



## **Neurovascular Service: Spinal Dural Arteriovenous Malformation (DAVM) and Arteriovenous Fistula (AVF)**

Vascular lesions affecting the spine and spinal cord are categorized into 4 basic types:

- » Arteriovenous fistula (AVF) arising within the dura of a nerve root with intradural drainage
- » Arteriovenous malformation (AVM) in the spinal cord tissue
- » Juvenile AVM (metameric) which involves all of the tissue at contiguous levels
- » Perimedullary fistula on the surface of the spinal cord

AVM's consist of artery to vein connections, which pass through a nidus of rapidly shunting channels. AVF's are direct end to end connections from artery to vein with fast flow, and they may be single or multiple. Some AVM's have fistulous components. This group of spinal lesions is treated differently from one another depending on the arterial supply to the lesion, degree of cord involvement, and location arteries supplying the cord itself. They may be treated by a single modality or they may require a combination embolization, surgery or radiation therapy.

As part of the work up for a spinal vascular lesion most patients undergo an MRI study with gadolinium contrast enhancement. MRA with gadolinium may also be of assistance to identify the levels of involvement. The definitive diagnostic study is spinal angiography, which may be done under general anesthesia while focused spinal studies can be done with conscious sedation in some cases. The goal is to identify both normal and pathologic vascular anatomy to allow proper decision-making. We work closely with our Neurosurgical department in the care of these patients

**Interventional Neuroradiology Program, Neurovascular Service**

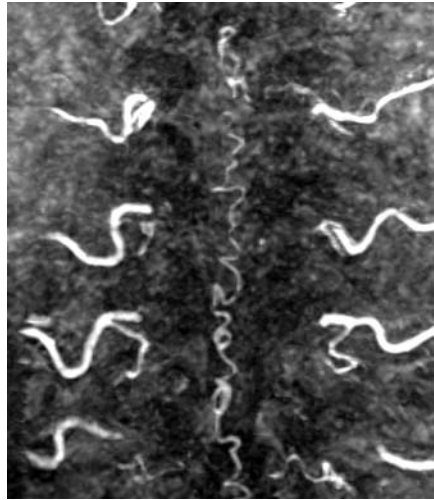
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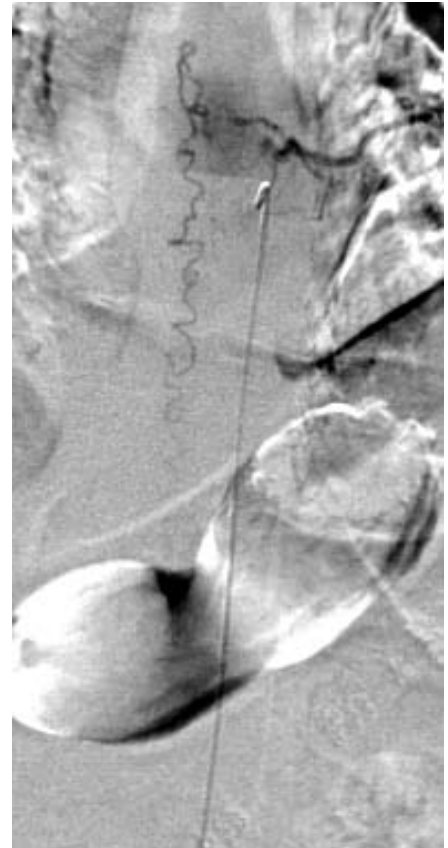
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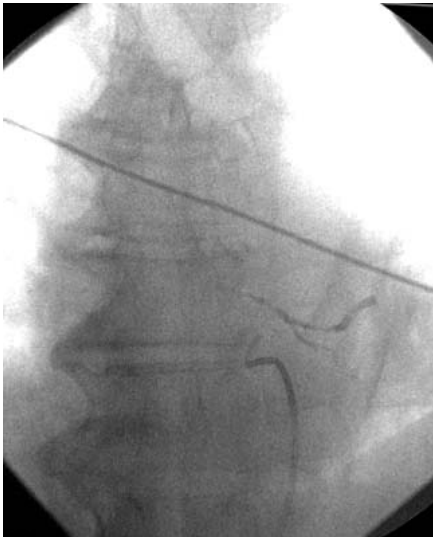
MRI of the spine shows edema in the spinal cord and an abnormal flow void along the posterior aspect of the cord on the T2 weighted sequence.



MR angiogram of the spine shows an abnormal, tortuous posterior spinal vein and the left T7 supply.



Microcatheter angiogram confirms supply to the spinal dural arteriovenous fistula from the left T7 segmental artery.



Final microcatheter angiogram following embolization shows closure of the fistula.

The glue cast is shown following embolization.

*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](http://www.mgh-interventional-neurorad.org)*

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