

# 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 and carry out more complex examinations. They are supported by radiographers who are highly trained to carry out x-rays and other imaging procedures.

## What is a percutaneous lung biopsy?

A needle biopsy is a way of taking a small piece of tissue out of your chest, using only a tiny incision, so that it can be 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 the abnormality is due to, and the simplest way of finding out is by taking a tiny piece of it away for a pathologist to examine.

## What are the options or alternatives?

The only realistic 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, and 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 will be present to observe the procedure.

## Where will the biopsy take place?

Within the CT scanner or occasionally using an ultrasound machine of the Medical Imaging Department.

## How do I prepare for percutaneous biopsy?

- You may need to be an inpatient in the hospital, although many biopsies can be performed as an outpatient / day case.
- 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.
- You should be prepared to stay overnight if necessary.
- 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.
- A pregnancy test may be performed on arrival.

## What actually happens during a percutaneous biopsy?

You will lie on the scanning table and you will need to have a needle put into a vein in your arm.

The Radiologist will keep everything as sterile as possible. Your skin will be cleaned with antiseptic, and you may have some of your body covered with a theatre towel. 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.

**You should try to avoid coughing during the procedure.** We realise this can be difficult. If you need to cough then try to cough as gently as possible. If you do cough we may need to abandon to procedure.

## Will it hurt?

Most biopsies do not hurt at all, although 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, but this is generally done so quickly, that it does not cause any discomfort at all.

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 patient's situation is different, and it is not possible to give a general answer. It may be over 30 minutes (although the needle is usually in the chest for a much shorter time than this), although you may be in the Medical Imaging Department for about an hour altogether.

However, you can ask your Radiologist (who will have been able to assess your case individually) and they should be able to let you know roughly how long it will take.

## What happens afterwards?

You will be taken back to your ward on a trolley. Nurses on the ward 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. Usually this is 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 / 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 treatment.

### 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

Internal bleeding requiring an operation to stop it is very rare (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.

There is a small risk to life – the risk for this is 1 in 5000 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 treatment 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.

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

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

**[www.rdehospital.nhs.uk/our-sites](http://www.rdehospital.nhs.uk/our-sites)**

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

**[www.rdehospital.nhs.uk/services/medical-imaging-radiology-x-ray](http://www.rdehospital.nhs.uk/services/medical-imaging-radiology-x-ray)**

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