

Catheter Angiography

What is Catheter Angiography?

Angiography is a type of x-ray that is done to image blood vessels in various parts of the body, including the heart, brain, and kidneys, so as to determine whether the vessels are diseased, narrowed, enlarged or blocked altogether. After passing a catheter through an artery leading to the body area of interest, a contrast material is injected to highlight the vessels when x-rays are taken. Today, many catheter angiographic studies have been replaced by less invasive methods, such as computed tomography (CT) angiography and magnetic resonance (MR) angiography, that do not require that a catheter be inserted. Catheter angiography still is widely used in patients who may undergo surgery, angioplasty, or stent placement.

What are some common uses of the procedure?

Common reasons to do catheter angiography are to detect narrowing or blockages of a blood vessel, identify abnormally dilated blood vessels, and determine the site of internal bleeding. The procedure is able to:

- n Detect atherosclerotic disease in the carotid artery of the neck, which may limit blood flow to the brain and even cause a stroke.
- n Identify an intracranial aneurysm or other disorders of the blood vessels in the brain.
- n Evaluate disease in the renal artery or help prepare for a kidney transplant.
- n Determine the state of the aorta and detect an aneurysm of this vessel.
- n Identify a source of bleeding, such as a stomach ulcer.
- n Help prepare for surgery on diseased blood vessels in the legs of patients who have severe leg pain when walking.
- n Show the extent and severity of atherosclerosis in the coronary arteries.

Surgeons sometimes use angiography to plan an operation, like coronary bypass surgery, or to decide on the best surgical procedure. Using catheter angiography as an aid to see inside blood vessels, surgeons can repair diseased vessels from within using tiny instruments and inserting a stent to keep the vessel open.

How should I prepare for the procedure?

If you are to have a sedative before the procedure, you may be asked not to eat or drink anything (except sips of water to take pills okayed by MD) for four to eight hours ahead of time. Some hospitals, however, allow clear fluids until shortly before the examination. Be sure you have clear instructions from your health care facility and referring physician. You probably will receive an intravenous (IV) sedative in preparation for angiography, and must not drive for 24 hours afterwards. Because an observation period is necessary before you can leave, you may be admitted to the hospital for an overnight stay if you live more than an hour away.

If you will be going home the same day, you should arrange alternative transportation. After removing jewelry and donning a hospital gown, you should empty your bladder. A small amount of blood may be drawn before starting to make sure that your kidneys are working and that your blood will clot normally, and an IV line will be set up.

Before the procedure you will have to give your consent. This usually involves a face-to-face talk with a physician, but in some cases you will read a brief description of angiography or speak with a nurse instead. If you have any allergies, you should tell the physician before the exam begins. Also, the radiology staff

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should know if there is a possibility you may be pregnant.

How does the procedure work?

The basic idea of catheter angiography is the same as a regular x-ray. The x-rays passed through the patient's body are absorbed to different degrees by various tissues, and each type of tissue has its own distinctive appearance. A stream of dye, or contrast material, is injected into the catheter to obtain a detailed picture from inside the blood vessel. X-ray images are stored in a computer or captured on film. In this way the procedure can be viewed like a movie and played over as often as necessary.

How is the procedure performed?

A small dose of sedative usually is given through the IV line, not to make the patient sleep but to "take the edge off." Local anesthesia is injected into the skin at the site of puncture, which most often is at the top of the leg at the site of the femoral artery. A small incision is made after cleaning and shaving the skin at this site in order to introduce the catheter into the artery. The radiologist or surgeon threads the catheter through the arterial system to the desired location, and then injects the contrast material. Usually several sets of x-rays are taken and, after the procedure is completed, the catheter is removed and the puncture site closed by compressing it for about 10 minutes (or by using a special closure device). You will have to lie flat for two to six hours after angiography, depending on the reason for the exam, the catheter size, and the type of device used to close up the artery. During this time you should inform the nurse if you notice any bleeding, swelling or pain at the site where the catheter entered the skin. The entire procedure may take less than an hour or as long as several hours.

What will I experience during the procedure?

Injecting a local anesthetic may sting briefly but makes the rest of the procedure pain-free. You will not feel the catheter in your artery, but when contrast material is injected you may have a feeling of warmth or, occasionally, a slight burning sensation. The most difficult part of the procedure may be lying flat for several hours.

Who interprets the results and how do I get them?

The radiologist or surgeon will examine all the images and report the findings to your physician, who in turn will discuss them with you.

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