



Biopsy

This information sheet explains about the procedure to take a small sample of tissue from the body, what it involves and what to expect when your child comes to the Interventional Radiology department for the 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 a biopsy?

A biopsy is a small sample of tissue taken from the body so it can be examined under a microscope and tested chemically in the hospital laboratories. Any area of the body can be biopsied.

Why does my child need a biopsy?

A biopsy may be needed if your child has developed a new, undiagnosed lump or an abnormal area of tissue within an organ.

A kidney biopsy may be needed if blood and urine tests, ultrasound scans and other radiology tests have not been able to give enough information about your child's kidney problem. Some problems that might need a kidney biopsy include recurrent episodes when blood can be seen in the urine, the presence of large amounts of protein in the urine and when kidney function has deteriorated rapidly, and the cause is not known. If your child has had a kidney transplant, a biopsy can identify why the kidney is not working well and what treatment is needed.

A liver biopsy may be suggested when your child has an abnormally large liver or abnormal blood results which indicate that the liver is not working properly. A liver biopsy can also be used to monitor disease in the liver, such as hepatitis, or the effects of treatment which can stop the liver from working properly.

The reason for your child's biopsy will be discussed with you by your child's doctor.

How does my child prepare for a biopsy?

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 the hospital 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. We need to be sure that your child's blood clots properly so we may take a small blood sample for testing. This is because healing after the procedure relies on blood clotting.

If your child is taking certain medicines on a regular basis, these may need to be stopped a few days before a liver biopsy is due to take place. Ibuprofen and other non-steroidal anti-inflammatory drugs (NSAIDs) may need to be stopped three days beforehand. The nurses should confirm this at the pre-admission assessment.

Sometimes a biopsy is suggested while your child is still in hospital. The doctor will explain the procedure in more detail, discuss any worries you may have and ask you to sign a consent form giving permission for your child to have the procedure. If your child has any medical problems, please tell the doctors.

A few biopsies we carry out use X-ray or CT scan guidance. If X-ray or CT scan guidance is planned, 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

Adults and some older children have biopsies with a local anaesthetic, usually with Entonox® (the 'gas and air' women are offered during childbirth) whereas other younger children will have a full general anaesthetic. We will discuss with you the best approach for your child.



If your child needs to have a general anaesthetic for this procedure, 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. Some children are at risk of low blood sugar levels when they do not eat or drink, so they will be given a glucose solution through a 'drip' (intravenously).

How is the biopsy performed?

Once your child is under general anaesthetic or has had Entonox®, the doctor will inject local anaesthetic around the area to be biopsied to make it numb for a few hours. Using a variety of imaging techniques, such as ultrasound, X-rays or a CT scan, the doctor will locate the precise area to be biopsied and make a small cut in the skin. The cut is so small that it will not need a stitch afterwards. They will then insert a biopsy needle through the skin incision into the tissue to be biopsied.

The needle has a hollow centre and is used to take a number of tissue samples. After the samples have been taken, the doctor may 'plug' the track where the needle was inserted with a harmless substance that is absorbed by the body over the next few weeks. Once the biopsy samples have been taken, they will be sent to the laboratories for detailed examination. The skin incision is closed with a sticky paper stitch and the area will be covered with a dressing, which you should keep clean and dry for two to three days after the procedure.

Kidney biopsy: Once your child is under general anaesthetic or has had Entonox®, they will lay on their left side if their own kidney (native kidney) is being biopsied. When a child has two kidneys, we usually take a biopsy from the one on the right-hand side. If the biopsy is on a transplanted kidney, your child will lie on their back, as this makes it easier to reach the transplanted kidney. The exact position of the kidney is confirmed using an ultrasound scan, which also identifies the best place to take the biopsy.

After the biopsy, your child will return to the ward where they need frequent observations of their heart rate, breathing and blood pressure to make sure their body has not been upset by the biopsy – very rarely a child can bleed after a kidney biopsy. For this reason, we need your child to lie as still as they can for a few hours or more after they return to the ward.

Liver biopsy: While your child is under general anaesthetic or has had Entonox®, the doctor will carry out an ultrasound scan to find the best place from which to take the biopsy. There are two ways that samples can be taken from the liver. Usually, the biopsy is taken by inserting the biopsy needle through the skin below the ribs.

If your child has blood clotting problems that cannot be corrected for the procedure, they will need to have a trans-jugular liver biopsy instead. This is usually decided during a previous outpatient appointment. For a trans-jugular liver biopsy, local anaesthetic will be injected over a vein in the neck before the doctor makes a small incision in the skin. A soft plastic catheter is threaded into the vein and passed through the blood vessel system until it reaches the liver. Small samples of tissue can be removed through this catheter, which can then be sent to the laboratories for detailed examination.

Who performs the procedure and where?

Image guided biopsy 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 sometimes in another imaging room like the CT scanner room or an ultrasound room.



What are the risks of biopsy?

Every anaesthetic carries a risk, although this is extremely small. Some children may get a little bit of pain (like a bruise pain) over the biopsy site, but this is not usually serious. Paracetamol is usually enough to help this. It is common to get a little bruising around the place where the biopsy has been taken, which usually settles quickly. There is a small risk of bleeding during and after the biopsy procedure, but 'plugging' the biopsy track reduces this greatly. Plugging the biopsy track also reduces the chance of cells spilling into surrounding tissues. This is particularly important if the abnormal tissue is cancerous. There is a chance that the biopsy procedure may have to be repeated if there is a problem with the tissue samples collected, such as too few samples being collected, or if the diagnosis is particularly complicated.

After a kidney biopsy, your child may see that their urine (wee) is slightly pink as commonly a small amount of blood leaks into the urine afterwards. This usually settles within the first 24 hours and is normal. Occasionally, heavier bleeding can cause blood clots to form in the urine. A very rare complication is the creation of a join between a small artery and a small vein, called a fistula, which can very occasionally cause bleeding and blood pressure problems. This can be diagnosed with an ultrasound and will usually need a 'keyhole' procedure to treat it.

Liver biopsy carries some specific risks. Pain is the most common side effect of liver biopsies. Usually, it is a dull ache rather than a sharp pain, often felt in the right shoulder, rather than the abdomen. Regular pain relief is usually enough to deal with this discomfort. There is also a small risk of significant bleeding. If this occurs, it usually starts within a few hours of the biopsy, but can rarely happen up to 15 days after the procedure. Your child will be closely monitored for the first few hours after the procedure to reduce this risk.

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. The area where the biopsy was taken will feel uncomfortable for a while afterwards, but this soon passes. Your child can usually start eating and drinking as normal once they feel like it but please check with the nurse first.

If your child does not need to stay in hospital for treatment, you can take your child home a few hours after the biopsy if they are well. This means that they should be eating and drinking and have passed urine (peed). If the biopsy took place late in the afternoon, your child may need to stay overnight and go home the following morning.

The dressing over the area should be kept clean and dry for the next few days.

- You should call the hospital if:
- The biopsy site looks red, swollen and feels hotter than the surrounding skin
- The biopsy site is oozing
- 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
- Your child has obvious blood or clots in their urine (wee) after a kidney biopsy

Your child will usually be advised to avoid any contact sports, particularly rugby, and swimming, for four to eight weeks after a kidney or liver biopsy. Younger children may also be advised to avoid any rough and tumble play for a few weeks. This will give the biopsy site a chance to heal completely, reducing the risk of any internal bleeding.

The initial results of the biopsy are usually available within a couple of days, but more complicated tests can take longer. All the biopsy results will be given to you at your child's next outpatient appointment or by telephone.



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