



Cryoablation

This information sheet explains about cryoablation carried out in the Interventional Radiology department at Great Ormond Street Hospital (GOSH).

What is cryoablation?

Cryoablation is a treatment that uses intense cold to freeze and destroy abnormal areas of tissue. In order to deliver the intense cold to freeze the tissue, a number of hollow probes that are closed off at the end are placed through the skin into the area needing treatment. Image guidance, such as ultrasound and CT scanning, is used to place the probes in the correct position.

A machine pumps a mixture of gases (argon and helium) into the probe and back out again – the gases stay inside the probe and do not come into direct contact with the tissue. The gases make the tips of the probes very cold – around minus 100 degrees Celsius – and then thaws or warms them up again. The cold only travels a few centimetres from the tip of the probe – the normal tissue further away is not affected.

Evidence shows that freezing and thawing tissue in this way causes the cells to break down and the tissue to be destroyed. The abnormal area then shrinks and forms scar tissue. For some conditions, this is an easier way to get rid of abnormal tissue than surgery.

Why does my child need cryoablation?

Some conditions are caused by an area of abnormal tissue in the muscles, fat or bone which causes problems such as pain or swelling. Often the abnormal tissue can be removed by an operation. Sometimes medicines can be used to shrink the tissues or

make them less troublesome. However, some conditions do not respond to these treatments so different techniques are needed.

Cryoablation and other similar techniques have been developed to treat some kinds of cancer, bone conditions and disease affecting the soft tissues or muscle. For some conditions, it is now the preferred method of treatment because it is a minimally invasive procedure and does not involve complex surgery, long inpatient stays or surgical scars.

Your doctors think that cryoablation is the best treatment for your child's condition. They will discuss the reasons for this recommendation with you in more detail in clinic.

What happens before the procedure?

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 procedure so that your child can have a pre-admission assessment to check that they are well enough. The appointment may involve taking blood samples and other tests.

On the day of the procedure, you will meet the radiologist. They 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 cryoablation. If your child has any medical problems, please tell the doctors. An anaesthetist will visit to talk to you about your child's anaesthetic.



Cryoablation is carried out while your child is under a general anaesthetic. 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. Fasting times are provided in your admission letter – in broad terms, this is six hours for food (including milk), four hours for breast feeding and two hours for clear fluids before the procedure.

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.

The procedure 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.

What does the procedure involve?

Cryoablation is performed in The Radiology Department usually under general anaesthetic.

Once your child is under general anaesthetic, the radiologist will confirm the exact position of the area that needs to be treated using ultrasound and the CT scanner. They may need to give your child an injection of contrast through a vein to give detailed CT or ultrasound pictures of the area of abnormality. The doctor will clean the skin and insert two or more of the probes into the area to be treated through very small nicks in the skin. The position of the needles will be checked using X-rays.

The doctors will then generate several cycles of freezing and thawing to the area via the probes. The area being treated is closely monitored with X-rays or CT during the procedure to ensure that only the abnormal area is treated and to avoid affecting any normal structures such as blood vessels or nerves close by.

Generally the ablation itself will take 60 to 90 minutes but on occasion it may take longer.

The team will cover the treated area with a small plaster.

Are there any risks?

Every anaesthetic carries a risk, although this is extremely small.

The risks of cryoablation include:

- Post-ablation syndrome, which occurs in about one in four patients. This is a flu-like illness that happens three to five days after treatment, and lasts for a few days at most.
- Bleeding from the needle insertion site.
- Injury to normal structures near to the area that is treated. This includes damage to nearby blood vessels, nerves and overlying skin. The doctors may use some strategies to minimise these risks such as warming the skin during the procedure.

Are there any alternatives to cryoablation?

This will depend on the exact condition that your child has. Alternatives usually include a surgical operation, injection treatment such as sclerotherapy or a drug treatment. There are also other ablation treatments like radiofrequency ablation that your doctor may discuss with you.

What happens afterwards?

Your child will return to the ward after they have recovered from the general anaesthetic if they have had one. 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 area that has been treated may be tender and uncomfortable for a few days. Usually regular pain relief such as paracetamol or ibuprofen taken according to the instructions on the package is enough to deal with any pain.

Going home

Your doctors may want your child to stay in hospital overnight so they can make sure they are comfortable before going home. They will let you know about this before your child's admission. Some children are able to go home on the same day. Your doctors will advise you about weight bearing, exercise and return to school when they talk to you after the procedure.

You should call the hospital if:

- The area looks red, swollen and feels hotter than the surrounding skin
- The skin over the treated area becomes blistered or breaks down
- Your child is in a lot of pain and pain relief does not seem to help
- Your child has a temperature of 38°C or higher

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

Compiled by the Interventional Radiology department in collaboration with the Child and Family Information Group.
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