

BRONCHOSCOPY AND ENDOBONCHIAL ULTRASOUND

Please note that the time given to you is your arrival time and not the time of your procedure.

There can sometimes be a wait before you are taken into the procedure room. The approximate length of time that you will be within the department is around 2 to 3 hours, but can be longer.

- If you are unable to keep your appointment, please notify the endoscopy department **as soon as possible**.
- **Please tell us if you require an interpreter.**
- **Have you signed the coloured consent form at the back of this booklet?**
- **Do not bring valuables with you. The hospital** cannot accept any responsibility for the loss or damage to personal property during your time on these premises.
- If you are having sedation, you will **not be permitted to drive home or use public transport on your own**, so you must arrange for a family member or friend to collect you. The nurse will need to be given their telephone number so that they can contact them when you are ready for discharge. In addition you **should not operate heavy machinery, sign any legally binding documents or drink alcohol for 24 hours** following the procedure

This booklet has been written to **help you to make an informed decision in relation to agreeing to** the investigations of bronchoscopy +/- EBUS

What is a bronchoscopy?

A bronchoscopy is an examination of the breathing passages/tubes (airways) of your lungs. The bronchoscopy is done with a flexible tube with a mini camera at its tip, called a bronchoscope which is introduced via your mouth or nose. The bronchoscope enables your doctor to see inside the breathing passages of your lungs and if needed take samples of mucus (phlegm) or tissue from inside your lungs.

What is EBUS?

EBUS stands for EndoBronchial Ultrasound. Like a bronchoscope, it is a flexible tube with a camera but also has a small piece of equipment at its tip that allows structures e.g. blood vessels, lymph glands to be visualised using ultrasound technology. This is the same technology that is used to scan other parts of the body externally and most people will recognise its use in imaging babies during pregnancy.

EBUS is particularly helpful in diagnosing the cause of enlarged lymph glands in the chest.

Why do I need to have a bronchoscopy +/- EBUS?

Your doctor will explain why you need the procedure.

Some of the common reasons why bronchoscopies are done include:

Infection: Specific samples from your lungs can help your doctor to find the causes of infections and give you appropriate treatment. Your doctor can also use the bronchoscope to clear some of the mucus from your breathing passages.

Bleeding: Your doctor can look inside your breathing passages to determine where the blood is coming from that you are coughing up.

An abnormal chest x-ray: There may be a narrowing of a breathing passage or a "spot" on your lung that your doctor wants to investigate with the bronchoscope and take small samples to find the cause.

Persistent cough: Samples taken during a bronchoscopy and an examination of the breathing passages can sometimes help to determine the cause for a cough that does not respond to usual medication.

Noisy breathing: A bronchoscopy can help to see if narrowing of your breathing passages or erratic movement of your vocal cords (voice box) is causing additional breathing sounds.

Enlarged lymph glands: If a CT scan has shown that the lymph glands in the chest are enlarged EBUS can visualise them and allow samples to be taken to help with diagnosis.

Preparing for the examination

You will need to provide an up-to-date list of all your medication, allergies and any medical conditions. Your doctor will review this with you.

It is important to let your doctor know if you are taking any blood thinning medication like Warfarin/Aspirin/Clopidogrel Apixaban/Dabigatran/Rivaroxaban or heparin injections etc or if you are diabetic.

You cannot eat for 4 hours or drink anything for 2 hours before the procedure. It is better not to smoke before the procedure.

What about my medication?

- If you are taking **Aspirin** this should be stopped **the day before**
- If you are taking **Clopidogrel** or **Prasugrel** this should be stopped **7 days before**
- If you are taking **Warfarin or other blood thinning drugs (Apixaban, Dabigatran, Rivaroxaban or heparin injections)** your doctor will need to advise you about when to stop these. **Please contact your doctor's secretary for advice**

On the day of the procedure

What happens when I arrive?

When you arrive in the Endoscopy department you should report to the reception area. Following this, a qualified nurse will call you into a side room to ask you a few questions regarding your medical condition and any past surgery or illness you have had, to confirm that you are sufficiently fit to undergo the investigation. They will also confirm your arrangements for getting home. The doctor will also see you to ensure you understand the procedure and discuss any outstanding concerns or questions you may have.

Your blood pressure, heart rate and oxygen levels will be recorded and if you are diabetic, your blood glucose level will also be checked.

If you have not already done so and you are happy to proceed, you will be asked to sign your consent form at this point.

Intravenous sedation

You will be offered a mild sedative and painkiller, although bronchoscopy can be done without these medications if you choose. A nurse or doctor will need to insert a cannula (small plastic tube) into a vein in your hand or arm, through which the sedation can be administered when you are in the procedure room.

The sedation will make you feel relaxed and sometimes slightly drowsy, but **not unconscious (or 'knocked out')**. You will be in a state called conscious sedation; this means that you will still hear what is said to you and therefore will be able to follow simple instructions during the investigation. Sedation can sometimes affect your memory of the procedure but this is very variable. You will also receive medication to help reduce coughing during the procedure (local anaesthetic throat spray). This will make the back of your tongue and throat numb but you will still be able to swallow safely.

Whilst you are sedated, we will monitor your breathing and heart rate so changes will be noted and dealt with accordingly. For this reason you will be connected by a finger probe to a pulse oximeter which measures your oxygen levels and heart rate during the procedure. Your blood pressure is also recorded. You will be given additional oxygen through your nose via a nasal cannula (tube).

The procedure

In turn you will be escorted into the procedure room where the doctor and the nurses will introduce themselves. They will initially ask some questions as part of a routine safety checklist.

The nurse looking after you will ask you to sit up on the trolley and will then place the oxygen monitoring probe on your finger and a blood pressure cuff around your arm.

If you wear dentures, these will be removed for the procedure.

Throat spray will be applied to your throat and if receiving sedation, the medication will then be administered into the cannula in your vein to relax you.

A mouth guard will be inserted to protect your teeth /gums. You will then lie flat for the procedure.

The procedure involves manoeuvring the bronchoscope around the airways within your lungs. This may make you cough and so local anaesthetic will be sprayed into your lungs to help reduce coughing.

During the investigation, the Doctor may need to take samples from the lung for analysis.

Biopsies can be taken from the lining of the airways or from deeper lung tissue (transbronchial) for analysis.

If a *transbronchial biopsy* is required this may be done under x-ray guidance or samples may be taken in time with your breathing pattern (you may be asked to take deep breaths in and out).

A procedure called **lavage** may be undertaken in addition. This involves instilling sterile fluid (approx. 120 – 180mls) into the lungs and then sucking it back out through the bronchoscope.

If you are undergoing an **EBUS** procedure in addition to bronchoscopy, a small needle will be used to puncture the lymph nodes aside the airways to obtain samples for analysis.

Samples will be retained in the laboratory in case they are required again in the future.

Photographs may be taken for your records.

Risks of procedure

Bronchoscopy and EBUS are usually very safe and well tolerated procedures; however there are a number of side effects. If you have any concerns about your symptoms you can discuss them with one of the team looking after you.

Changes in heart rate: Your heart rate may increase or decrease during the procedure and so it is continuously monitored to ensure that any problems can be identified and treated rapidly.

Low oxygen levels: Small changes in oxygen levels can occur especially if you have a lung problem and after sedation. Oxygen is administered throughout the procedure and levels closely monitored so that any problems can be identified and treated rapidly.

The risk of death from low oxygen levels is exceedingly low (less than 0.001%)

Bleeding: If biopsies are taken there is usually a small amount of bleeding which can result in you coughing up blood stained sputum after the procedure.

The risk of a fatal bleed is exceedingly low (less than 0.001%)

Cough and sore throat: These are common effects that are usually short lived. A sore throat can be treated with paracetamol.

Loose teeth, veneers or crowns can be damaged/become detached: Every effort is taken to protect dental work but please ensure you inform the staff if you have concerns about your teeth.

Pneumothorax (punctured lung): This is an air leak that can occur after certain types of biopsies (especially transbronchial biopsies) are taken – your doctor will discuss this with you prior to the test. If this does happen, people may experience pain and/or breathlessness or have no symptoms. If you are having biopsies associated with this risk you will routinely have a chest x-ray following your bronchoscopy. Around 1 in every 20 people undergoing a transbronchial biopsy will experience a punctured lung. Half of these will resolve on their own. Your doctor may wish to keep you in hospital for observation, or a chest drain (thin tube) will be inserted under local anaesthetic between your ribs to help re-expand the lung.

Chest pain: Occasionally chest pain may be experienced during the procedure but is short lived. Any persisting pain can be treated with paracetamol.

Wheezing: This may occur if you are asthmatic or have COPD and can be treated with medication to open up the airways (bronchodilators) via inhalers or nebulisers.

Risk of sedation: As mentioned above sedation can occasionally cause problems with breathing, heart rate and blood pressure. These risks are higher in older patients and those who have significant health problems (e.g. people with severe breathing difficulties) and so the doctor will need to discuss sedation with you in more detail before having the procedure. If any of these problems do occur, they are normally short lived. Careful monitoring by a fully trained nurse ensures that any potential problems can be identified and treated rapidly.

What to expect following your bronchoscopy / EBUS

You will be looked after by a nurse until you are awake enough to leave. Your breathing rate, pulse and blood pressure will be checked and if you are diabetic, your blood glucose will be monitored.

You may have a chest X-ray.

Occasionally patients take a longer time to recover after the procedure and may need to be admitted to hospital for observation.

Breathing

Take deep breaths. Coughing may help clear secretions after the procedure.

Food and Fluids

You should not eat or drink until the feeling in the back of your throat has returned.

You will be kept in the Recovery Area until the health care team are happy that your swallow reflexes have returned to normal.

Activity

It is common to feel tired and dizzy after the procedure. We advise you to rest for the first 24 hours, and gently go back to your routine after this.

Medication

Restart all of your usual medication the following day after the procedure. If you are on blood thinning medication, your health care team will advise you on when it is safe to restart this

Most procedures will require some sedation. After your procedure you will be monitored by the health care team until you have fully recovered from this. Once you go home, we recommend that someone stays with you overnight after the procedure to ensure the full effects of any sedatives have worn off.

However, it is safe to go back to most of your usual activities after the first 24 hours

DO NOT:

- Drive a car (or other motorised vehicle) in the first 24 hours
- Operate machinery
- Sign important documents
- Drink alcohol

Before you leave the Endoscopy department, you will be provided with an advice sheet which will explain whom to contact should you experience any problems following your procedure.

A copy of the bronchoscopy report will be sent to your GP and /or the referring doctor.