

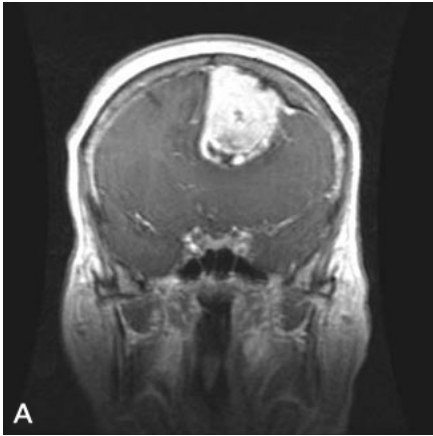
Coronal T1 weighted MRI with gadolinium shows enhancement of a left frontal meningioma. Sagittal view of the left internal carotid artery shows displacement of the anterior cerebral arteries and supply to the lesion from the anterior artery of the falx arising from the ophthalmic artery. Lateral view of the left external carotid artery shows supply to the lesion from the middle meningeal and superficial temporal arteries. Selective left middle meningeal artery angiogram shows the major supply to the tumor. Post embolization angiogram of the left common carotid artery shows 90% reduction of flow to the lesion.

Interventional Neuroradiology Program, Neurovascular Service

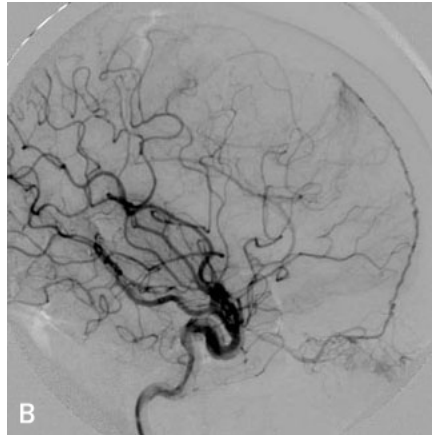
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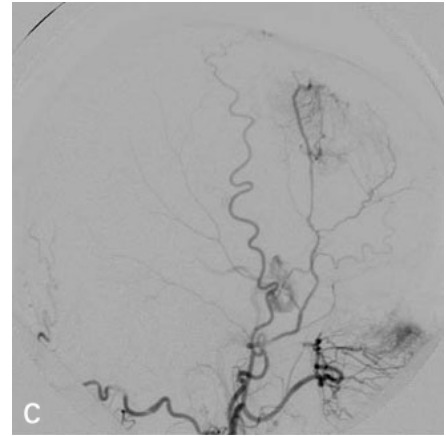
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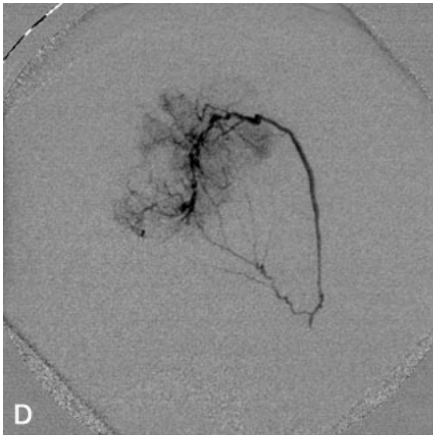
A
Coronal T1 weighted MRI with gadolinium shows enhancement of a left frontal meningioma.



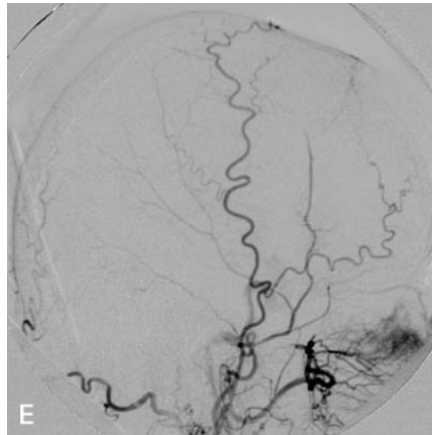
B
Sagittal view of the left internal carotid artery shows displacement of the anterior cerebral arteries and supply to the lesion from the anterior artery of the falx arising from the ophthalmic artery.



C
Lateral view of the left external carotid artery shows supply to the lesion from the middle meningeal and superficial temporal arteries.



D
Selective left middle meningeal artery angiogram shows the major supply to the tumor.



E
Post embolization angiogram of the left external carotid artery shows 90% reduction of flow to the lesion.

The Neurovascular Service at Massachusetts General Hospital provides a multidisciplinary approach to patient care that combines neurosurgery, neurology and interventional neuroradiology. Based in the Department of Radiology, the Neurovascular Service's Interventional Neuroradiology Program uses minimally invasive procedures to treat a range of neurovascular disease and spinal disorders. For more information, visit www.mgh-interventional-neurorad.org

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