

Angiography

This information sheet explains angiography, what it involves and what to expect when your child comes to the Interventional Radiology department for this procedure.

Please note that this leaflet is not meant to replace discussion between you and your child's doctor. You should raise any questions you may have with the doctor who has referred your child for, or is performing, the procedure.

What is angiography?

Angiography is a procedure that allows doctors to look at arteries (blood vessels which take blood away from the heart) in great detail using X-rays. It is used to help make a diagnosis, plan treatment or monitor the effects of a treatment your child might already be receiving. It is carried out in the Radiology department by a doctor (radiologist) who specialises in using imaging to guide procedures.

Angiography produces an angiogram, which is a series of images of the blood vessels in the body. An angiogram looks a little like a road map, showing the path of blood vessels and their junctions. Any part of the body can be studied using angiography so it is used for a wide variety of conditions. For example, an abdominal angiogram looks at blood vessels that supply the bowels, liver and kidneys.

Angiography may be performed as the initial part of another procedure for example an angioplasty procedure (stretching a vessel) or an embolization procedure (blocking a vessel).

Why does my child need an angiogram?

Angiography can be used to look at abnormal blood vessels in great detail. Blood vessels can narrow as part of an illness affecting the entire body, such as vasculitis or neurofibromatosis. Sometimes just the arteries supplying the kidneys can become narrowed and this is called renal artery stenosis. A narrowed blood vessel causes problems because it causes reduced blood flow to the part of the body it is supplying. Narrowing of some arteries, especially the ones that supply blood to the kidneys, can also lead to high blood pressure. In other diseases, blood vessels can be widened, or dilated (sometimes called an aneurysm) and this can also cause problems.

Sometimes angiography is used to study the blood flow through blood vessels. This is important if doctors think there may be a problem causing abnormally fast flow through blood vessels or if there are abnormal connections between blood vessels.

Angiography can also be used to look at normal blood vessels, to plan future surgery or treatment of an organ supplied by those blood vessels.

Your child's doctor will explain why the angiogram is needed and which part of the body is affected.

The doctor may be able to gain information about your child's blood vessels using another type of imaging procedure, such as an MRI or CT scan. Usually, angiography gives more detailed pictures than other types of scans. Angiography is often just one of many tests and procedures your child will have to help the doctors make a diagnosis or plan and monitor treatment. Angiography is not usually carried out unless less invasive tests cannot provide the necessary information.

How does my child prepare for an angiogram?

The procedure will have already been discussed with you and your child before the day of the procedure. You may need to come to the hospital before the procedure so that your child can have a pre-admission assessment to check that they are well enough. This appointment may involve taking blood samples, doing scans or other tests.

Before the procedure, you will meet the radiologist. They will explain the procedure in more detail, discuss any questions you may have and ask you and/or your child to sign a consent form giving permission for your child to have the sclerotherapy. If your child has any medical problems, please tell the doctors. An X-ray dye called contrast is used during the procedure, which is removed from the body through urination (peeing), please tell the doctors if your child has any kidney problems or has been allergic to contrast in the past.

An anaesthetist will visit to talk to you about your child's anaesthetic.

An angiogram involves the use of x-rays. Legally, we are obliged to ask any girls over the age of 12 whether there is any chance they might be pregnant. This is to protect babies in the womb from receiving unnecessary radiation.

How is angiography performed?

Angiography is almost always carried out while your child is under a general anaesthetic, because they need to lie very still throughout the procedure and the procedure can take a while. Information about preparation for a general anaesthetic will be provided by your hospital.

Once your child is under general anaesthetic, the radiologist will insert a needle into an artery using ultrasound to guide them. Some local anaesthetic is injected into the skin first, to make the area numb for a few hours, and a very small cut may be made in the skin, through which the needle is placed.

The groin artery (femoral artery) is almost always the artery that is used, even if the angiogram is needed for another part of the body as it is the easiest to access. A soft guidewire is threaded through the needle, which is then removed. Finally a catheter (thin plastic straw like tube) is threaded over the guidewire into the artery, and the guide wire is removed. The catheter is then threaded through the arteries until it is in the area needed. X-rays and contrast are used at various points to guide the catheter in the right direction and to check that it has reached the area that needs to be scanned.

Further X-rays are then taken as the contrast flows out of the catheter into the blood vessels so that they can be seen clearly from several angles to give detailed information. At the end of the test, the catheter is drawn back through the blood vessels and removed from the groin. No stitches are needed where the catheter was inserted, as only a small mark is left, which should heal completely within a few days.

Who performs the procedure and where?

Angiography is usually performed by radiologists. These are people who are experts in image guided procedures. The procedure can be performed in a specialist interventional radiology room or an operating theatre with X-ray equipment

What are the potential risks/complications of an angiogram?

Complications of angiography are rare.

Angiography is usually carried out while the child is under general anaesthetic. Although every anaesthetic carries a risk, this is extremely small.

Problems can occur at the site where the catheter was inserted (usually the femoral artery). Your child may bleed from this area, but this can be minimised by applying pressure for a few minutes after the procedure. There is often a bruise in the area and it might feel a bit sore, but pain relief such as paracetamol or ibuprofen is usually enough to deal with this. Rarely a bruise which has some blood flow in it develops. We call this a pseudoaneurysm. If this happens, in the few days to weeks after the angiogram you might notice a small bulge under the skin near where the catheter went in, which has a pulse in it. If this happens it needs to be treated, this is usually straightforward but would likely need another small procedure under general anaesthetic. If you notice this, please inform your family doctor (GP) or hospital consultant

Rarely a clot can form in the leg artery where the catheter was inserted or the artery can go into spasm. This may affect the blood circulation in the leg. If this happens, it may be necessary to give medicine to thin your child's blood for a short time. Rarely, further treatment may be required.

There is a very small chance that the blood vessels being studied could be damaged, either by a blockage or a tear in the blood vessel wall. Damage to the blood vessels is very unlikely as the progress of the catheter through the blood vessels is checked frequently using x-rays.

There is only a small risk of infection.

It is extremely unusual to have an allergic reaction to the contrast. If your child has any allergies, please tell the radiologist before the procedure starts. The contrast is removed from your child's body by the kidneys and is passed when passing urine.

What happens afterwards?

Your child will return to the ward after they have recovered from the anaesthetic. Some children feel sick and vomit after a general anaesthetic. Your child may have a headache or sore throat or feel dizzy, but these side effects are usually short-lived and not severe. Your child can start eating and drinking as normal once they feel like it.

Your child will need to lie flat on their back in bed for a few hours afterwards. This will reduce the risk of bleeding from the catheter site. The nurses on the ward will check the area where the catheter was inserted regularly. They will also check your child's vital signs, including pulse, breathing and blood pressure regularly.

The doctors will come to check your child's progress on the ward and will give you some information about what they have done during the procedure. A large number of pictures are taken during an angiogram and these will be studied carefully by the radiologist afterwards. The report from the angiogram should be available to the doctor that asked for it to be performed at the next outpatient visit.

Your child will usually be able to go home when their vital signs are normal, the catheter site is not bleeding, and they have had something to eat and drink. Rarely, an overnight stay may be required for further monitoring.

Your child should avoid games or PE for at least five days after the procedure.

You should call the hospital if:

- Your child starts bleeding from where the catheter was inserted. If bleeding happens, apply pressure to the area immediately.
- Your child is in a lot of pain and pain relief does not seem to help.
- The area where the catheter was inserted looks red, swollen and feels hotter than the surrounding skin.
- The leg where the catheter was inserted looks or feels different to the other leg.
- Your child is not drinking any fluids after the first day

Notes