

Arteriovenous malformations (AVM) and their treatment.

Information for patients



Leeds
Radiology

What is a vascular malformation?

Vascular malformations or vascular anomalies are general terms used to describe an abnormal cluster of vessels. Malformations are often present at birth and tend to grow slowly in proportion with the body. However at certain times, when the body's hormone levels increase, such as in puberty and pregnancy, they can grow more quickly. They can come in a number of forms.

Venous malformations

These often have a slow flow of blood running through them.

Arterio-venous malformations

These often have a higher flow of blood running through them.

Lymphatic malformations

These contain a clear fluid rather than blood; lymphatic malformations tend to be very slow flow.

Sometimes there can be a combination of the above. In this information booklet we will be looking at venous malformations.

Are they harmful?

Venous malformations are benign. They are not a tumour or cancer, and whilst some people have extensive problems affecting several areas of their body, they cannot spread to other areas of the body.

Patients who have venous malformations may experience the following symptoms:

- **Swelling:** This is often a soft lump that can appear on any part of the body; the swelling can increase and decrease at different times.
- **Pain:** This can be mild to severe depending on the size and location of the malformation
- **Skin discolouration.**
- **Bleeding.**
- **Increased swelling** and pain caused by clot formation in the malformation.
- **Rarely ulceration.**

How do we treat venous malformations?

You will go through several steps to allow us to make the best decision regarding your care.

Diagnosis

Once we have received a referral from the team looking after you we will, in the first instance, need to confirm the type of malformation you have and its extent. This will help us identify the correct course of treatment. You will need to undergo a number of investigations; these may include an ultrasound scan and /or an MRI, sometimes we may request a biopsy.

MDT (Multidisciplinary Team)

We will often discuss your case with other professionals involved in treating patients with venous malformations to make sure we are taking the best course of action in each case.

Treatment options

Once we have the results from your tests we will invite you to attend an outpatient appointment at which point the interventional radiologists will discuss your treatment options with you.

We may also discuss your case further with colleagues from other disciplines. After discussion we will normally offer the following options.

No treatment

If the malformation is causing you no real problems in terms of living a normal active life and it does not involve sensitive structures, for example your joints, it may be reasonable to leave the malformation alone.

If you decide, after discussion, to take this option then we will normally discharge you from our care. This does not mean you cannot be re-referred if your symptoms increase.

Conservative treatment

We may offer conservative treatment in the form of compression garments. Some patients find relief from their symptoms by the use of a fitted grade 2 compression garment.

We will refer you to your local Orthotics Department to be accurately measured and fitted. We will often invite you back to clinic after 3 to 6 months to see if the garments are helping your symptoms.

Interventional treatment

If your malformation is causing you significant problems and it is agreed that interventional treatment would be your best

option we will place you on our waiting list for treatment. It is important you understand that the treatments we offer are for symptom control, we cannot cure malformations at present.

Surgical Treatment

If your malformation is causing you significant problems and it is agreed, after MDT discussion, that it would be best treated by surgery then we will arrange for you to be referred to the appropriate service. We will discuss this further with you in clinic.

Symptom diary

In the interim between referral and treatment we may give you a diary to allow you to log the severity and location of pain and swelling, as well as other problems you may have related to your malformation. If you are given a diary please remember to bring it with you on your treatment date or when you attend clinic.

What does the treatment involve?

Normally venous malformations are treated as a day case in Radiology Theatres; however if you need a general anaesthetic or your case is complex you will be admitted onto a ward.

On arrival you will be clerked in by one of our interventional radiology team, they will need to put you into a hospital gown; they may also insert a cannula (plastic tube) into your arm to administer drugs and fluids if needed. Finally the consultant interventional radiologist performing the procedure will confirm your consent and answer any further questions you may have. When you are ready we will take you into theatre to have your procedure.

Sclerotherapy with Sodium Tetradecyl Sulphate or STS

This is the usual course of treatment for venous malformations; the aim of this treatment is to cause the malformation to shrink in size and reduce symptoms. Sclerotherapy involves injecting a liquid agent or sclerosant into the malformation by placing needles directly into it.

The needles are placed into the malformation under ultrasound guidance. Before we inject the sclerosant the doctor performing the procedure will inject an x-ray dye through the needles to make sure they are in the correct spot and that the sclerosant will not flow into normal vessels. Occasionally we may insert a balloon via the veins or arteries in the groin to block blood flow in or out of the malformation and keep the sclerosant in place while it works. Percutaneous sclerotherapy normally takes between thirty minutes to an hour to complete. Adult patients will normally stay in our recovery area for a few hours to make sure they are safe to go home. You may have a compression dressing on the treated area; this can normally be removed after 24 to 48 hours. The area that has been treated may feel lumpy or harder to the touch this is normal and should settle down after a couple of weeks.

Sclerotherapy is a safe and effective procedure, but as with any medical procedure complications can arise.

Increased swelling and pain will normally occur post procedure. The swelling and pain should generally settle down after a few weeks, during this time simple pain killers such as paracetamol or ibuprofen can be used to control the pain. We will contact you to make sure the pain and swelling post procedure is not excessive. If you do not experience swelling and pain it may be an indication that the treatment may not have worked.

If the malformation is close to, or just under the skin, there is a small risk of skin blistering and ulceration. Most ulcers will heal of their own accord or may require simple bandaging, this depends on their location. However, rarely a skin graft may be required to treat damaged areas of skin.

Occasionally, nerve damage can occur if the malformation is close to a nerve. This may be in the form of a feeling of numbness, tingling or pins and needles and is usually temporary. However, rarely the nerve may be heavily bruised causing longer term symptoms or the damage could be permanent.

There is always a small risk, as with any procedure involving needle insertion, of bleeding and infection. Risks are minimised by using image guidance to aim the needle into the correct position and by using a sterile technique.

Sclerotherapy of venous malformations aims to cause clots to form within the abnormal veins. Rarely the clots can extend into the normal veins, resulting in deep vein thrombosis (DVT). If you experience generalised swelling of the whole of the treated limb, this could be due to DVT. You should contact us or your GP immediately to determine if this is the case. If DVT is confirmed, you would normally need to have treatment with anticoagulants (blood thinning drugs) for several months to prevent the clot from progressing.

Some sclerosants can cause discolouration of the skin, particularly if there are veins injected that are close to the skin surface. This will normally fade with time, but rarely can leave some permanent discolouration.

Sclerotherapy with Bleomycin

Bleomycin is a medicine that has been used for many years in the treatment of other illnesses, we may suggest this treatment if you have a venous malformation in a region we would be keen to avoid any swelling, such as around the eye for example or if previous therapies have failed. We have a separate information leaflet for this type of sclerotherapy.

Other risks

Radiation

Sometimes we use X-ray to visualise the blood vessels during the procedure. Radiation doses for the procedure are generally accepted to be low, though occasionally higher doses are required if the procedure is long or demanding.

Compartment syndrome

Sometimes if the malformation is located in a certain area of the body swelling post procedure may cause a condition called compartment syndrome. This is caused when swelling occurs in an area where there is not much room for the swelling to take place without impacting on other structures in the body, the forearm for example. We will often arrange for you to take a small dose of steroids before and after your treatment to combat this.

Follow up

Before you commence treatment we will ask you how is best for you to be followed up.

We have three methods

- **By telephone:** We will take the best contact number for yourself.
- **By email:** We will take the best contact email for yourself.
- **By virtual clinic:** We can talk to you via a private and secure video link. Again we will need your email to arrange a convenient time to talk.

We will contact you one week and then eight weeks after your procedure to see how you are recovering.

At one week we will ask a number of questions which will enable us to establish how you have been after the treatment and make sure you are not having any problems post procedure or suffering from any complications.

At eight weeks we will discuss if your symptoms have improved or not. We will use this information to determine the next best course of action for you; this is normally either further treatment or a clinic appointment.

If you have any questions or concerns in the meantime please contact:

Clinical Nurse Specialists,
Interventional Radiology & Vascular Anomalies
Leeds Teaching Hospitals (09:00-17:00)
Tel: 0113 392 0930 or 0113 392 0931 (Office)
Email: leedsth-tr.SCFUP@nhs.net

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Secretary

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Please note if you are feeling unwell or unable to contact us regarding any urgent concerns or complications please attend your local GP Surgery, local walk in centre or your local Accident and Emergency Department if appropriate.



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