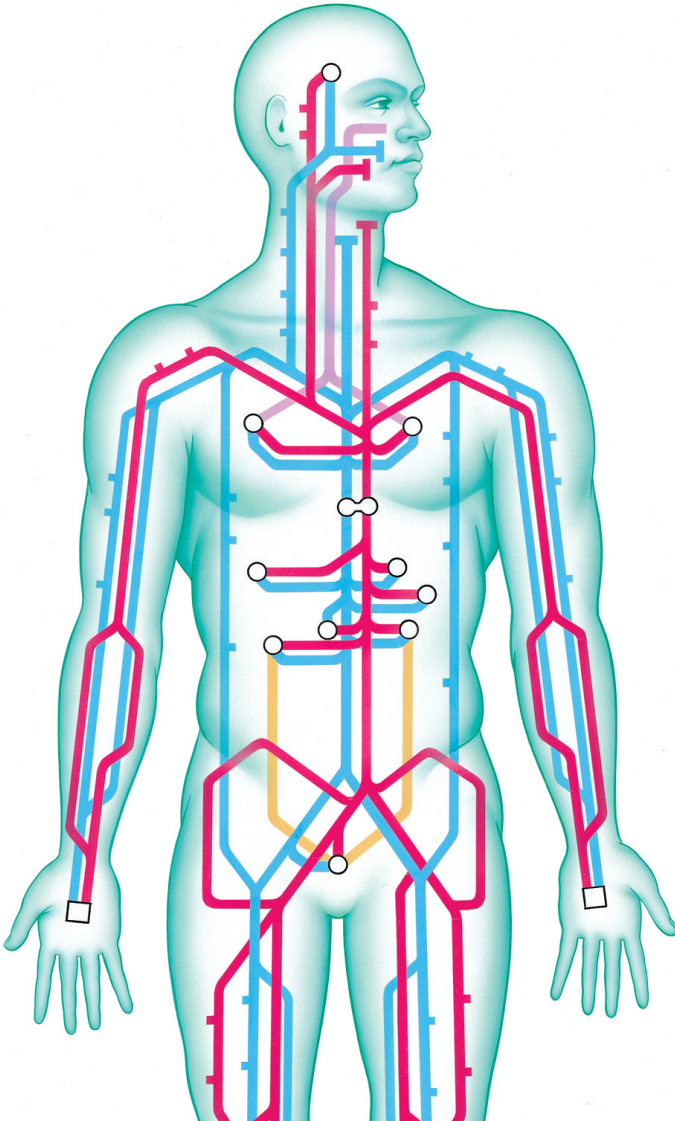


ANGIOGRAPHY



MEDICAL IMAGING
INFORMATION FOR PATIENTS

Introduction

This leaflet tells you about the procedure known as angiography, (or having an angiogram), explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

If the angiogram is being done as a pre-planned procedure, then you should have plenty of time to discuss the situation with your consultant and the radiologist who will be doing the angiogram, and perhaps even your own GP. If you need the angiogram as an emergency, then there may be less time for discussion, but none the less you should have had sufficient explanation before you sign the consent form.

What is an angiogram or angioplasty?

An angiogram is a special x-ray examination of blood vessels. Normally, blood vessels do not show up on ordinary x-rays. However, by injecting a special dye, called contrast medium, into an artery through a special fine plastic tube called a catheter, and taking x-rays immediately afterwards, detailed images of arteries and veins can be produced. If necessary, it is possible to relieve a blockage in a blood vessel or to stop bleeding from an artery without having an operation.

A catheter is inserted through the blockage in the vessel, and a special balloon can be inflated to open up the blockage (angioplasty) or a metal "spring" (called a stent) can be placed to keep the blood vessel open. This allows more blood to flow through it. If your procedure is being done because of bleeding from an artery, this can be stopped by blocking the artery with the aid of a coil or tiny particles (embolisation)

Why do I need an angiogram/plasty?

Your doctors feel that there may be a problem with part of your circulation. Other tests that you might have had done, such as Doppler ultrasound, can provide useful information, but it is felt that in your case the best way of obtaining the amount of detail required is by an angiogram. At the same time as the angiogram it is possible to perform other procedures such as angioplasty, stenting or embolisation.

Who has made the decision?

The doctors in charge of your case and the radiologist doing the angiogram will have

discussed the situation, and feel that this is the next step. However, you will also have the opportunity for your opinion to be taken into account, and if, after discussion with your doctors, you do not want the procedure carried out, then you can decide against it.

Who will be doing the angiogram?

A specially trained doctor called a radiologist. Radiologists have special expertise in using x-ray equipment, and also in interpreting the images produced. They need to look at these images while carrying out the procedure.

Where will the procedure take place?

Generally in the x-ray department, in a special “screening” room, which is adapted for specialised procedures. Sometimes we may choose to do the procedure in the operating theatre.

How do I prepare for an angiogram?

You will be asked to come into hospital either as a day case or for admission to the vascular ward. You are allowed to eat on the morning of the procedure, however we advise against having a large heavy breakfast. (you will be given more information about this). You will be asked to put on a hospital gown.

If you have any allergies, you must let your doctor know. If you have previously reacted to intravenous contrast medium, the dye used for kidney x-rays and CT scanning, then you must also tell your doctor about this.

What actually happens during an angiogram?

You will lie on the x-ray table, generally flat on your back. You need to have a needle put into a vein in your arm, so that the radiologist can give you a sedative or painkillers. Once in place, this will not cause any pain. You may also have a monitoring device attached to your chest and finger, and may be given oxygen through a mask over your nose.

The radiologist will keep everything as sterile as possible, and will wear a theatre gown and operating gloves. The skin near the point of insertion, probably the groin, will be cleaned with antiseptic, and then most of the rest of your body will be covered with a theatre towel.

The skin and deeper tissues over the artery will be anaesthetised with local anaesthetic (numbed), and then a needle will be inserted into the artery. Once the radiologist is satisfied that this is correctly positioned, a guide wire is placed through the needle, and into the artery. Then the needle is withdrawn allowing the fine, plastic tube (catheter) to be placed over the wire and into the artery.

The radiologist uses the x-ray equipment to make sure that the catheter and the wire are moved into the right position, and then the wire is withdrawn. The special dye (contrast medium) is then injected through the catheter and x-rays are taken to show the areas of interest. The x-rays can be seen on a screen above the bed. If you need treatment for a blocked or bleeding vessel, the wire and catheter are positioned appropriately and a balloon may be inflated or a stent left in place or a coil injected. This may be done several times to get a result.

Once the radiologist is satisfied that the x-rays show all the information required, the catheter will be removed and the radiologist will then press firmly on the skin entry point, for several minutes, to prevent any bleeding.

Will it hurt?

When the local anaesthetic is injected, it will sting to start with, but this soon wears off, and the skin and deeper tissues should then feel numb. After this, the procedure should not be painful. There will be a nurse, or another member of clinical staff, standing next to you and looking after you. If the procedure does become uncomfortable for you, then they will be able to arrange for you to have some painkillers through the needle in your arm.

As the dye, or contrast medium, passes around your body, you may get a warm feeling, which some people can find a little unpleasant. You may also feel as if you have passed water however these feelings soon pass off and should not concern you.

How long will it take?

Every patient's situation is different, and it is not always easy to predict how complex or how straightforward the procedure will be. As a guide, expect to be in the x-ray department for about an hour and a half altogether.

What happens afterwards?

You will be taken back to your ward on a trolley. Nurses on the ward will carry out routine observations, such as taking your pulse and blood pressure, to make sure that there are no problems. They will also look at the skin entry point to make sure there is no bleeding from it. You will generally stay in bed for a few hours, until you have recovered. You may be allowed home on the same day, or kept in hospital overnight.

Are there any risks or complications?

Angiography is a very safe procedure, but there are some risks and complications that can arise. There may occasionally be a small bruise, called a haematoma, around the site where the needle has been inserted, and this is quite normal. There is a chance that the bruise may become very large and uncomfortable, but this does not happen very often. Sometimes there may be bleeding at the site, this may require an operation to stop the bleeding. Occasionally the catheters wires and balloons may damage an artery. This can be treated by the radiologist whilst undergoing the angiogram. Some times this may require an operation. The procedure may not succeed and can sometimes lead to further blockages in the artery. Again this may need an operation to fix this. Very rarely angiography can carry the risk of causing a stroke, especially if the test is being done to look at the arteries going to your brain. The dye used for the procedure may cause damage to the kidneys. If your kidney function is normal, this is highly unlikely. If your kidney function is not normal, we shall take special measures to try and protect your kidneys. Despite these possible complications, the procedure is normally very safe, and is carried out with no significant side effects at all.

What can I do to help?

You will need to lie still while the procedure is performed. After the procedure you will have to remain in bed for a period, to avoid any bleeding at the puncture site. You can also help to improve your general health by taking regular exercise, stopping smoking and reducing the fat in your diet. This may help slow down the hardening of the arteries and may avoid the need for further treatment in the future.

Finally...

Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you. Make sure you are satisfied that you have received enough information about the procedure, before you sign the consent form.

Angiography is considered a very safe procedure, designed to obtain sufficient information about your circulation to allow you and your doctors to make an informed decision about your future treatment. There are some slight risks and possible complications involved, and although it is difficult to say exactly how often these occur, they are generally minor and do not happen very often.

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This leaflet has been prepared by the British Society of Interventional Radiology (BSIR) and the Clinical Radiology Patients' Liaison Group (CRPLG) of the Royal College of Radiologists.

Board of the Faculty of Clinical Radiology
The Royal College of Radiologists
July 2000