NHS
University Hospital Southampton
NHS Foundation Trust

Thoracic sternotomy

Information for patients

We have given you this booklet because you are due to have a thoracic sternotomy. It explains what a thoracic sternotomy is, why you need this procedure, and the benefits and risks. We hope it will help to answer some of the questions you may have. If you have any further questions or concerns, please contact us using the details at the end of this booklet.

What is a thoracic sternotomy?

A thoracic sternotomy is a surgical approach where a cut is made on the chest through the sternum (breastbone). This allows a thoracic (chest) surgeon to gain access to the organs inside the chest and perform various surgical procedures.

Why do I need a thoracic sternotomy?

Your doctor has referred you for a thoracic sternotomy because a recent chest x-ray or CT scan (a test that takes detailed images of the inside of the body) has shown an abnormality in the mediastinum (area between your lungs). This abnormality needs to be removed, so that it can be sent to the laboratory for testing. By finding out the nature of the abnormality, your doctor will be able to decide on the best treatment option or management plan for you.

Are there any risks or complications?

As with all surgical procedures, there are some possible risks and complications associated with having a thoracic sternotomy.

Minor complications after a thoracic sternotomy include:

- a chest infection (moving around early on will help to prevent this)
- wound infection (using the antiseptic body wash we have given you can help to prevent this)
- a faster heartbeat (this can be treated with medication)
- a small amount of bleeding into the chest drain
- damage to teeth

Major complications after a thoracic sternotomy include:

- a collapsed lung (this is called a pneumothorax and if this happens you may need to stay in hospital longer to have a chest drain reinserted)
- blood clots (to reduce this risk, we will give you blood-thinning injections, compression stockings to wear and we will also get you moving around as soon as possible after your procedure)
- heart attack or stroke

- a large amount of bleeding into the chest drain (if this happens, you may need a blood transfusion (when you receive blood from someone else))

Are there any alternatives?

Alternative tests or procedures will vary depending on your specific condition and circumstances. Your doctor will discuss all the available options for you at your clinic appointment.

How should I prepare for the procedure?

Clinic appointment

Before the procedure, you will have either a face-to-face or telephone clinic appointment with your surgeon.

During this appointment, your surgeon will explain:

- why you need this procedure
- why a thoracic sternotomy is the recommended approach
- what the procedure involves
- the benefits and risks of the procedure
- alternative procedures

Together, you will decide whether you wish to go ahead with the procedure. If you do wish to go ahead with the procedure, we will ask you to sign a consent form either at this appointment or on the day of your procedure.

Pre-assessment appointment

If you decide to have the procedure, you will need to come to hospital for a pre-assessment appointment.

During the pre-assessment appointment, we will:

- perform blood tests
- perform an electrocardiogram (a heart tracing test)
- take a full set of observations to check your blood pressure, pulse, oxygen levels, temperature and breathing rate

- measure your height and weight
- take swabs from your nose and groin to check for MRSA (a bacteria that usually lives harmlessly on the skin but can cause a serious infection if it gets inside the body)

We will also:

- explain the procedure to you and answer any questions you may have
- advise when to stop eating and drinking before your procedure
- advise if you need to temporarily stop taking any medications before your procedure
- give you an antiseptic skin wash solution to use and explain how to use it (you will need to wash your whole body and hair before your procedure in this solution to help prevent infections occurring after your procedure)

There is a slight risk that your teeth may be damaged during the procedure. To help reduce this risk, please let us know at your pre-assessment appointment if you have dentures, any loose teeth or crowns.

General anaesthetic

The procedure will be performed under general anaesthetic (medication that sends you to sleep) so you will not feel anything. To ensure you are well enough for a general anaesthetic, an anaesthetist (a specialist doctor) will visit you before your procedure and ask you some questions about your medical history and your general health and lifestyle. This may be at your pre-assessment appointment or on the day of your procedure.

Smoking

We recommend stopping smoking before and after your procedure. You should also avoid smoky environments. This will help to reduce your risk of developing a chest infection and will also help to keep your oxygen levels steady after your procedure. We can provide you with nicotine patches after your procedure, if necessary. We can also give you details of services that can help you to stop smoking.

What will happen on the day of the procedure?

When you arrive for your procedure (please see your appointment letter for where you need to go), we will ask you to change into a hospital gown. We will also give you compression stockings to wear (these will help to prevent blood clots, also known as deep vein thrombosis or DVT, from developing in your legs).

The anaesthetist will then visit you (unless they spoke to you at your pre-assessment appointment).

We will explain the procedure to you again and answer any questions you may have. If you are happy to go ahead with the procedure, we will then ask you to sign a consent form (if not already done at your clinic appointment).

Before your procedure, we will use a marker pen to mark the side of your body that we are going to operate on. Please let a member of staff know if this mark comes off before your procedure.

We will give you two name bands to wear. These let staff know your:

- name
- date of birth
- hospital number

If you have any allergies, we will also give you a red band to wear. Please let a member of staff know if you lose your name band or red band, or if any of the information on either band is incorrect.

Before going to the operating theatre, we will complete a checklist with you (this will be repeated several times when you then go to theatre). We will then take you to a room where the anaesthetist will give you a general anaesthetic. This will usually be given as an injection through a cannula (a thin tube) that is inserted into a vein in the back of your hand or arm. Rarely, it may be given as a gas through a face mask. The anaesthetist will decide which option is most appropriate for you and will discuss this with you.

What will happen during the procedure?

Once the general anaesthetic has taken effect and you are asleep, we will move you to our operating theatre.

We will position you on your back so that the surgeon can gain access to the front of your chest. We will then clean the area of your chest that we are going to operate on with some antiseptic solution.

The surgeon will then:

- make a vertical incision (cut) down your chest
- cut your sternum (breastbone) in half to open your chest
- examine the area between your lungs (mediastinum) and look for the abnormality
- remove the abnormality and send it to the laboratory for testing.

At the end of the procedure, the surgeon will:

- close your sternum with stainless steel or titanium wires (these wires (known as sternal wires) will usually be left in permanently unless they cause irritation)
- close your chest wound with dissolvable stitches (these stitches do not need to be removed)
- insert one or two tubes into your chest (known as chest drains) to drain any excess air and fluid (see the 'Chest drains' section on page 9 for more information about this).

Changes to the planned procedure

Depending on what the surgeon finds when they look into your chest, they may have to make some changes to your planned procedure. The surgeon will only do what is appropriate for your condition. We will discuss these possible changes with you before your procedure as part of the consent process. If any changes need to be made to the planned procedure, we will explain what these were and the reasons for the changes after your procedure.

How long will the procedure take?

The procedure will usually take two to three hours.

What will happen after the procedure?

After the procedure, we will take you to our recovery room where you will gradually wake up from the general anaesthetic. You will stay in the recovery room until you are more awake and stable (this usually takes around two hours). During this time, we will monitor you regularly to check that you are recovering well, and your pain is controlled.

We will then transfer you to E4 ward, where we will continue to monitor you.

You may need to have oxygen for the first few hours after your procedure. If this is the case, we will give this to you through a face mask or nasal tubes.

You should expect to stay in hospital for two to five days after your procedure. However, some people may need to stay a day or two longer depending on how they recover from the procedure. We will advise you when it is safe for you to go home.

Side effects

After the procedure, it is common to experience some of the following side effects:

- tiredness
- a sore throat for a few days (we will give you pain relief medication to help ease this)
- a cough which brings up a small amount of blood (this should stop after a few days)
- low blood pressure (this will usually improve as you drink more fluids)
- numbness, tingling and pins and needles around your wounds and at the front of your chest (this is normal and will usually improve as your wounds heal)

Pain

After your procedure, we may initially give you a pump known as a PCA (patient-controlled analgesia) pump to help control your pain. A PCA pump consists of a syringe containing pain relief medication that is then attached to a vein in your arm. You are in control of the pump and can give yourself a dose of pain relief medication as and when you need it. You are likely to have the PCA pump until the morning after your procedure. We will then swap your pain relief medication to tablets or a liquid that you take by mouth.

We will monitor your pain levels and amend your pain relief medication as needed.

Chest drains

We will monitor your chest drains and decide when it is safe to remove them (this will depend on what they have drained). After we have removed your chest drains, we will close the wounds with one to three stitches. **These stitches are not dissolvable and will need to be removed seven to ten days later.** We will give you a letter telling you how to arrange this with a nurse at your GP surgery.

Eating and drinking

You can eat and drink as usual after the procedure. However, you may find that you have a reduced appetite. This is normal.

Movement

We will help you to get up and walk around as soon as possible after the procedure.

Moving after the procedure will help to:

- improve your blood circulation
- expand your lungs
- prevent chest infections

We will support you in doing this until you are confident moving around the ward on your own.

To help prevent blood clots, we will give you blood-thinning injections each day you are in the hospital. You will also need to wear compression stockings. If you need any help with moving or deep breathing, speak to a nurse who will contact a physiotherapist for support.

What should I expect when I go home?

When you are ready to go home, we will go through your discharge summary with you and give you aftercare instructions and advice.

We will return any medication you brought into hospital to you (unless it has been stopped by your doctors during your hospital stay). We will also give you a supply of medication. This will include:

- any of your own supply that has run out
- any new tablets that we have started you on (such as pain relief medication or medication for your bowels)

All medication will be labelled with instructions on how and when to take it. Please make sure you understand these instructions before you go home.

You will need to arrange for someone to pick you up from the hospital when you are ready to go home as you will not be able to drive yourself home.

Pain relief medication

You should take pain relief medication regularly. Most people will need to take some form of pain relief medication for two to four weeks after the procedure. Your general practitioner (GP) will be able to prescribe you more pain relief medication if you need it. Please make sure you do not exceed the maximum dose of pain relief medication.

Many pain relief medications can cause constipation, so we often prescribe laxatives (a type of medication that helps to treat constipation) to help with this. We will advise you how and when to take this medication before you go home. We also recommend drinking lots of fluids and eating lots of fruit and vegetables to help with constipation.

Once your pain starts to improve, you can gradually reduce how much pain relief medication you take.

Protecting your sternum (breastbone)
Before you leave hospital, we will teach you how to perform lifting, pushing/pulling (load-bearing) and non-load bearing movements in a way that avoids excessive stress to your sternum. This approach is called 'mindful movement'. We will discuss this approach with you in detail, but the key points are:

At the beginning of your recovery:
- **When lifting (load-bearing activities)**, you may wish to keep your upper arms close to your body, as if you were in an imaginary 'tube'.
- **For non-load bearing activities** such as personal care, there are no limitations - you can move out of the 'tube'.

As your recovery and confidence progresses:
- Be guided by your pain level.
- Listen to your body.
- When lifting, pushing or pulling, you can perform mindful movement outside of the tube, as long as your pain level doesn't increase during the activity.

What are the benefits of moving 'inside the tube'?
Keeping your upper arms inside an imaginary tube means that you will shorten the length of your outstretched arm (lever), reducing pressure on your sternum.

Are there any restrictions on the weight I can lift?
There are no weight restrictions. However, if you experience an increase in pain while you are carrying out a specific activity, you should stop the activity or adjust your arm position (shorten the lever arm by getting closer to the object), keeping in mind the imaginary tube.

Tips
- Be guided by your pain level.
- Build up gradually.
- If an activity doesn't cause an increase in pain, then it is safe for you to do it.

For more information about mindful movement, please see the separate patient information resource we have given you which contains helpful diagrams.

Rest and activities

It is normal to feel tired for the first week or more after you arrive home. It is important that you rest during the day and you should try to go to bed at the same time each night.

We recommend having someone at home with you for the first few days, if possible, to help with heavier housework, such as vacuuming or loading the washing machine.

To help you get back to your normal, it is important to gradually increase your level of activity each day.

Wound care and dressings

It is normal to have some numbness, tingling and pins and needles around your wounds and at the front of your chest. This will settle over time, but it can take several weeks. In rare cases, you may be left with a permanently numb area.

We will place dressings over your wounds after the procedure. These dressings will need to be removed 48 hours after the procedure.

If you have already gone home, you (or a relative or carer) will need to remove these dressings, leaving the wounds exposed.

If your wounds are not clean and dry, you will need to put another clean dressing on. If you have any concerns about your wounds, please contact us for advice.

Your wounds will normally take two to four weeks to heal.

Contact the thoracic nurse specialist or your GP if:
- you are worried about how your wounds are healing
- your wounds become more painful, red, inflamed or start to ooze

Washing
When you shower or bathe, you should:
- use warm water
- make sure there is someone nearby in case you need help
- take care when washing around the wounds
- pat the wound areas dry carefully with a clean towel

You should **not**:
- use very hot water (this may make you feel faint)
- soak the wounds in the water
- put lotions or powder on your wounds until they are fully healed

Driving
You will be able to resume driving once you have stopped taking strong pain relief medication and are comfortably able to sit in a car and perform all the manoeuvres safely (for most people, this is usually three to four weeks after the procedure).

If you find driving difficult because of pain or restrictions in your mobility, you should rest for a few days before trying again.

Returning to work
Most people will need to take approximately six to eight weeks off work after their procedure. However, if your job is very physical (for example, a gardener or labourer), you may need to take a longer time off work.

You will be able to self-certify as sick for seven days. After that, your employer may want to see a medical certificate. Please ask us for a medical certificate (sick note) before you leave hospital. If you need an extended medical certificate, you can speak to your GP.

Future MRI scans
It is usually safe for people with sternal wires to have an MRI scan. However, it is important that if you need to have an MRI scan in the future, you tell the healthcare professional performing the scan that you have sternal wires before going ahead.

When will I receive the results?
It usually takes between 10 and 14 working days for the results to come back from the laboratory. Once the results are back, we will send them to the doctor who referred you for the procedure. Your doctor will then contact you to discuss these and/or arrange a follow-up appointment.

What follow-up care will I receive?
Before you leave hospital, we will advise you if you need a follow-up appointment. This appointment will usually be six to eight weeks after your procedure. We will telephone you to confirm the date and time of this appointment a few weeks before it is due. Please note that this follow-up appointment may be via telephone or face-to-face.

At this follow-up appointment, the surgeon or thoracic nurse specialist will discuss:
- your results
- your procedure
- your recovery
- whether you need any further treatment

You will be able to ask any questions or voice any concerns you have at this appointment.

Contact us

If you have any questions or concerns, please contact us.

Thoracic nurse specialist
Telephone: **023 8120 8457** (Monday to Friday, 8am to 4pm, Saturday, 8am to 1pm)

Outside of these hours, contact:

E4 ward
Telephone: **023 8120 6498** (24-hour line)

Useful links

www.roycastle.org

www.macmillan.org.uk

If you are a patient at one of our hospitals and need this document translated, or in another format such as easy read, large print, Braille or audio, please telephone **0800 484 0135** or email **PFSH@uhs.nhs.uk**

For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalsupport**

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