

Angiogram

What is an angiogram?

An angiogram is an imaging test that uses x-rays to view your body's blood vessels. Physicians often use this test to study narrow, blocked, enlarged, or malformed arteries or veins in many parts of your body, including your brain, heart, abdomen, and legs. When the arteries are studied, the test is called an arteriogram. If the veins are studied, it is called a venogram.

To create the x-ray images, your physician will inject a liquid, sometimes called "dye", through a thin, flexible tube, called a catheter. He or she threads the catheter into the desired anterior vein from an access point. The access point is usually in your groin but it can also be in your arm or, less commonly, a blood vessel in another location. This "dye," properly called contrast, makes the blood flowing inside the blood vessels visible on an x-ray. The contrast is later eliminated from your body through your kidneys and your urine. Your physician may recommend an angiogram to diagnose a variety of vascular conditions, including:

- Blockages of the arteries outside of your heart, called peripheral artery disease (PAD)
- Enlargements of the arteries, called aneurysms
- Kidney artery conditions, called renovascular conditions
- Problems in the arteries that branch off the aorta, called aortic arch conditions
- Malformed arteries, called vascular malformations
- Problems with your veins, such as deep vein thrombosis (DVT) or blood clots in the lungs called pulmonary emboli.

Sometimes physicians can also treat a problem during an angiogram. For instance, your physician may be able to dissolve a clot that he or she discovers during the test. A physician may also perform an angioplasty and stenting procedure to clear blocked arteries during an angiogram, depending on the location and extent of the blockage. An angiogram can also help your physician plan operations to repair the arteries for more extensive problems.

How do I prepare?

Your physician will perform blood tests to determine your blood's ability to clot and to assess your kidney function. Based on the test results, the nature of the particular angiogram, and your particular situation, your physician may instruct you to stop taking aspirin or other drugs that prevent clotting. Usually your physician will ask you not to eat or drink anything within 6 hours prior to your angiogram. Depending on your particular situation, however, you may be encouraged to take extra fluid before an angiogram. Sometimes this fluid will be given to you by intravenous administration. Also, if you have problems with your kidney functions, you may benefit from medication given to you before the test as well as the extra fluid administration. *If you have allergies to the contrast material or to iodine or shellfish, you may require medication before the test to lessen your risk for allergic reaction.* Your vascular surgeon will advise you regarding the best treatment options for your particular situation. Because you shouldn't drive immediately after an angiogram, you should arrange for a ride home.

Am I at risk for complications?

Blood clotting problems, kidney problems, obesity, and advanced age can increase your risk for developing complications during and after an angiogram. Allergies can increase your risk of a reaction to the contrast dye. The extra fluid associated with angiograms can sometimes cause problems for patients whose hearts have poor pumping ability, such as those with congestive heart failure.

What happens during an angiogram?

Your test will take place in a room equipped with a specialized x-ray machine. Your physician, nurse or surgical assistant will insert an IV to provide you with fluids and medications. Your physician will choose where to insert the angiographic catheter, usually into an artery in your groin or near your elbow. Before the insertion, he or she will clean your skin and shave any hair in the area to reduce your risk of infection. Your physician then numbs your skin with a local anesthetic and then makes a tiny puncture to reach the artery below. He or she punctures your artery with a hollow needle, advances a thin wire through the needle, threads a catheter over the wire, and guides it to the desired location. Your physician uses x-rays that are projected on a video screen, a process called fluoroscopy, to see the catheter as it moves through your arteries. Usually he or she moves the x-ray table to follow the catheter as it is moved through your blood vessel.

Once your physician has positioned the catheter properly, he or she injects the contrast dye. The contrast causes a brief, mild warm feeling as it enters your bloodstream. Your physician takes more x-ray images to see how the contrast is flowing through your arteries. During the test, your physician may ask you to hold your breath for about 5 to 15 seconds. In addition, your physician may ask you to lie perfectly still to prevent sudden movements from blurring the x-ray pictures.

When the test is over, your physician will remove the catheter and press the insertion site for 10 to 30 minutes to help stop bleeding.

Angiograms generally take about 1 hour to complete if only x-rays are required. However, it may take longer if your physician also performs angioplasty and stenting.

What can I expect after an angiogram?

After the test, the medical team will monitor you for about 6 hours. During this time, you should keep the arm or leg that was punctured straight to minimize bleeding from the puncture site. You will also be asked to drink fluids to prevent dehydration and flush the dye from your kidneys. Once any bleeding from the insertion site has stopped and your vitals are normal, your physician will tell you that you can leave.

At home, you can eat normally, but you should continue drinking extra fluids for 1 to 2 days. For at least 12 hours after the angiogram, avoid strenuous physical activities such as climbing stairs, driving, and walking. You should be able to resume normal activities within a day or two of the procedure.

Are there any complications?

Complications from angiography may include bleeding, pain, or swelling where the catheter was inserted, or pain, numbness, or coolness in your arm or leg. These symptoms may signify either bleeding from the puncture site or blockage of your artery. Bruising at the puncture site is common and usually resolves on its own. Rarely, impaired kidney function, or kidney failure, can occur following an angiogram, especially if you already have kidney disease. Also rarely, severe allergic reactions can occur, especially among people who have had previous allergic reactions to the contrast dye. Infrequently, a patient may experience shortness of breath or fluid overload if they have a heart condition associated with poor pumping action, such as congestive heart failure.