



Embolisation: information for families

Embolisation is a way of blocking abnormal blood vessels. This information sheet from Great Ormond Street Hospital (GOSH) explains about embolisation, why it might be suggested and what to expect when your child comes to GOSH for treatment. An Easy Read information sheet about the procedure is also enclosed for your child.

Various substances can be used to block the blood vessel, including medical glue, medical putty, tiny metal coils or plastic beads. The substance used depends on the area being embolised, the speed of the blood flow in that area and the size of the blood vessels. Sometimes two or more substances are used together to get the best result.

Usually embolisation is used to block arteries (big vessels carrying blood away from the heart). Very occasionally, embolisation can also be carried out on veins, which carry blood back to the heart. An example of this is Vein of Galen malformation (VGM) – more information is available in a separate information sheet.

Your child's doctor may suggest embolisation for many reasons. If the blood is flowing through a blood vessel too fast, embolisation may be used to slow down the blood flow. Abnormal arteries with abnormal connections to other blood vessels may also benefit from embolisation. Embolisation can also be used to shrink abnormal tissue by reducing its blood supply. Your child's doctor will explain why embolisation is needed and which part of the body is affected.

What happens before the embolisation?

You will already have received information about how to prepare your child for the procedure in

your admission letter. You may need to come to GOSH before the embolisation so that your child can have a pre-admission assessment to check that they are well enough. This appointment may involve taking blood samples and other tests.

The doctor will explain the procedure in more detail, discuss any questions you may have and ask you to sign a consent form giving permission for your child to have the embolisation. If your child has any medical problems, please tell the doctors.

Contrast liquid (which shows up well on x-rays) 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.

Many of the studies we perform involve 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. We may ask for a urine or blood sample to carry out a pregnancy test. This is to protect babies in the womb from receiving unnecessary radiation.

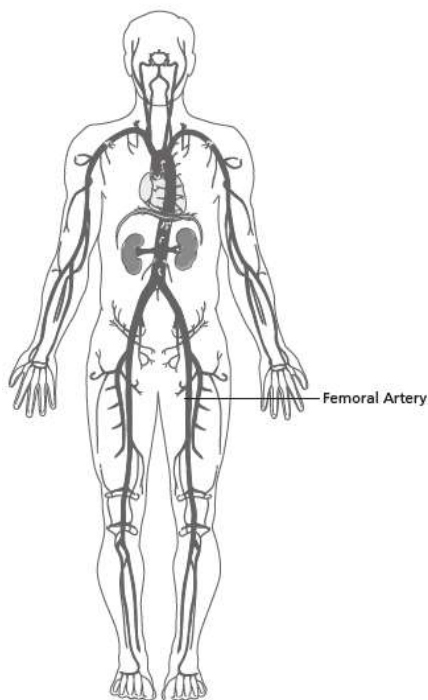
What does embolisation involve?

Embolisation is always carried out while your child is under a general anaesthetic, because they need to lie very still throughout the procedure and it

can take a while. It is important that your child does not eat or drink anything for a few hours before the anaesthetic. This is called 'fasting' or 'nil by mouth'. Fasting reduces the risk of stomach contents entering the lungs during and after the procedure. You will be informed the night before the procedure of the time that your child should be 'nil by mouth' – in other words, have nothing to eat or drink before the anaesthetic.

It is equally important to keep giving your child food and drink until those times to ensure they remain well-hydrated and get adequate nutrition. This may involve waking your child in the night to give them a drink which we recommend.

Once your child is under general anaesthetic, the radiologist will insert a needle into an artery (large blood vessel), 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 is 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 embolisation is needed for another part of the body as it is the easiest to access.



A soft guide wire is threaded over the needle, which is then removed. Finally a catheter (thin plastic tube) is threaded over the guide wire 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 treated. Once it is in place, the substance that will block the blood vessel is injected. Afterwards, more contrast is injected into the catheter and further x-rays are taken as the contrast flows out of the catheter into the blood vessels. This confirms that the embolization has been effective.

At the end of the procedure, 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.

Are there any risks?

Embolisation is a relatively safe procedure, but the risks associated with it increase if your child is already very sick or very small. The team will only carry out embolisation as an emergency if your child is not responding to other forms of treatment.

The embolisation is carried out under general anaesthetic, and although every anaesthetic carries a risk, this is extremely small. There is no significant risk of infection.

Your child may bleed from the area where the catheter was inserted, but this can be minimised by applying pressure for a few minutes after the procedure. They may develop a bruise where the catheter was inserted and feel some discomfort in this region, but pain relief like paracetamol or ibuprofen is usually enough.

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 peeing.

There is always a chance that the substance used to block the blood vessel will flow to another blood vessel and block it, but the risk of this occurring is very small. The effect of this varies, but the blood supply to this area will be reduced or cut off which may result in permanent effects. If the blood supply to the lung is reduced or cut off, this will cause pulmonary embolism. This makes the heart work harder to push blood to the lungs and could lead to heart failure.

If the blood supply to the brain is reduced or cut off, this will cause a stroke. The effects of the stroke depend on the area of the brain affected, but commonly include weakness on one side of the body.

There is a very small chance that the blood vessels leading to the area could be damaged, either by a blockage or a tear in the blood vessel wall. This could lead to bleeding and rarely the need for a blood transfusion. A metal stent (tiny metal cage) could be needed to hold the blood vessel open but this can be inserted through the catheter in the same procedure. Damage to the blood vessels is unlikely as the progress of the catheter through the blood vessels is checked frequently using x-rays.

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.

Long-term, the artery wall where the catheter went into the vessel (usually the groin), may be weakened by having had the catheter there, as the vessel wall may lose some of its elasticity. With the high pressure of the blood flow through the vessel, this may lead to a small bulge in the

vessel wall (like a weakness in a hosepipe wall). We call this a pseudoaneurysm. If this happens, you might notice a small bulge under the skin near where the catheter went in, which has a pulse in it. This is not dangerous but it should be treated. The treatment options are usually straightforward. If you notice this, please inform your family doctor (GP) or hospital consultant.

Are there any alternatives to embolisation?

Sometimes an alternative to embolisation is open surgery to tie off the blood vessels. This is very complex and may not be suitable for every child. Open surgery carries additional risk of bleeding and infection.

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.

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.

The nurses on the ward will check the area where the catheter was inserted regularly. Your child will need to lie flat on their back in bed for at least four hours afterwards. This will reduce the risk of bleeding from the catheter site. They will also check your child's vital signs, including pulse, breathing and blood pressure regularly. Occasionally an overnight stay may be required for further blood pressure monitoring.

Going home

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. We advise that your child avoids 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 back at home.

Further information and support

If you have any questions, please telephone 020 7405 9200 and ask for the ward from which your child was discharged.

Having embolisation



You have a network of blood vessels throughout your body. Sometimes a blood vessel can be odd. It might connect in the wrong way, or blood may flow through it too fast or too slow.



Embolisation (said: emm-bo-ly-zay-shun) blocks the odd blood vessels so blood flows better. It can also block a bad connection. Sometimes it is used to reduce swelling by blocking the blood supply.



You will have an anaesthetic (said: ann-ess-thet-ick) for the embolisation. You will not be able to feel anything or know what is happening.



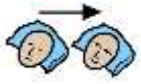
The doctor will put a thin tube into a blood vessel at the top of your leg. They will move it up through your blood vessels to the area they are treating.



The doctor will take lots of pictures to show where the tube is inside the body.



The doctor will put the embolisation stuff into the tube. This will block off the abnormal vessel.



At the end of the procedure, the doctor will remove the tube from your leg and you will start to wake up from the anaesthetic.



You will need to lie flat on your back for about 4 hours afterwards. This is to make sure the top of your leg is alright.



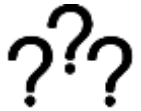
The nurses will check you regularly to make sure you are getting better. You can then go home.



The top of your leg might feel a bit sore. You can take pain medicines if you want.



You will come back to the hospital a few weeks later for a check-up appointment.



Please ask us if you have any questions.