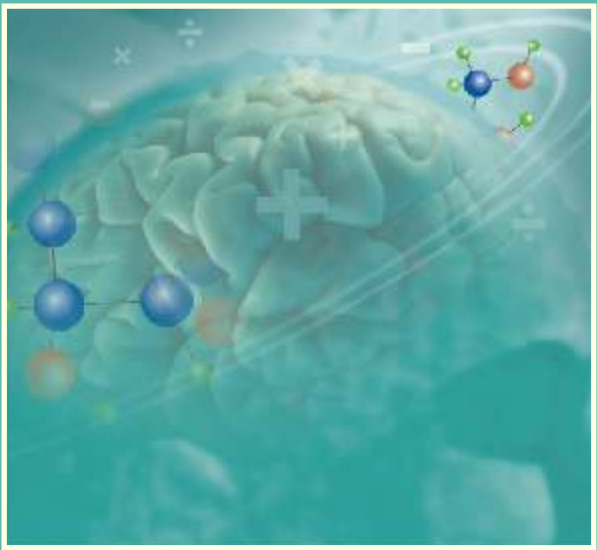


# Interventional Neuroradiology (Endovascular Neurosurgery)



Max Institute of  
Neuro Sciences

# Interventional Neuroradiology (Endovascular Neurosurgery)

## What is Interventional Neuroradiology or Endovascular Neurosurgery ?

Interventional Neuroradiology (Endovascular Neurosurgery) is a medical speciality in which minimally invasive diagnostic and therapeutic procedures for cerebrovascular disorders are performed under radiological guidance. It is somewhat similar to the treatment carried out in the heart by cardiologists, such as angioplasty or stent placement. In these procedures, very thin catheters or wires are placed through blood vessels in groin and are navigated in the blood vessels to the site of the abnormal vessels. This is followed by diagnostic or therapeutic procedures. These procedures are done instead of open surgery and in some cases to supplement the conventional surgery.



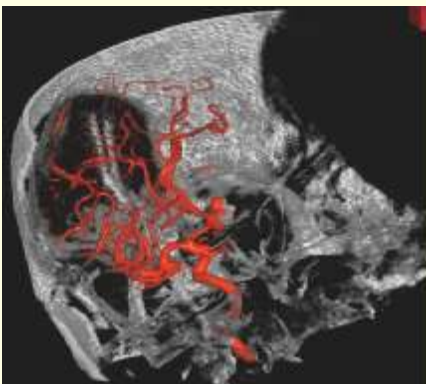
## Support services :

- Neurosurgical Operating Theatre - Equipped with intra op MR facility (First in Asia Pacific), Image Guided Stereotaxis, Neuroendoscopy, Brain Mapping, Neurophysiological Monitoring and Intra-operative Angiography. The neurosurgical department is manned by renowned neurosurgeons working as a team, including the endovascular group.
- Neurosurgical ICU - With latest brain monitoring techniques (including Quantitative EEG, Transcranial Doppler, Cerebral Metabolism). The ICU is manned by dedicated team of neuroanaesthetist round the clock.
- Clinical Neurosciences Wing - With acute stroke unit.
- Advanced Neuroimaging Facilities - With 1.5 T MRI 64-slice CT facilities are available for CT or MR angiography, functional MRI, MRI spectroscopy, diffusion / perfusion MRI.



*This is only for the purpose of information and can not be substituted for medical advice.*

*In case of a query, discuss it with your doctor.*



- **Tumour Embolisation** - One of the major problems in surgical removal of intracranial tumour is bleeding during the surgery. Interventional neuroradiologist can help the surgeon by pre-operative endovascular occlusion of the blood vessels supplying the tumour. This will reduce the bleeding and facilitate the surgery.
- **Cerebral or Spinal Angiography** - DSA (digital subtraction angiography) is considered as the 'gold standard' investigation to diagnose diseases of blood vessels.
- **Vertebroplasty** - With age bones become weak and collapse of bones (vertebrae) in the spine is one of the major causes of severe back pain in the elderly. Vertebroplasty is a revolutionary treatment in which "bone cement" is injected through a needle placed into the broken bone so as to stabilize the vertebra and to reduce the pain.
- **Percutaneous Sclerotherapy** - Many superficial vascular malformations such as Haemangioma (malformation of blood vessels) or Lymphangiomas (malformation of lymphs) can be treated by puncturing through a needle, followed by injection of "Sclerosant Material" which causes obliteration of the malformation.



## Advantages of Endovascular Neurosurgery :

1. The endovascular approach ensures minimal injury to normal brain.
2. It has fewer complications, better outcome and ensures shorter hospital stay.
3. Enables treatment of diseases, which could not be treated in the past.

## Our skills

### People

The Max Institute of Neurosciences has formed a dedicated team of full time Neurophysicians, specialising in this form of treatment in the neurosurgery department. This treatment will be performed according to the internationally accepted protocols and integrated pathways in a dedicated Neuro-endovascular Suite equipped with latest technology. The team approach ensures optimum and best possible care to patients.





## Technology

Latest Flat Panel DSA (digital subtraction angiography) with 3-D technology (Siemens Axiom Artis) - provides high-resolution (1024 matrix) angiogram images of cranial and spinal vessels. Our centre is the first in our country to install a flat panel based angiography machine dedicated to minimally invasive treatment of neurovascular disorders.

- The 3-D technology allows construction of images in 3-D format, which can be post-processed and evaluated on a separate dedicated workstation. This helps in precise assessment of diseases affecting blood vessels such as stenosis, aneurysms and vascular malformations. This results in accurate diagnosis in most of the cases. These images can be manipulated to accurately assess the size of aneurysm or degree of stenosis, which helps to plan endovascular or surgical treatment.
- The flat panel technology helps in having high-resolution images with markedly decreased radiation exposure. This is achieved by using a digital system rather than the older optical systems.

The Neuro-endovascular Suite is fully equipped for minimally invasive treatment of cerebrovascular disorders with latest technology and integrated with neurosurgical or stroke ICUs and operation theatres.

Use of this latest technology will help in performing safe and accurate treatment with improved results.

## Conditions in which Endovascular Neurosurgery is used :

Endovascular Neurosurgery is performed for the following conditions :

- **Intracranial Aneurysms** - Aneurysms are focal swelling of blood vessels, which can burst and cause bleeding in the brain. Endovascular coiling can treat these aneurysms, thus avoiding open surgery.
- **Angioplasty or Stent Placement** - This procedure is done to treat stenosis in arteries of brain (including carotid, vertebral, intracranial arteries). Many cases of stroke occur due to stenosis (narrowing) in arteries leading to the brain. They can be treated non-invasively by endovascular route with an angioplasty or stenting procedure.
- **Stroke or Brain attack, including Intra - Arterial Thrombolysis** Acute stroke or brain attack usually occurs due to blockage of arteries of the brain. Appropriate patients can be treated by placing a micro catheter at the site of blockage followed by administration of thrombolytic drugs, which dissolve the blocking material.
- **Arteriovenous Malformation** - Arteriovenous malformations (AVMs) of brain are malformed blood vessels, which can cause intracranial bleeding (bleeding in brain), seizures and headache. AVMs can be treated by injecting "glue" through a microcatheter placed precisely into these abnormal blood vessels.



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