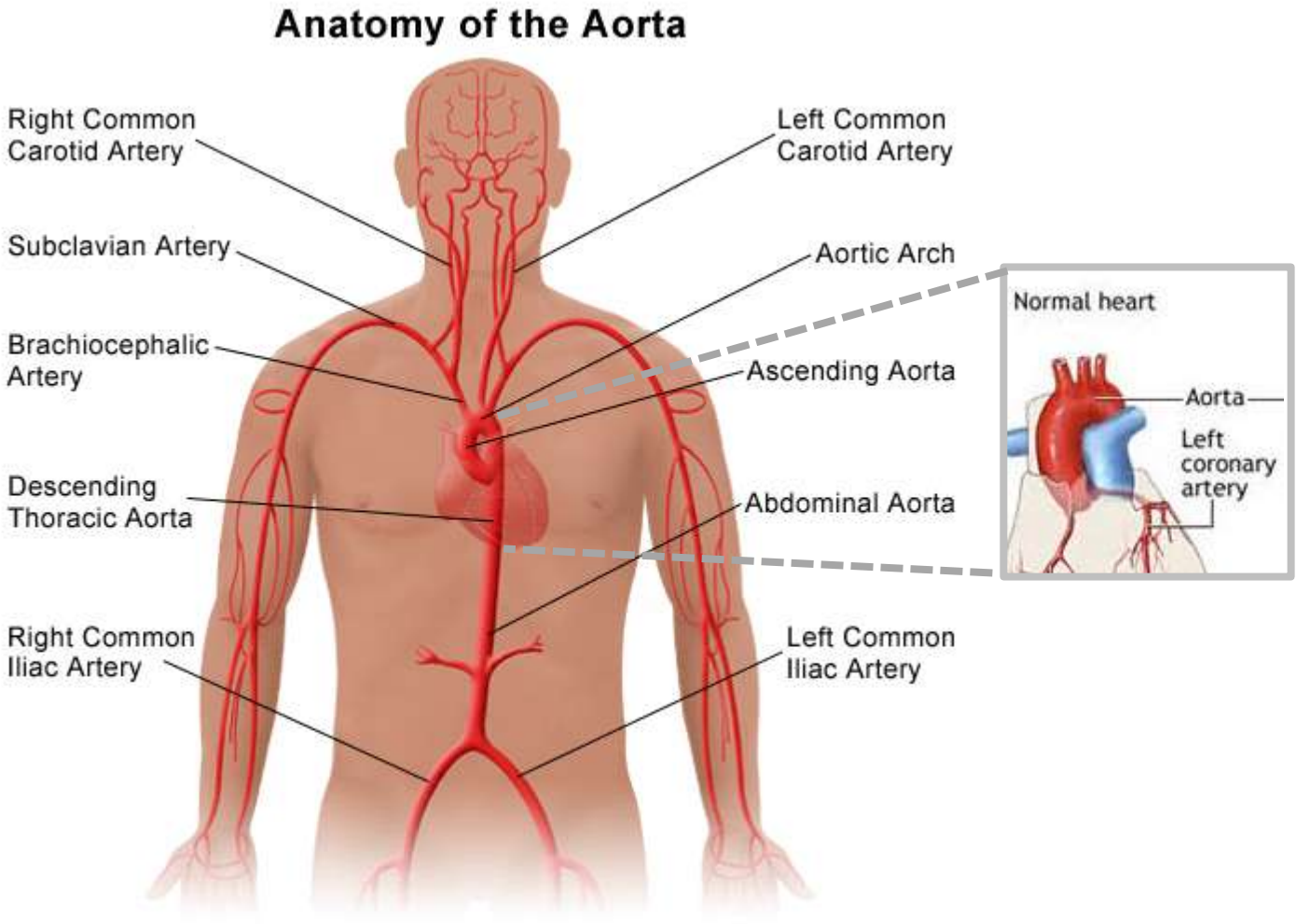
Cardiac Surgery at Belfast Trust

Belfast Health and Social Care Trust

Surgery on the thoracic aorta
Information for patients and their carers

What is the thoracic aorta?

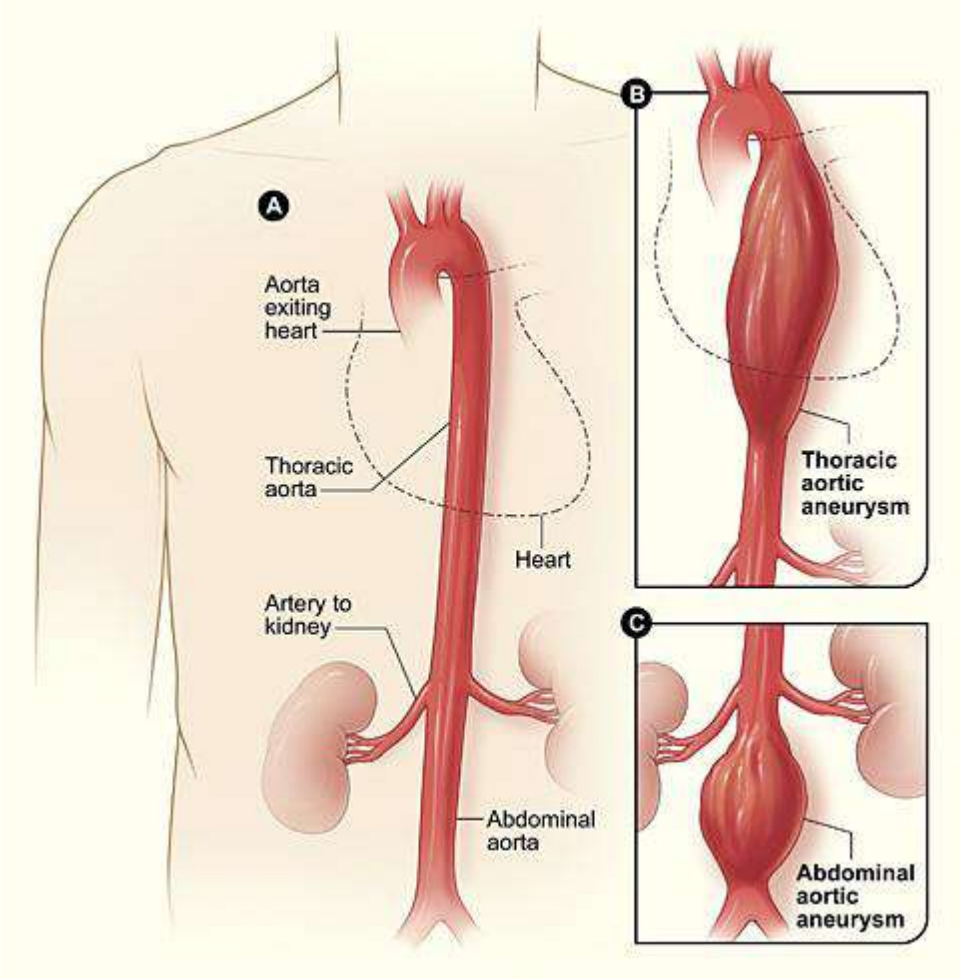
The thoracic aorta is a blood vessel which arises from the heart and takes oxygenated blood to all organs in the body. Branches off this blood vessel are named by the organ which they supply i.e. the Left Coronary Artery branches off the Aorta and supplies the coronary arteries of the heart (see picture below).



Why is it called the thoracic aorta?

When looking at the aorta in the chest it is referred to as the thoracic aorta, when it is below the diaphragm it is called the abdominal aorta. 'Ascending' and 'descending' refer to the course it takes in the thoracic portion i.e. it ascends above the heart giving off the coronary vessels and turns at the 'arch' giving off the innominate artery, left brachiocephalic, left common carotid and then 'descends' to give off branches to the spine and lung before crossing the diaphragm.

What is an aortic aneurysm?



An aneurysm occurs when the blood vessel 'balloons' or expands in one portion. You can see from diagram A, this is the normal shape of the aorta but B and C demonstrate the dilatation seen in a thoracic aortic aneurysm (B) and an abdominal aortic aneurysm (C). It occur's as the result of genetic factor's or because of acquired factors such as high blood pressure.

Is surgery on an aneurysm an emergency?

Surgery performed for repair of an aneurysm can be a planned procedure (elective) or an emergency. The problem with a dilatation of the arterial wall is the weakening that results as the wall of the blood vessel enlarges. This makes it prone to rupture or dissection. When an aneurysm reaches a certain size it is operated on as a planned elective procedure. Emergency operations are offered when the aneurysm ruptures or dissects.

What is an Aortic Dissection?

Any arterial blood vessel such as the thoracic or abdominal aorta has three layers. A dissection is when the innermost layer is torn which allows blood to separate out the intima (innermost layer) and creates a false passageway for blood to travel in. This results in the symptoms of the dissection, which are;

- Severe pain in the center of chest or upper back that has a sudden onset. It may be described as tearing, stabbing, or sharp in character and can be mistaken for a heart attack.
- Pleuritic chest pain (pain when you breathe in). This suggests bleeding into the sac around the heart (pericardial sac).

- Shortness of breath, fainting or syncope, stroke and loss of power in the arms or legs can all sometimes occur although less commonly. These symptoms suggest the dissection has affected the blood vessels supplying the brain, arm or legs or heart itself and means the dissection has developed extensively.
- Sudden death does occur and a certain percentage of people do not make it to hospital for lifesaving treatment.

Who is offered an operation when they have an aortic dissection?

Any patient who presents with a dissection in the ascending portion of the thoracic aorta and has a blood pressure for long enough to make it to theatre will be offered an operation to repair the dissection. Although the risk of the operation is high, the patient is unlikely to survive without an operation.

What risk is involved in having surgery on the thoracic aorta?

Overall in Belfast surgery on the aorta is one of our less commonly performed operations, being performed in just over 10% of all our cases electively. The mortality rate for surgery on all types of heart surgery in Belfast in over 3000 patients operated on from 2010 until 2013 was 2.25%. That means for every 100 patients operated on, 2 patients did not survive. Generally we would expect the mortality rate from an operation on the thoracic aorta when it is a replacement operation to be in the region of 2-3%. However, if the surgery is on the arch of the aorta or because of a dissection this increases the complexity of the surgery. The mortality rate is much higher at 25-50%, especially when it is performed as an emergency. The individual risk profile of every patient will also affect this and the surgeon will be able to explain the chance of survival more specifically to each individual.

In general the risks of having this operation include;

- Death
- Stroke or Heart Attack
- Paraplegia
- Prolonged intensive care stay
- Intra-aortic balloon pump insertion (IABP) to support the heart function
- Chest infection
- Kidney failure
- Arrhythmias of the heart rhythm or impaired conduction system requiring a permanent pace maker
- Wound infection of either the chest or the leg wound
- Fluid around the heart or lungs requiring drain insertion after the operation.

Please note some patients are re-explored on the night of surgery, in the region of 4-5% of patients and this is performed if there is a worry about the blood loss out of the drains after surgery. It is also common for you to have bad dreams or hallucinations after the operation. The doctor looking after you can give you medication for this and it is best to make sure you tell the staff looking after you if this happens.

What scar's am I likely to have after an operation on the thoracic aorta?

In addition to the scars in the chest, you may also have a wound in the groin near the skin crease between the leg and the tummy.

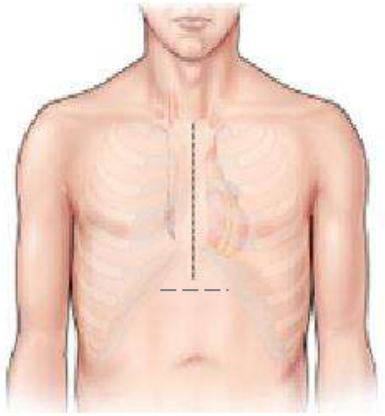


Figure 1: Midline scar with three drain scars at the bottom of the wound

What is the normal recovery?

Normally after surgery on the thoracic aorta you will be monitored in intensive care. This means you leave theatre still under a general anaesthetic and on a ventilator. Once we are happy your heart is recovering and there is no need to return to theatre for blood loss, you will be woken up in the intensive care unit. You should expect to be monitored in the critical care environment for at least 24-48 hours before being transferred back to the ward. Often after this type of surgery it is longer. Once on the ward, you will be encouraged to mobilise, taught how to support your breast bone when coughing and given physiotherapy to aid your rehabilitation. You will be weaned off morphine type painkillers onto more simple paracetamol and codeine and work-up in preparation for going home will be started.

Can I go home if I live alone?

We would normally recommend that someone stays with you for two weeks following heart surgery as you will have low iron stores and may need a hand with day to day activities. We ask that you look after your broken breast bone with no heavy lifting for three months until the bone is healed. If you do not have support please do not worry, we will arrange a placement close to your home for two weeks to aid your recovery. Please inform nursing staff on your admission and the ward social worker will speak with you.

When can I drive and go back to work?

You can drive as soon as your breast bone is strong enough to allow an emergency stop. You do not need to inform the DVLA but should inform your insurers. You should return to work on a phased return. Please remember your heart has been fixed and you are stronger and fitter than before the operation.

How much exercise should I perform once I get home?

We recommend you start slowly and aim to be walking up to a mile a day once you reach the 6 weeks post-operative stage. Exercise, a healthy diet and taking your preventative medication are all important parts of recovery following heart surgery.

Any questions?

If you are unsure about anything in this leaflet, or have any further questions please talk to your consultant.