

Having a Lung Biopsy (Radiology)

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Aim of the patient information

The aim of this patient information is to provide information about having an image guided lung biopsy. It explains what is involved and what the possible risks are. It is not meant to replace discussions between you and your doctor, but can act as a starting point. If you have any questions about the procedure please ask the doctor who has referred you or the Interventional Radiology department.

What is a lung biopsy?

A lung biopsy is a way of getting a sample of tissue from the lungs using a special needle. The sample is sent to a laboratory to be assessed under a microscope. This allows a diagnosis to be made and a treatment plan to be decided. This is typically performed through a very small incision, under local anaesthesia, using computed tomography (CT) or ultrasound guidance.

Why do I need a lung biopsy?

Your chest x-ray, or your CT scan, has shown an area either on the surface of the lung (the pleura), or within the lung that does not look normal. There are many causes for this problem and your doctor thinks that it is important to know what is causing the problem. This will help them decide on the most suitable treatment for you. This type of test gives us an answer in about 9 out of 10 people that we do it on.

Are there any alternatives?

In some patients, we can reach the area with a bronchoscopy, a small bendy plastic tube that we pass through the nose or mouth into the breathing tubes. The success rate for a problem towards the edge of the lung is low.

Another alternative would be to have a surgical biopsy under a general anaesthetic at a hospital in Nottingham. This has a high success rate, but there are additional risks associated with an operation involving general anaesthetic.

What are the risks?

Image guided lung biopsy is a safe procedure, but as with any medical procedure there are some risks and complications that can arise. The risks detailed below are

generalised and may not all apply to your procedure. The risks specific to your particular case will be discussed with you prior to proceeding with the test.

It is quite common for a little air to escape into the space around the lung during the biopsy. This may cause the lung to partially collapse. We call this a pneumothorax. Usually a pneumothorax is small and does not cause problems (affecting approximately 60 out of 100 procedures). Rarely a lot of air leaks out and causes a large pneumothorax (up to 4 out of 100 procedures). If that were to happen then we would treat it by either sucking the air out again with a needle (this is called aspiration) or by putting in a tube to let the air out (the tube is called a chest drain). If this happened you would probably have to stay in hospital for a few days.

It is quite normal to cough up some streaks of blood at the time or for a day or two after the procedure. Very rarely a more significant bleed can occur days after your procedure, in which case you should attend the Accident & Emergency department at the hospital.

Performing a biopsy can introduce an infection. Usually this can be treated with antibiotics. Any infection can spread in to the blood (sepsis) which can make you very unwell.

A small bruise (haematoma) around the site of the biopsy can occur, but this is quite normal. The bruise might be sore for a few days but will disappear in a few weeks.

Depending on the location of the biopsy there may be important structures near by e.g. major vessels, diaphragm, liver, spleen. This is why this procedure is performed using image guidance so these can be avoided. It is very important that you try to remain as still as possible, as there is a small risk that these structures could be injured.

Very rarely, this procedure has been known to cause death. The risk will be lower if you are otherwise healthy and higher if your general health is poor.

Unfortunately, some biopsies fail to give an answer. Despite taking every possible care, sometimes the sample obtained is part of the normal tissue rather than the abnormal tissue. Alternatively abnormal tissue has been obtained but it may not be enough for the pathologist (an expert in making diagnoses from tissue samples) to make a definite diagnosis. If this happens it will be up to the doctor looking after you to decide how to proceed.

During procedures guided by CT you will receive a dose of radiation as a result of the X-rays used. There is a possible risk of cancer induction from exposure to X-

rays. However, we are constantly exposed to radiation from the air we breathe, the food we eat, the ground and from space. This is known as background radiation and has a cancer risk of around 1 in 10,000 per year. Having the procedure could result in you receiving an additional dose of radiation equivalent to a few years of background radiation. The associated risk of possible cancer induction from receiving a dose of radiation equivalent to a few years of background radiation is considered to be very low. Your doctor has agreed that this procedure is the best examination for you compared with others and that the benefit of having it outweighs the risks from radiation.

Despite these possible complications, the procedure is normally very safe and should assist your doctors in planning your care.

What happens now?

You will receive a letter or phone call telling you when and where to report. It depends on the location of the biopsy as to whether you are a day case patient, or require an overnight stay. You will be asked to attend the ward early in the morning so all required paperwork can be completed.

Are you required to make any special preparations?

You may be sent a blood form and asked to arrange a blood test prior to your biopsy/admission date to check your bloods are within safe limits to have the biopsy.

You may be sent a consent form, please bring this with you to your appointment.

If you have previously had a reaction to the dye (x-ray/CT contrast agent) or a local anaesthesia please contact the Interventional Radiology department.

You should have someone to drive you home following the biopsy. Someone should be at home with you for 24 hours following your discharge. If you do not please let the Interventional Radiology department know.

Can I eat and drink before the test?

You will be asked not to eat for four hours before the biopsy, although you may take small sips of water up to an hour prior to the biopsy.

Do I take my tablets on the day of the test?

If you are taking anti coagulation or anti platelet medication, such as warfarin, you will be given instructions detailing if this medication needs to be stopped and for how long. If you have not been given this information please contact the Interventional Radiology department as soon as possible. You can continue to take all other medication. Please bring your medication list to your appointment.

What happens during the procedure?

On the ward you will be asked to get undressed and put on a hospital gown. A small cannula (thin tube) may be placed into a vein in your arm in case you need any medication.

You will be brought down to the Radiology department. The procedure will be explained to you, including the risks and you will be asked to sign your consent form. Don't worry if you have forgotten or not received this document, one can be supplied at the time of your appointment. Please feel free to ask any questions that you may have and remember that even at this stage, you can decide against going ahead with the biopsy if you so wish.

The imaging used and your position will depend on the location of the biopsy. You may be required to lie completely flat on your front, please contact the Interventional Radiology department if this is an issue for you.

You may have monitoring devices attached to your arm and finger.

A planning scan will be performed using US or CT to decide on the most suitable point for the biopsy. During a CT planning scan a small metal grid may be taped to your chest. When a CT scan is being performed the staff will leave the room, but you will continue to be closely observed.

The procedure is performed under sterile conditions and the interventional team members performing your procedure will wear sterile gloves and may also wear a sterile gown. Your skin at the region of interest will be cleaned with a cold antiseptic and you will be covered with sterile drapes.

Local anaesthetic will be injected into the skin to numb the area. A small incision will be made. The specialised biopsy needle will be introduced under image guidance. When the biopsy is taken the needle makes a 'click' noise similar to a stapler. Usually 1 to 3 biopsy samples will be taken depending on how satisfied the person

performing your biopsy is with the samples obtained. Once completed a small dressing will be placed over the wound, which can usually be removed after 48 hours.

You will then be positioned comfortably, generally you are able to sit up straight away.

Will it hurt me?

It shouldn't be painful at the time, but some people find it uncomfortable. Some people have a bit of pain afterwards, once the anaesthetic has worn off. If you have any pain you can take a painkiller like paracetamol.

How long does it take?

It is usually a quick procedure, but may take up to 45 minutes.

What happens afterwards?

You will be taken back to your ward. Nursing staff will carry out routine observations. You will generally be required to stay in bed initially. After which you will be allowed to walk around the ward, until you have recovered and are ready to go home usually 4 to 6 hours post biopsy. You may be required to have a chest X-ray before you can go home to check for an air leak (pneumothorax). You will be informed following the procedure regarding dressing care and when normal daily activities should recommence.

Can I go home after the procedure?

Most people are able to go home after a few hours but there must be someone to stay with you overnight. Please bring an overnight bag with you in case you do need to stay overnight in hospital.

When will I get the results?

Your biopsy results will be sent to the doctor who referred you for the procedure. Results can take up to 7 to 10 days. Your doctor will inform you of the results.

Will there be any side effects after the biopsy?

Most people have no problems. If you suddenly become short of breath or have severe chest pain, this may mean that there has been an air leak (a pneumothorax). You should attend the Accident & Emergency department at the hospital straight away.

If you have any concerns after discharge; for non-urgent issues please contact your GP or 111, for urgent issues please come to A&E.

Finally, some of your questions should have been answered by this patient information, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you. Make sure you are satisfied that you have received enough information about the procedure.

Contact details

Interventional Radiology:

Pilgrim Hospital (IR co-ordinator): 01205 445486

Lincoln County Hospital (IR co-ordinator): 01522 573266

Grantham Hospital: (contact either number above)

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