# Spinal angiography

Similar to angiography of the brain, where a catheter is placed into an artery supplying the brain parenchyma, such as internal carotid or vertebral artery, and contrast material injected to directly visualize brain arteriovenous system, — spinal angiography accomplishes the same goal for arteries which supply the spine and paraspinal regions.

There are usually 31 vertebrae in the body, and most have 1 or 2 individual arteries feeding them. Which means that spinal angiography can be a long procedure, if the entire spine vasculature needs to be visualized.

That is not always the case. However, because of the length of procedure, and because the arteries and veins of the spine tend to me much smaller than of the brain, spinal angiography is usually done under anesthesia. This minimizes movement of the patient, which degrades imaging, and allows for control of breathing and peristalsis (movement of the bowel). The less movement, the better. The procedure is as follows: the patient is placed under anesthesia, a catheter is introduced into the aorta, usually via the artery in the groin called femoral artery, and various catheters are used to individually catheterize spinal arteries, one by one, taking x-ray pictures of each. Depending on the disease process, several or dosens need to be viewed. Once angiography is completed, the catheter is withdrawn, groin access site closed by compression or deployment of special closure devices, and patient woken up. Sometimes, both angiography and actual treatment of the condition in question can be carried out at the same time.

Spinal angiography is more specialized than even brain angiography. Many places which are comfortable with brain angiography may not be as versed in spinal procedures, depending on disease [1)].

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Contrast-enhanced MR angiography (MRA) has been increasingly used in the evaluation of spinal vascular malformations. Even though MR spinal angiography has several advantages over catheter

spinal angiography (DSA), however, spinal DSA must never be omitted before operation, even if the vascular malformation is nicely demonstrated by MR angiography.

Sharma et al. report a case of spinal vascular malformation in which MR angiography provided great images which almost convinced everyone about the type and site of malformation/fistula. The images were so convincing that it was almost decided to skip catheter based angiography, citing reason of disadvantages of catheter based angiography over MR angiography. However, spinal DSA was luckily done which completely changed the type and site of malformation and helped in avoiding failed surgery. They conclude that even though catheter based spinal angiography has disadvantages over MRA, it should never be omitted from the diagnostic protocol [2].

## Indications

Spinal angiography: rarely indicated for intramedullary spinal cord tumors, except in spinal cord hemangioblastoma (maybe suspected on myelography or MRI by linear serpiginous structures). MRI often obviates this test.

## Spinal Angiography for Spinal Vascular Malformation

see Spinal Angiography for Spinal Vascular Malformation.

## Spinal Angiography for vertebral hemangioma

see Spinal Angiography for vertebral hemangioma.

## Contraindications

Thoracic aortic aneurysm (relative)

## References

1)
http://neuroangio.org/neuroangio-topics/introductory-spine-angiography/
2)
Sharma AK, Westesson PL. Preoperative evaluation of spinal vascular malformation by MR angiography: how reliable is the technique: case report and review of literature. Clin Neurol Neurosurg. 2008 May;110(5):521-4. doi: 10.1016/j.clineuro.2008.02.005. Epub 2008 Mar 21. Review. PubMed PMID: 18358597.