Information for patients

Angiography

Northern General Hospital
You have been given this information booklet because you need to have a test known as **Angiography**. This leaflet explains more about angiography including:

- The types of angiography
- How each type of angiography is performed
- The benefits and risks of type of angiography.

**Where will my hospital appointments take place?**

Your appointments will usually take place at the Sheffield Vascular Institute at the Northern General Hospital. We also run local outpatients clinics at Rotherham and Barnsley District Hospitals; however angiography is only performed at the Northern General Hospital.

The Sheffield Vascular Institute is one of the largest Vascular Centres in Europe. We specialise in the treatments of all circulatory conditions of the arteries, veins and lymphatic's. If you wish to find out more about the Sheffield Vascular Institute then look under the Guide to Services of the Sheffield Teaching Hospitals NHS Trust website ([http://www.sth.nhs.uk](http://www.sth.nhs.uk))

**What is angiography?**

Angiography is a way of looking closely at the blood vessels in the body. It is used to assess for diseases of the:

- Arteries (these take blood to the brain, limbs and abdominal organs)
- Veins (these carry blood back to the heart)
These diseases may include:

- Atherosclerosis: 'furring' of the arteries causing them to narrow.
- Aneurysms: blood vessels that become enlarged with a risk of bursting.
- Conditions causing internal bleeding, amongst many others.

**What are the types of angiography?**

Most angiography performed is non-invasive. This means that no instruments are inserted into the body. You will have a scan, which will be examined by an X-ray Doctor (Radiologist) who is an expert in vascular conditions and diagnosis. In Sheffield we use two types of non-invasive angiography.

These are **Magnetic Resonance Angiography (MRA)** and **Computed Tomography Angiography (CTA)**.

Although the test is non-invasive a small tube called a cannula is inserted into the vein of the hand or arm to allow access to vein. This is because an injection of contrast medium (a special dye) may be required for certain tests.

Invasive or **Conventional angiography** is sometimes needed. This test used to be commonly performed; however with the improved non-invasive scans it is now rarely used. It is sometimes needed during endovascular treatments for the arteries (such as an angioplasty or stent). Separate booklets are available about these kinds of endovascular treatments. It may also be used if you are unsuitable for non invasive angiography.
Magnetic Resonance Angiography (MRA)

MRA is a type of scan which uses powerful magnets, radio waves and computers to generate images of the body. To get the best views of the blood vessels, it is usually necessary to give some contrast medium into your vein at the time of the scan.

The scanner is a large tube which you lay inside on a scan table. The table moves through the scanner to take images of your body. You will need to lie as still as possible. The scanner is quite noisy, so you will be given a set of headphones and will be offered some music to listen to.

Some people feel claustrophobic in the scanner, but most manage with little or no problem. The radiographers (specialist technicians who perform the scans) are always available to help and give reassurance if required. The scan usually takes about 15 - 20 minutes, and can be done as an outpatient investigation.

An advantage of MRA is that it doesn't use x-rays, which may be important if you are younger or if you require multiple follow-up scans for your condition. This means that you are not being exposed to radiation which can be dangerous if you need lots of tests.
As MRA scans use strong magnets, many people are not suitable to have this test. You must not have this test if you have a heart pacemaker. If you have any metal device or retained metal fragment inside your body you must make sure that you have tell the doctor looking after you.
Computed Tomography Angiography (CTA)

A CT scanner looks similar to an MRI scanner, but the 'tunnel' you pass in to for the scan is much shorter (the scanner looks like a doughnut). You also pass in and out of the scanner far more quickly than MRA and so it can be better for people who are quite claustrophobic. Usually this scan takes no more than 5 - 10 minutes, and it can be performed as an outpatient.

CTA uses X-rays to get the pictures required and it is necessary to give contrast medium to 'light up' the blood vessels. This type of scan is useful for people who are unable to have an MRA.
Conventional angiography
(Digital Subtraction Angiography DSA, catheter angiography)

Conventional angiography used to be the 'gold standard' test but due to improvement in MRA and CTA it is now performed much less. It is an invasive test so there are more risks associated with it than the non invasive tests. We still need to use conventional angiography as not everybody is suitable for these other tests.

It is used to provide blood vessel 'roadmaps' using X-rays during endovascular treatments. It is still a very important diagnostic test in certain circumstances, and the radiologist may feel it is the best test for your particular circumstances.
More information about conventional angiography

What happens before the test?

If you are an outpatient you will be seen by a nurse in the pre assessment clinic. This is to assess whether or not you can have this done as a day case (where you come into hospital and go home on the same day). Most people are suitable for day case. Occasionally it may be necessary for you to stay in hospital overnight, either because you do not meet the criteria to be done as a day case, or to further monitor you in the event of a complication.

This type of angiography is done by a Radiologist or a Specialist Radiographer in the angiography suite. A nurse will go through some checks and confirm that you are happy to proceed.

We must seek your consent for any procedure or treatment beforehand. Staff will explain the risks, benefits and alternatives where relevant before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for more information.

How is the test performed?

You will be dressed in a hospital gown, asked to lie flat on an X-ray table and the doctor or radiographer will feel for the pulses at the top of your leg. The skin is sterilised and local anaesthetic is used to numb the skin and tissue around the artery.

A tube (catheter) is placed into the artery through a tiny hole in the skin. Once the catheter has been introduced, it is moved and placed into the correct position using X-ray guidance.
‘Conventional angiography’ continued

The contrast medium is then injected and the X-Rays are taken to give a 'roadmap' of the arteries.

At the end of the test the tube is removed. The tiny hole in the vessel is sealed up by pressing on it, or by using a stitch or plug-style 'closure device'.

If the artery in your leg is punctured for this test, you will need to lie still during, and after the procedure (up to two hours). This is to make sure the hole seals up properly and that you do not bleed from the artery. Very occasionally is not possible to use the artery in the leg and instead the catheter is inserted from the artery in your arm.

**What are the risks of conventional angiography?**

Conventional angiography is usually a very safe procedure but because it is more invasive than MRA or CTA, the risks of complications are greater. The risks include: minor bleeding/bruising and a small risk of damage to the vessels, but the risk of serious complications is rare.

It is possible to suffer an allergic reaction due to the contrast medium required during the test. Thankfully, they are uncommon and usually minor (mild rash or itching). More severe reactions are possible (1 in 2500 patients) and very rarely can be life threatening (1 in 25,000).

It is important to tell your Doctor or radiographer if you have had a previous reaction to contrast medium before your test commences.
What happens when I go home?

Once you are home you should drink plenty of fluids (avoiding alcohol) for the first 24 hours, and take things easy for 48 hours. You should avoid driving, strenuous activity and sexual intercourse. This allows time for the artery to heal. A more detailed booklet will be given to you called "Discharge advice following a Vascular Radiology Procedure" when you go home.
**Which is best for me?**

The different tests generally give very similar information. However there are slight differences to what shows up. Occasionally, the radiologist may feel a specific test is required to answer a precise question.

Overall, with better MRA and CTA machines available this imaging is considered 'front line', and in most cases matches the old 'gold standard' of catheter angiography.

The vast majority of diagnostic angiography performed at the Sheffield Vascular Institute is MRA.

**What happens after my test?**

The results of the tests are reported and discussed by a group of Vascular Specialists to determine the best option(s) for each individual patient. You will then usually be seen in the outpatient department to discuss any possible treatment options.

**How can I help myself?**

If you are a smoker you must make a determined effort to stop. Staff can refer you to the smoking cessation service or you can visit your GP surgery for advice. Continued smoking will cause further damage to your arteries.

General health advice also includes losing weight and regular exercise as well good control of diabetes (if you are diabetic) and taking any medications you have been given.
Useful Contact Numbers

Vascular Radiology Secretary: 0114 2269804
Vascular Angiography Day ward: 0114 2716972
Firth 2: 0114 2714602
Sheffield Stop Smoking Service: 0800 068 4490
Rotherham Stop Smoking Service 01709 422444
Barnsley Stop Smoking Service: 01226 737077

Sheffield Teaching Hospitals supports organ donation. Do you?

This information can be made available on request in alternative formats including Braille, large print, audio, electronically and other languages. For further details email: alternativeformats@sth.nhs.uk

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