

*If you have any questions, ask your physician or nurse.*

## Cardiac Surgery: Aortic Dissection

Your care team may have talked about the need for heart surgery with you. This brochure will help you better understand aortic dissection surgery and what to expect. It will explain what an aortic dissection is and the surgeries to treat it.

### Aortic dissection

The aorta is a large artery that carries blood from the heart to the rest of the body. An aortic dissection happens when the innermost layer of the wall in the aorta tears and separates from the other layers. This lets blood enter between the layers of the wall, creating an abnormal “false” channel that the blood travels through. It can cause the aorta to get larger or bulge (aneurysm). It can also cause less blood to flow to the vessels that branch off the aorta to your intestines, kidneys, spinal cord and/or legs. This can damage those organs and parts of your body. An aortic dissection can have serious consequences.

### Treatment

Treatment for aortic dissection depends on the location and extent of the problem. Most often, people with an aortic dissection will need surgery to replace or repair the part of the aorta with the defect. Sometimes an affected heart valve may also need to be replaced or repaired.

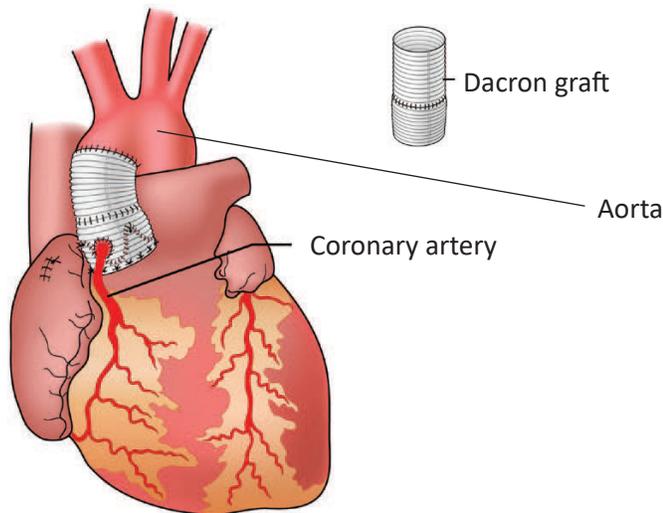
The surgeon may use a hollow, man-made tube called a graft to replace the weakened aortic wall. This graft is made of Dacron®, which is a strong material and heals well in the body.

Your physician will talk with you about the best treatment option for you.

### Aortic root replacement

If there is a dissection of the aortic root, the surgeon will replace that part of the aorta with a Dacron graft. The coronary arteries that come from the aortic root are re-implanted on the side of the graft (Figure 1).

**Figure 1. Aortic root replacement**



Your surgeon may be able to fix, rather than replace, your aortic valve. The surgeon can do valve-sparing aortic root replacement surgery by:

- Reshaping the valve
- Tightening the valve
- Making the valve more stable

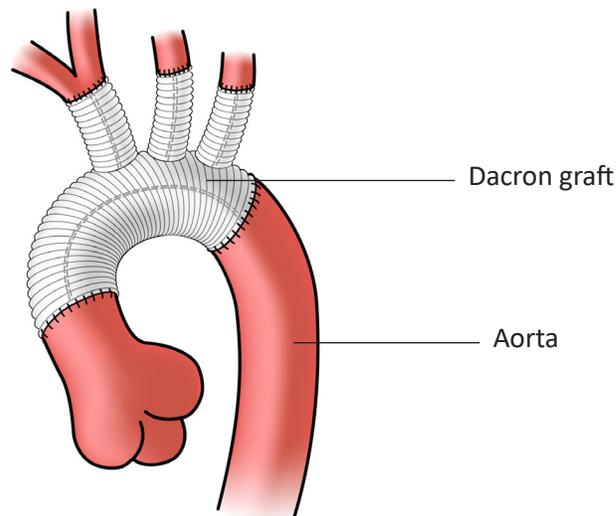
If they cannot fix your aortic valve, they will replace it.

### **Aortic arch replacement**

If the problem is in your aortic arch, the surgeon may replace it with a Dacron graft (Figure 2).

During this surgery, the surgical team will stop blood flow to your brain for a short time. They will protect your brain by cooling your body during the surgery. This helps reduce the risk of stroke or damage to your brain.

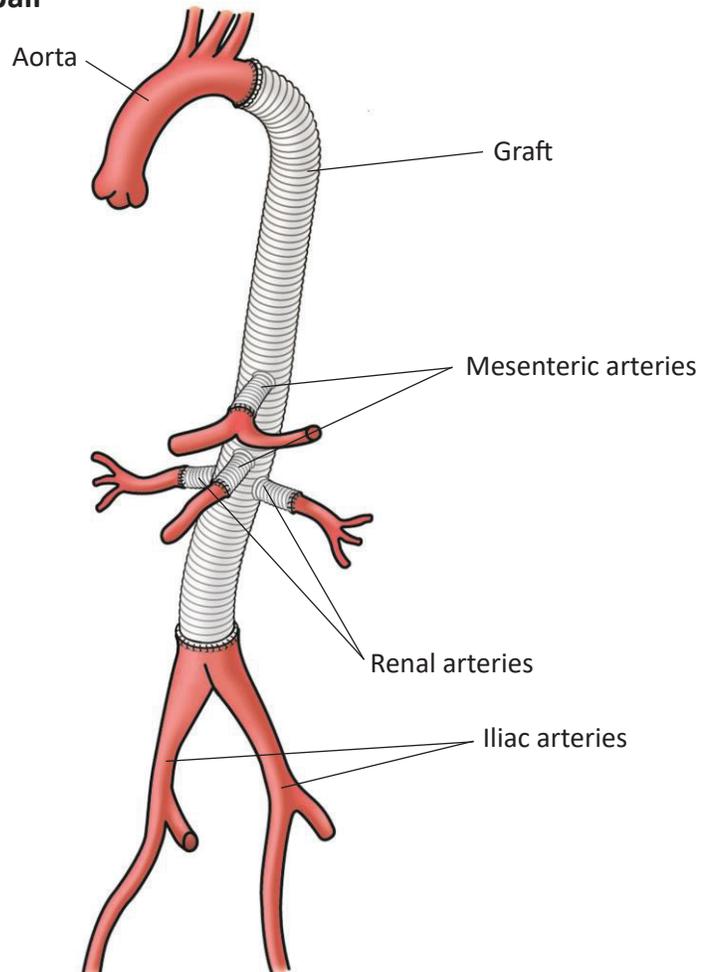
**Figure 2. Aortic arch replacement**



## Descending thoracic aortic and thoracoabdominal aortic repair

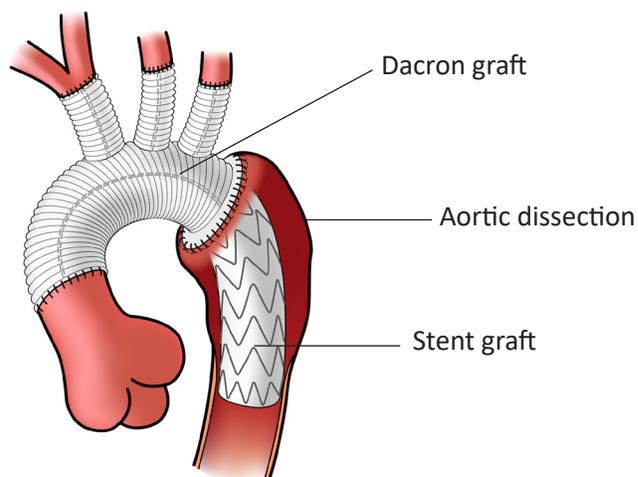
In this surgery, the surgeon will use a Dacron graft to fix a dissection in the descending thoracic aorta (Figure 3).

**Figure 3. Thoracoabdominal aortic repair**



They may use what is known as the elephant trunk procedure to treat complex dissections that involve both the ascending aorta and descending aorta (Figure 4).

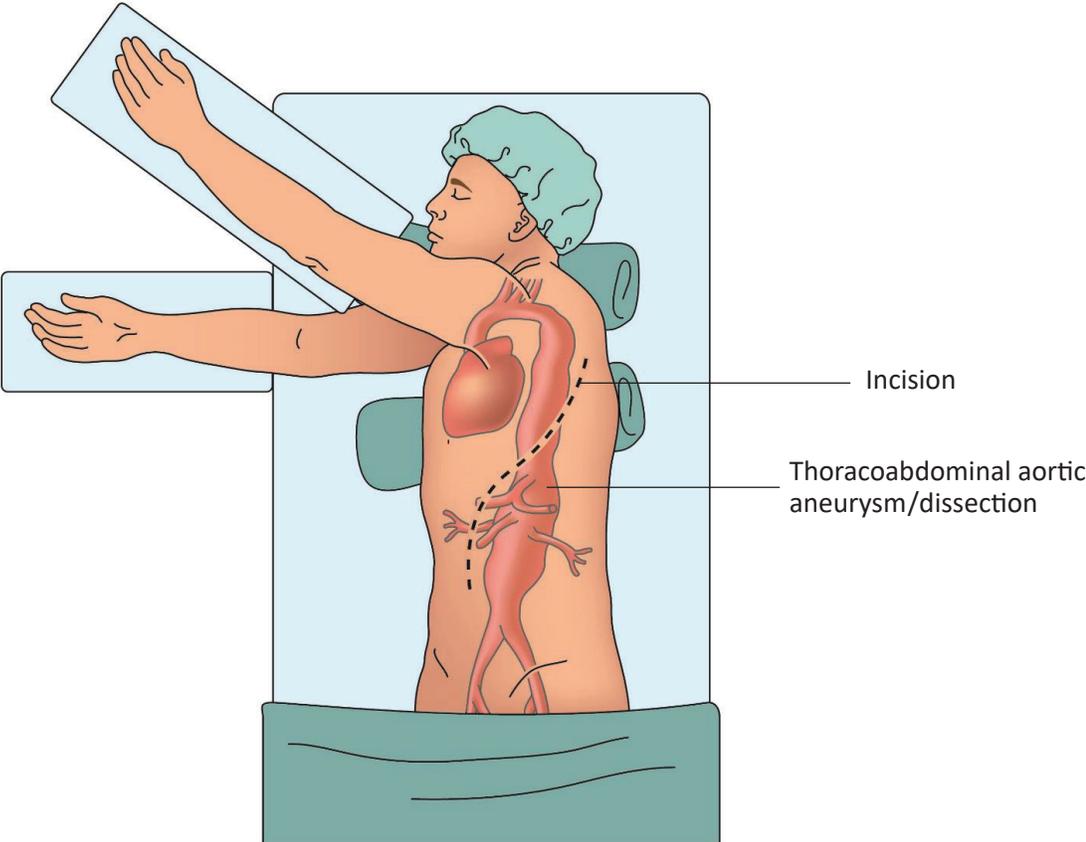
**Figure 4. Elephant trunk procedure**



For descending thoracic aorta or thoracoabdominal aorta surgery, the surgeon will make the incision (cut) in the left side of your chest (Figure 5). They will separate the muscles between your ribs (thoracotomy) to get to the aorta. The surgeon may also make an incision in your groin if they will use a heart-lung machine.

After they fix your aorta, they will close the chest and use stitches that dissolve as you heal. They may put a drain in your back to remove spinal fluid to reduce pressure in the spinal cord.

**Figure 5. Surgical incision**

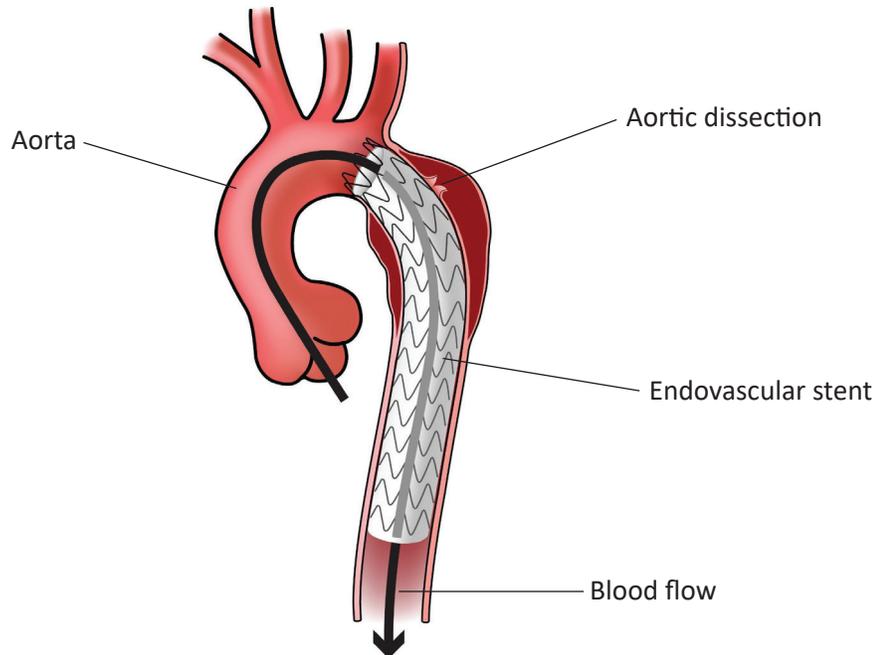


**Thoracic endovascular aortic repair**

For endovascular (inside the blood vessel) surgery, the surgeon will make only small incisions in your groin. The surgeon uses special instruments and X-rays to guide the repair through your femoral artery (large artery in the thigh) into the aorta.

They may use a stent graft to fix a descending thoracic aortic dissection. The surgeon puts this type of graft inside the damaged aorta and expands it to fit snugly in place (Figure 6). The surgeon then closes the incisions with stitches that dissolve as you heal.

**Figure 6. Thoracic endovascular aortic repair**



### **Aortic surgery risks**

Every surgery has some risks. The amount of risk depends on factors such as your age and overall health. Aortic surgery risks include bleeding, infection, and lung or heart problems. In rare cases, stroke or spinal cord injury may occur. Your surgeon will talk with you about your individual risks in more detail.

Please talk with your cardiologist or surgeon if you have any questions or concerns. Call 312.NM.HEART (312.695.4965), TTY: 711, to reach Northwestern Medicine Bluhm Cardiovascular Institute.