

Percutaneous Biopsy of the Lung

Introduction

This leaflet tells you about the procedure known as percutaneous lung biopsy. It explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

Whether you are having the percutaneous biopsy as a planned or an emergency procedure, you should have sufficient explanation before you sign the consent form.

Radiologists are doctors specially trained to interpret images who work with Radiographers to carry out procedures under image guidance.

What is a percutaneous lung biopsy?

A needle biopsy is a way of taking a small piece of tissue out of your chest, using a tiny incision. This is then examined under a microscope by a pathologist, an expert in making diagnoses from tissue samples. It is called a percutaneous biopsy because this biopsy is carried out through the skin.

Why do I need a percutaneous lung biopsy?

Other tests that you have had, such as a Chest x-ray or a CT scan, will have shown that there is an area of abnormal tissue inside your lung or chest. From the scan, it is not always possible to say exactly what is causing the abnormality. The simplest way of finding out is by taking a tiny piece of tissue away for a pathologist to examine.

What are the options or alternatives?

The only alternative to obtain a piece of tissue is an open operation.

Who has made the decision?

The consultant in charge of your case, and the Radiologist will have discussed the situation at the multi-disciplinary meeting, and feel that this is the best thing to do. However, you will also have the opportunity for your opinion to be considered if after discussion with your doctors, you do not want the procedure carried out, you can decide against it.

Who will be performing the percutaneous lung biopsy?

A specially trained doctor called a Radiologist. Radiologists have special expertise in using x-ray and scanning equipment, and also in interpreting the images produced. They need to look at these images while carrying out the biopsy.

Radiographers and Radiology Nurses will be present in the room to assist during the procedure, they will introduce themselves at the start of the procedure.

Occasionally Student Radiographers or Medical Students maybe present to observe the procedure.

Where will the biopsy take place?

Within the Medical Imaging department, usually in a CT scanning room. Occasionally these samples can also be taken using ultrasound guidance.

How do I prepare for percutaneous biopsy?

- Most biopsies are performed as an outpatient or day case, however you should be prepared to stay overnight after the procedure as a precaution. You will have had some blood tests performed before the procedure to check that you do not have an increased risk of bleeding.
- You are asked not to eat for 4 hours prior to the procedure. You may drink a little water.
- You will need someone to drive you home and to look after you for 24 hours.
- If you have any allergies or you have previously reacted to intravenous contrast medium, you must let the doctor know. Intravenous contrast medium is the injection we give you during some scans.
- If you are diabetic, please contact the Medical Imaging Department on **01392 402336 selecting option 2, in-patient enquiries, option 6** X-ray Special Procedures.
- If you normally take any medication to thin your blood (anticoagulation or antiplatelet drugs) such as: **warfarin / clopidogrel / aspirin / non-steroidal anti-inflammatory drugs (NSAIDs / brufen / ibrufen / nurofen) / dabigatran (Pradaxa) / rivaroxiban (Xarelto) / Apixaban (Eliquis) / phendione / acenocoumarol – then these may need to be stopped or altered. Please contact the Medical Imaging Department on 01392 402336 selecting option 2, in-patient enquiries and then option 6 for X-ray Special Procedures.**
- Other medication should be taken as normal.
- If you are aged between 12-55 years a pregnancy test may need to be performed on arrival due to the radiation exposure and risk to early pregnancy.

What actually happens during a percutaneous biopsy?

Prior to the biopsy you will be prepared in our day case area for the procedure. As part of this you will have a small needle inserted into your arm to allow medication to be administered if required and be asked to change into a patient gown. Your skin will be cleaned with antiseptic, and you will have some of your body covered with a theatre towel to create a sterile area. The Radiologist will use the CT scanner to decide on the most suitable point for inserting the biopsy needle. Your skin will be then anaesthetised, and the biopsy needle inserted into the abnormal tissue.

While the first part of the procedure may seem to take a while, actually doing the biopsy does not take very long at all, and the needle may be in and out so quickly that you barely notice it.

You will be asked to keep still and hold your breath for short periods of time.

It is important to stay as still as possible during this procedure to avoid complications. If you think you may have difficulties with this then please contact the medical imaging department prior to attending

Will it hurt?

Occasionally the lining of the lung is sensitive and may be painful. When the local anaesthetic is injected, it will sting to start with, but this soon passes, and the skin and deeper tissues should then feel numb. Later, you may be aware of the needle passing into your body which may feel like a pushing sensation. There will be a nurse, or another member of clinical staff, standing next to you and looking after you. If the procedure does become painful for you, then they will be able to arrange for you to have more painkillers through the needle in your arm.

There will be a nurse, or another member of clinical staff, standing next to you and looking after you. If the procedure does become painful for you, then they will be able to arrange for you to have more painkillers through the needle in your arm.

How long will it take?

Every procedure is different therefore it is difficult to give an exact answer, it may take 30 minutes to obtain the sample but procedures can take longer. However, you should plan to be in the hospital for most of the day.

Your Radiologist (who will have been able to assess your case individually) may be able to let you know roughly how long it will take on the day.

What happens afterwards?

You will be taken back to the day case nurses bay on a trolley to have post procedure observations and to ensure you are suitable to transfer to a ward. Once you have been transferred to the ward Nurses will carry out routine observations, such as taking your pulse and blood pressure to make sure that there are no problems. You will generally stay in bed for a few hours, until you have recovered. You will need a chest x-ray which is usually done 3 or 4 hours after, occasionally it is necessary for a chest x-ray to be performed immediately.

What will happen to the results?

A report of the procedure will be recorded on your electronic patient record immediately for review by your specialist.

Do not expect to get the result of the biopsy before you leave, as it takes approximately one week for the Pathologist to do all the necessary tests on the biopsy specimen. The pathology result will be sent to your specialist.

What happens next?

All being well, you will be allowed home either on the same day, or perhaps the next. You can resume normal activity 48 hours after the biopsy. However, we ask all patients who have had a lung biopsy to avoid flying and scuba diving for a minimum of six weeks after the procedure. This is because there is a small risk of the lung collapsing afterwards even if it has not done so at the time of the biopsy.

If at any stage after the biopsy you develop shortness of breath / chest pain or cough up blood you should seek urgent medical attention and return to the emergency department.

Are there any risks or complications?

Percutaneous lung biopsy is a very safe procedure, but there are a few risks or complications that can arise, as with any medical procedure.

Mild complications

It is common to have a bruise up to the size of a 50p piece around the needle biopsy site; this will disappear naturally within 2 to 3 days. The dressing can be removed after 24 hours.

More serious complications

Puncture of the lung can result in a small air leak and collapse of part of your lung (this is known as a pneumothorax), this can occur when biopsies are taken. This can cause a sharp pain in the chest and some breathlessness. The risk of this is about 1 in 3 patients. However, in most cases the air leak is very minor and heals up itself without the need for further intervention. Occasionally, around 1 in 20 procedures, a larger pneumothorax occurs and you may need to stay in hospital and have a chest drain (a thin tube) inserted in between two ribs under local anaesthetic to remove any air leaking from the lung. This would mean staying in hospital for a few days.

Slight bleeding may occur from the lung when biopsies are taken. Some people cough up a little blood during or shortly after the procedure.

Very serious complications

Very Serious complications are rare (usually around 1 in 5000) however they can result in a small risk to life and should be discussed with the Dr performing your procedure prior to going ahead.

Biopsies can cause internal bleeding requiring an operation to stop it, although this is very rare the risk is approximately 1 in 1000 procedures.

Air embolism - Very rarely air can leak into the blood circulation during a lung needle biopsy. If this occurs it can cause chest pain or serious problems like a heart attack or stroke. The risk of this complication occurring is 1 in 3,000 procedures.

Unfortunately, not all biopsies are successful. This may be because, despite taking every possible care, the piece of tissue which has actually been obtained is normal tissue rather than abnormal. Alternatively, although abnormal tissue has been obtained, it may not be enough for the pathologist to make a definite diagnosis. The radiologist doing your biopsy may be able to give you some idea as to the chance of obtaining a satisfactory sample.

Despite these possible complications, percutaneous biopsy is normally very safe, and is designed to save you from having a bigger procedure.

Finally...

Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your procedure with the doctors looking after you. Make sure you are satisfied that you have received enough information about the procedure, before you sign the consent form.

Contact us

If you found reading your leaflet difficult, you do not understand what it means for you and if you have any queries or concerns you can contact us on: **01392 402336** and we can talk it through or alternatively you can email us **rduh.radiologyappointments@nhs.net**

How to get to the Royal Devon & Exeter Hospital at Wonford

Please refer to the enclosed "Welcome to the Medical Imaging Department" leaflet or use the Trusts website for the latest information:

www.royaldevon.nhs.uk/our-sites

For more information on the Medical Imaging Department, please visit our website:

www.royaldevon.nhs.uk/services/radiology-x-ray-and-medical-imaging

The Trust cannot accept any responsibility for the accuracy of the information given if the leaflet is not used by Royal Devon staff undertaking procedures at the Royal Devon hospitals.

© Royal Devon University Healthcare NHS Foundation Trust

Designed by Graphics (Print & Design), RD&E (Heavitree)