Oxford University Hospitals NHS
NHS Trust

Thoracic Surgery

Surgery for Pneumothorax

Information for patients

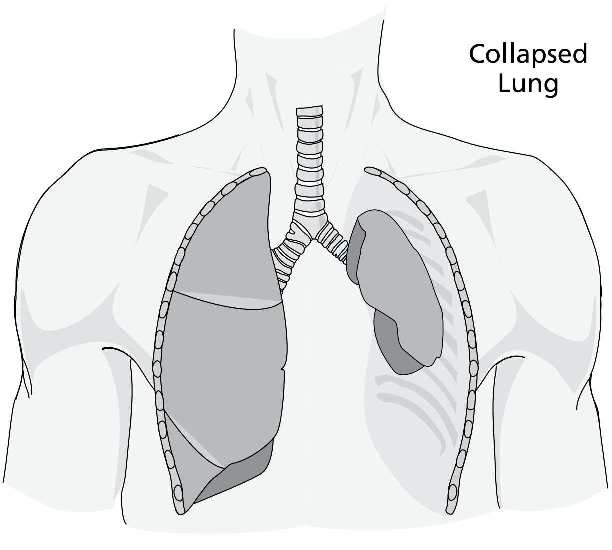
Welcome to the Oxford Heart and Lung Centre

The information in this booklet will help to prepare you for coming into hospital for your lung operation. It will help to remind you about explanations and information the medical or nursing staff will give you. We hope it will be a useful and helpful guide. If you need any extra information, please ask any member of the ward team.

What is a pneumothorax?

A pneumothorax is when air gets in between the linings of the lung. This then causes the lung to collapse away from the chest wall. It is a fairly common condition and often affects young people, particularly tall men, possibly because their lung is stretched out more within their ribcage.

A pneumothorax can happen for a variety of reasons but is often caused by an area of the lung lining becoming thinned out. This causes blister-like areas called bullae to form, which can break open and leak air. This causes the pneumothorax.



Why do I need surgery for my pneumothorax?

Surgery is usually suggested for anyone who has had two or more episodes of pneumothorax (partially collapsed lung) on any one side.

It is also recommended to anyone who has had a tension pneumothorax. This is a full collapse of your lung which can then cause your heart to move across your chest with the pressure.

Do I have to have surgery?

There are many methods of treating a pneumothorax but surgery offers you the best chance of it not happening again. You can discuss alternatives to surgery with your Surgeon if you want to.

What kind of assessment will happen before my operation?

If you are coming in from home for your operation, you will be invited to come to the pre-admission clinic. This is run by the pre-admission nurses. At this clinic you will be assessed by:

- A **doctor**, who will examine you and ask you questions about your previous medical history. The doctor will explain the operation or examination and why it is necessary, including the risks involved.
- The **pre-admission nurse**, who will ask you questions about your daily activities and about any support that you may need when you go home. The nurse will take your blood pressure, heart rate, weight and height. They will also give you an opportunity to ask any questions you might have about your admission.

- An **anaesthetist**, who may see you to explain how they will look after you during your operation and answer any questions you may have about having an anaesthetic.

If you are already in hospital for other treatment, the nurses and doctors on the cardiothoracic ward will arrange your pre-operative tests and give you information about the surgery. The anaesthetist will visit you on the ward the night before or on the day of your operation.

What tests will I have before my operation?

Before your operation we will arrange tests to assess your health and fitness for surgery. The tests you need will depend on the surgery you are having and any other health issues you may have. If you are coming from home, some of these tests will be done at the pre-admission clinic.

Blood tests – These can tell us about your general state of health and fitness for surgery.

Chest X-ray – These images help us to look at your heart and lungs.

Electrocardiogram (ECG) – This machine measures the electrical activity of your heartbeat and muscle function.

Spirometry – This is a simple breathing test during which you will be asked to blow into a machine. It tests how much air you can breathe in, as well as the way you breathe in and out.

Lung function tests – These look in more detail at lung capacity (how much air you can hold in your lungs) and assess how well your lungs are working. You will need to spend up to an hour in the lung function laboratory for these tests.

Ultrasound – This scan uses sound waves to create an image of the inside of your body. It is frequently used to pinpoint any fluid which might be in your lung.

Magnetic Resonance Imaging (MRI) scan or Computed Tomography (CT) scan – These scans give a 3-dimensional picture of your body. Both these scans are painless but may make you feel claustrophobic, as you have to lie still whilst the scanner moves you in and out of a large circular machine. However, the radiology staff will reassure you throughout the procedure.

What are the different types of surgery for pneumothorax?

There are four different types of surgery to help treat pneumothorax:

Pleurodesis

This operation will help stick the two membranes (called pleura) that surround your lung back together. This will help to prevent the build-up of fluid or air in-between these two membranes.

There are two ways this can be done:

- through a chest drain (you will be awake but the area will be made numb using local anaesthetic)
- using keyhole surgery (you will be asleep under general anaesthetic).

Pleural abrasion

The surgeon will ‘irritate’ the inner side of your chest wall by gently rubbing it. This helps your lung to stick to it. You will usually have a chest drain inserted following this procedure.

Pleurectomy

This is the removal of the outer of the two membrane layers (pleura) that surround the lung, so that the lung sticks to the inside of the chest wall; preventing further collapse.

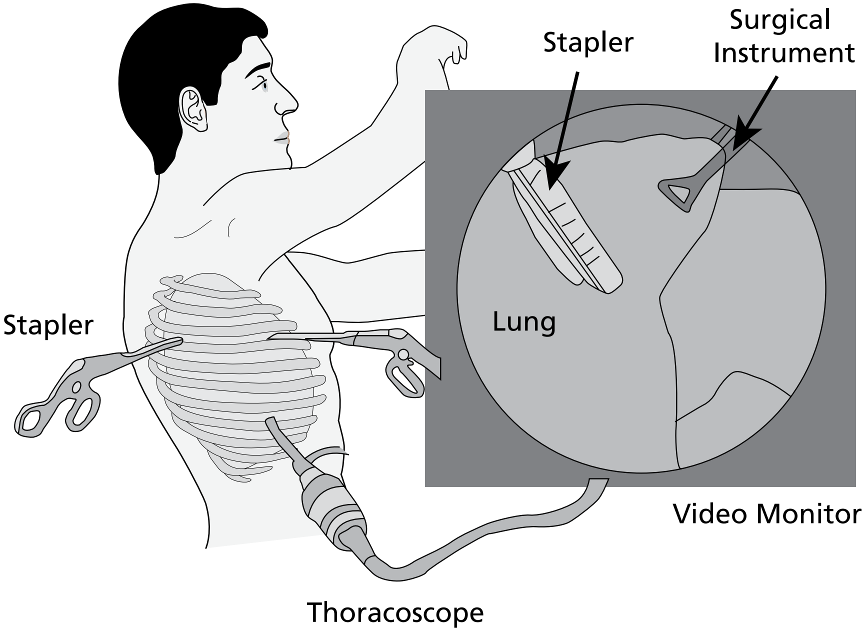
Bullectomy

This is a surgical procedure where bullae are removed. Bullae are sac-like areas, about 1cm in diameter, that are filled with air which has had the oxygen used up. They are common in people most at risk of pneumothorax, e.g. tall thin men (caused by stretching of the tissues) and heavy smokers (as a consequence of damage caused by smoking).

By removing them it allows healthy air sacs more room to expand and promotes better breathing and intake of oxygen.

After your procedure you will have a chest drain in place. This is to prevent air and fluid building up in-between the membranes after the surgery.

Carrying out the procedure using a thoracscope



What are the risks of pneumothorax surgery?

Any operation which involves having a general anaesthetic carries with it a risk of complications. Your surgeon will discuss with you the common risks and also any specific risks that relate to you, before you are asked to sign that you are happy to have the operation (give your consent).

Make the most of this opportunity to discuss any questions or worries you might have. You need to feel confident that you understand what the operation involves, as well as the risks, before you sign the consent form.

Who will look after me during my hospital stay?

You will be under the care of a Consultant Thoracic Surgeon, who is assisted by two other doctors; a Registrar and a Senior House Officer.

Nursing staff are all fully qualified and many have specialist cardiothoracic qualifications. This means they specialise in the care and treatment of people with heart and lung problems.

The **Matron** manages the Cardiothoracic Unit. A **Sister** is responsible for the cardiothoracic ward.

Anaesthetists are fully qualified doctors who will put you to sleep for your operation. They monitor your condition very carefully throughout your operation and make sure that you have enough pain relief during your recovery period.

Physiotherapists will visit you after your operation. They will help you keep your lungs clear and will help to get you moving after your operation. This will speed up your recovery and get you back to a level of activity which allows you to go home.

Occupational Therapists are available to give you advice and information about going back to your daily activities after your surgery. They can also give you some useful items of equipment to use at home, if you need them.

A **Dietitian** is available to give you advice and information on what to eat and drink.

A **Pharmacist** will visit the ward each day to monitor your medication and give you advice on your medicines.

What happens on the day of my operation?

When you come to the pre-admission clinic, the nurse will give you instructions about when you should stop eating and drinking before your operation. You will also be given an antiseptic lotion, mouthwash and nasal cream and instructions on how to use them before your admission. You will be told what time to arrive at theatre direct admissions (TDA) on the day of surgery.

When you arrive you will be asked to change into a clean hospital gown and you will be fitted with surgical stockings. These will help to prevent blood clots forming during the operation.

Before the operation

The nurse or operating department practitioner (ODP) will check some important details with you, such as your name, date of birth, and any allergies you may have. They will also confirm that you have signed your consent form.

When it is time for your operation you will be taken to the anaesthetic room. We will help you to move onto a trolley and the nurses will then connect you to heart and pulse monitors. Your anaesthetist will insert a small needle in your arm to give you drugs to make you go to sleep.

Throughout the operation the anaesthetist will be looking after you and will give you medication to keep you asleep and relieve pain.

Some of the medical equipment used in thoracic surgery

- **Chest drains** (see page 11).
- **Cardiac monitor** – this is attached to your chest by sticky pads and helps the nursing staff to monitor your heartbeat.
- **Intravenous cannula (drip)** – you may have one or two of these going into the back of your hand or arm, through which you can be given fluids and medication.
- **Neck line** – this goes into a large vein in your neck. It is used for giving intravenous drugs and fluids directly into your bloodstream.
- **Urinary catheter** – this is a tube used to drain away urine from the bladder. You will have a catheter if we need to monitor how much urine you are producing or if you have difficulty passing urine after your surgery.
- **Oxygen** – this may be given to you through small tubes, just inside your nostrils, or a face mask over your nose and mouth.

As your condition improves all of these will be removed.

What happens after my operation?

When the operation is over you will be woken up. You will be transferred to the recovery ward where specially trained nurses will look after you. They will make sure you have good pain relief and that you are breathing well. You will be given oxygen through a face mask to help you recover.

Once the medical team and recovery nurses are happy that you have made a good recovery from your anaesthetic you will be transferred to the cardiothoracic ward (CTW).

Pain relief

For the first few days after your operation you may be given pain relieving medication in the following ways:

Paravertebral block

Local anaesthetic is delivered through a fine tube in your back to the nerves around the site of your operation. The amount of local anaesthetic you receive is set by the surgeon and anaesthetist.

Patient controlled analgesia (PCA)

Pain relieving medication is given through a pump into the drip in your hand. You will be able to control your medication by pressing a button. Alternatively, your nurse can give you more medication if they feel your pain is not controlled. Again, the dosage is set so there is no risk of overdosing.

Once you are able to eat and drink we will give you pain medication as tablets every four to six hours. Your nurse will assess your pain with you using a scale of 0 to 3 [0=no pain, 3=severe pain]. It is important that you are comfortable enough to carry out your deep breathing and coughing exercises. Please tell us if you start to feel any pain so we can make changes to your medication if needed.

Throughout your recovery an anaesthetist will be available to give you advice about pain, sickness or any other problems that may arise.

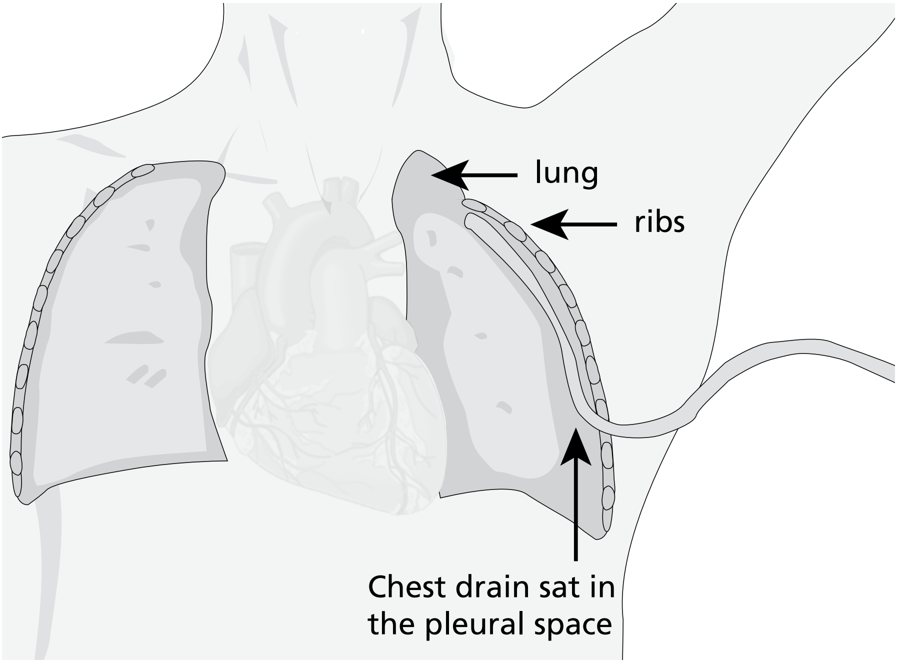
Chest drains

Chest drains are necessary after lung surgery. Their job is to remove any fluid and air which can collect in the chest cavity.

The drain is a one way system which draws fluid and air out, and stops it from going back into the chest. The chest drain is a tube which has one end in your chest cavity and the other attached to a chest drain pump. The tube is held in place by a stitch. The drain pump controls the amount of suction applied to the drain and measures how much air is leaking out. The amount of suction applied to your chest drains may be changed as you recover from your operation.

You can help to open your lung back up by moving or walking around and by deep breathing and coughing.

Chest drains are usually removed when the doctors are happy that they are no longer required.



How do I look after my chest drains?

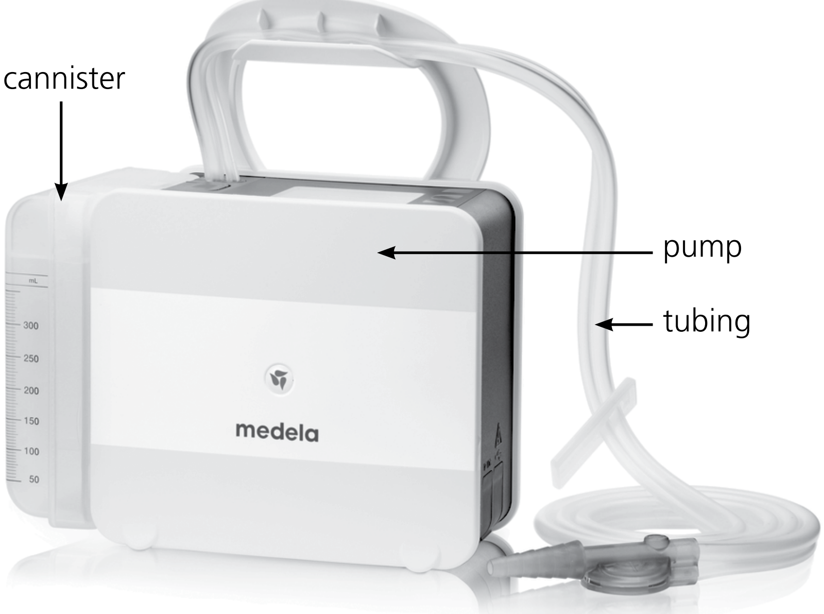
Try not to pull on the tubing as this may cause pain or discomfort. Try to avoid bending and folding the tubing, as this slows down drainage.

If the tubing comes out of your body or off the pump, ask for help immediately. Your nurse will need to reconnect the tubing to the pump.

If the tube comes out of your body we will close the hole with a stitch and then assess you to see whether you need to have another drain put in. However, the drain is stitched in place so this is very unlikely to happen.

If the drain either comes off the pump or out of your chest, you may need to have a chest X-ray. This is to check the drains are working correctly.

Drain pump



© Medela

Exercise

Exercise is a vital part of your preparation for surgery and your recovery afterwards.

When you have had lung surgery you need to work hard to help your lungs re-expand and recover from the operation. Exercise and physiotherapy is the only way to do this. This will be hard at first as you will feel breathless and tired, but will become easier as you recover.

We will give you instructions on the exercise you need to do before and after your surgery. This is part of the Enhanced Recovery Programme. Details can be found in the Enhanced Recovery Programme booklets:

Enhanced Recovery – Patient Information Leaflet

This will have been given to you at your clinic appointment with the consultant.

Enhanced Recovery – Patient Diary

This will be given to you at the pre-operative assessment appointment or, if you are already on a ward, will be given to you when you are transferred to the cardiothoracic ward.

Every day we have a set quiet time between 1-3pm. Please take advantage of this and have a rest on your bed, as you may feel more tired than usual.

What can I eat?

You will need more calories (energy) from your diet to help your body heal and regain strength. It is common after an operation to lose your appetite and you may not wish to eat large meals. Most people find that eating ‘little and often’ is best.

Your nurse can give you high calorie drinks to supplement your meals if necessary.

For more expert advice we can refer you to our dietitian.

When will I be able to go home?

You will be discharged from hospital when we are happy that you are recovering well. This is often after the chest drains are removed.

If you are making good progress but your chest drain needs to stay in, we can attach a drain that is safe for you to use outside the hospital. We can then discharge you home. We will give you specific instructions and training on the care of the drain. You will have an appointment to see the Advanced Nurse Practitioner in Thoracic Surgery at the chest drain clinic after you return home.

When you return home, you must make sure there is someone responsible with you for the first week, to look after you. If you live alone you could arrange to stay with a relative. If this is not possible, please tell us when you come to the pre-admission clinic so that arrangements can be made to give you some help at home.

Please arrange for someone to collect you from hospital and take you home. You will need to go home in either a car or taxi. This will be more comfortable for you, and also quicker for you to return to the hospital if there are any complications on the journey home.

When you leave the ward we will give you:

- a supply of medication, which your nurse will explain to you, and a written plan of when to take your tablets
- a letter for your GP
- an appointment for stitch removal/wound check and letter for the practice nurse at your GP surgery
- a discharge advice booklet and contact details, should you need advice once you are home.

You may be told about your follow-up appointment before you go home, but a date will also be sent to you in the post. You should have an appointment in about six weeks.

Signs and symptoms to look out for

If you have any of the following problems please see your GP or contact the Advanced Nurse Practitioner (contact details are at the end of the leaflet):

- continued problems with constipation despite taking regular laxatives and eating a high fibre diet
- an increase in the amount of pain you have, despite taking regular painkillers
- your wound becoming redder than before, swollen, warm to touch or leaking fluid
- any part of your wound coming apart
- your breathlessness becomes worse and you or your family are concerned.

Contacts

If you have any question or concerns, please contact one of the numbers below:

Advanced Nurse Practitioner, Thoracic Surgery
(Monday to Friday, 7.45am to 4.00pm)
Tel: 01865 572 653
Tel: 01865 741 166 and ask for bleep 1184 (if urgent)

Cardiothoracic Ward
(24 hours)
Tel: 01865 572 662

Co-ordinator (if the Ward are unable to answer the phone)
(24 hours)
Tel: 01865 741 166 and ask for bleep 1971

Matron
Tel: 01865 572 649
Tel: 01865 741 166 and ask for bleep 1185 (if urgent)

If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call **01865 221 473** or email **PALSJR@ouh.nhs.uk**

Jenny Mitchell, Advanced Nurse Practitioner, Thoracic Surgery
August 2015
Review: August 2018
Oxford University Hospitals NHS Trust
Oxford OX3 9DU
www.ouh.nhs.uk/information