

Renal biopsy

Why might I benefit from a kidney biopsy?

Blood or urine tests have shown that your kidneys are not working properly. To find out more about this, your doctor has suggested that we take a small piece from one of your kidneys. This is called a biopsy. The piece of kidney (the size of half a matchstick) is studied under a microscope. This is often the best way to find out why your kidneys aren't working properly. It can help to decide the best treatment for your kidney condition and tell us how likely it is that your kidneys will recover.

How is the biopsy done?

The biopsy will be carried out in the radiology (X-ray) department. It should take about thirty minutes and you will be awake for the whole procedure. For a biopsy of your own kidney, you will lie face down on the bed. For a biopsy of a transplant kidney, you will lie on your back and the biopsy will be taken from your transplant kidney at the front. The doctor doing the biopsy will find your kidney using an ultrasound machine. He or she will clean your skin and then inject local anaesthetic to numb or "freeze" your skin. They will then pass a needle through the numb area and into the kidney. They will ask you to hold your breath for a few seconds in order to hold the kidney still. You should not be aware of any sharp pain from the biopsy needle but you may feel pressure and hear a clicking sound when the biopsy sample is taken. This is repeated two or three times (because two or three pieces of kidney are needed for a complete result).

How should I prepare for my biopsy?

The main risk of a kidney biopsy is bleeding. Therefore it is vital that you let your doctor know if you take medication to thin the blood (such as aspirin, clopidogrel, warfarin, apixaban or rivaroxaban). Usually we will ask you to stop these for 7 days before the biopsy (or 2 days before for apixaban / rivaroxaban) and 2 days afterwards. Do not stop taking these tablets without first discussing with your doctor.

You should eat a light breakfast at 7 a.m. on the morning of the biopsy and then not eat or drink anything after this until after the procedure. A light breakfast could be a bowl of cereal, two slices of toast or a piece of fruit (for example) If you take insulin for diabetes then this period of fasting might interfere with your blood sugar levels. Therefore you may need to adjust your insulin dose, following your usual fasting rules. If you require help with this then please ask your kidney doctor or diabetes team. On the morning of the biopsy, you will be booked into the daycase unit or renal ward. We will check your blood pressure and take some blood tests to ensure that it is safe to go ahead with the biopsy.

What happens afterwards?

We will ask you to rest in bed for six hours (two hours lying flat then four hours sitting up). A nurse will monitor your blood pressure. During this time you can eat and drink. You will usually go home later the same day. Rarely, if you have pain or signs of bleeding, you will need to stay in hospital for further treatment. You should avoid strenuous activity, heavy lifting or contact sports for two weeks after the biopsy. You should avoid sexual intercourse for 48 hours. This is important to reduce the likelihood of bleeding after the biopsy. An early result may be available within 48 hours, but the complete result will take longer and can take several weeks.

What are the risks of a kidney biopsy?

The risks of a kidney biopsy are small. 98 out of 100 patients having a renal biopsy will not have any serious complications. We will only suggest that you have a kidney biopsy if we think that the benefits outweigh the risks. The risks of a kidney biopsy are listed below. The complication rates quoted here apply to a “typical” patient; your doctor will be able to let you know if the risks are higher or lower than average in your case.

1) Minor bleeding that needs no treatment. It is reasonably common to experience blood in the urine (causing it to turn pink). This usually settles by itself. It is also common to feel some pain around the site of the biopsy. You may need to take painkillers for a day or two.

2) Serious bleeding requiring further treatment in hospital. About 1 in 70 patients undergoing a renal biopsy will lose so much blood that they will need a

blood transfusion. In about 1 in 100 patients, there is serious bleeding that requires further treatment. (For this, dye is injected into a blood vessel in order to find the area that is bleeding. Metal coils are then injected to block off the bleeding point.) If there are lots of blood clots in the urine then a catheter (a soft tube that goes into the bladder) may be needed to stop the clots from causing a blockage.

3) Delayed bleeding. Sometimes serious bleeding may not become apparent for up to 3 weeks after the biopsy. Signs of serious bleeding include severe pain in the side or back, blood in the urine, shortness of breath or light-headedness. Therefore, if you notice any of these then you should seek urgent medical help. You should call the kidney ward (0131 242 2061) and ask to speak to the nurse in charge or call the hospital switchboard (0131 536 1000) and ask to speak to the “on-call renal registrar”. **If you feel very unwell you should call 999 or go immediately to A&E. Inform the staff there that you have recently had a kidney biopsy and give them this leaflet** (pdf can be downloaded at the foot of this page)

4) Life-threatening bleeding. In rare cases, the bleeding can be so severe that it is life-threatening. In this case an operation might be required remove the kidney. In the past, some patients have died from bleeding after a kidney biopsy, but this is rare (around 1 in 5000 biopsy procedures).

5) No result from the biopsy. In up to 1 in 20 biopsies, the kidney sample is not good enough to give useful information. This might be because the sample is too small, because the wrong part of the kidney has been sampled or because the sample was actually taken from the surrounding fat or muscle. It might not be obvious that this has happened until the biopsy sample is analysed several days later. In this event, your doctor might suggest repeating the biopsy procedure.

Interpretation and translation

Please let us know of any interpreting requirements you have before you come to hospital and we will provide an appropriate interpreter.