

Medtronic



Endovascular
Stent Grafts:
A treatment for
Thoracic Aortic
Disease

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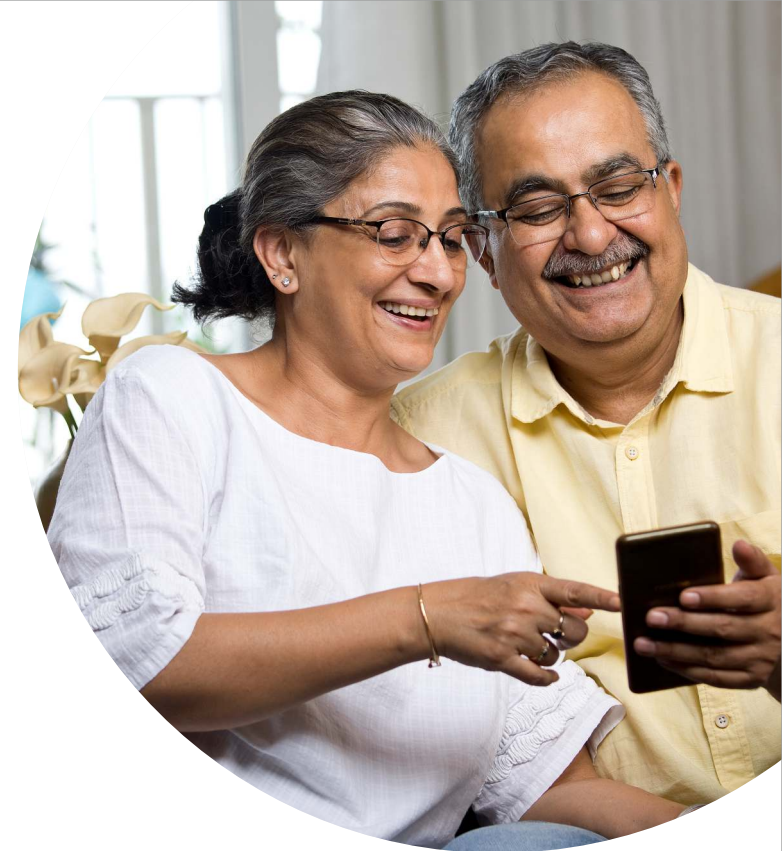
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Patient Information Booklet

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Introduction

This educational information is provided to help you understand thoracic stent grafts as a method of treating lesions of the thoracic aorta.

Only a physician can determine whether you are a good candidate for the procedure.

Anatomy of the thoracic aorta

The aorta is the largest artery in the body. An artery is a blood vessel that carries blood away from the heart to the rest of the body. The thoracic aorta is the section of the aorta that is located within the chest, in front of the spine. It normally has a diameter (width) between 2 and 3.5 cm, although this diameter naturally increases slightly with age.

The thoracic aorta has several important arteries which branch off it and provide blood to the heart, brain, head, and spinal cord (see Figure 1).

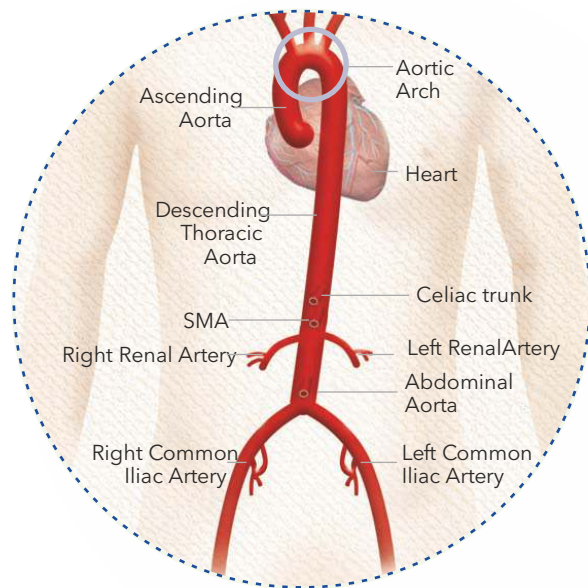


Figure 1

Diseases of the thoracic aorta

Though their incidences are infrequent, there are several conditions that can affect the integrity or elasticity of the aortic wall : aging, atherosclerosis, chronic hypertension, chest injury and genetically inherited conditions. As a result, the aortic wall loses its strength and could potentially leak, or worse, rupture due to the blood pressure. The main diseases of the aorta include aneurysms, dissections, traumatic ruptures (for example, after a traffic accident), ulcers, intramural hematomas, and fistulas.

An aneurysm is a localised bulge or ballooning of a weakened area of a blood vessel (see Figure 2).

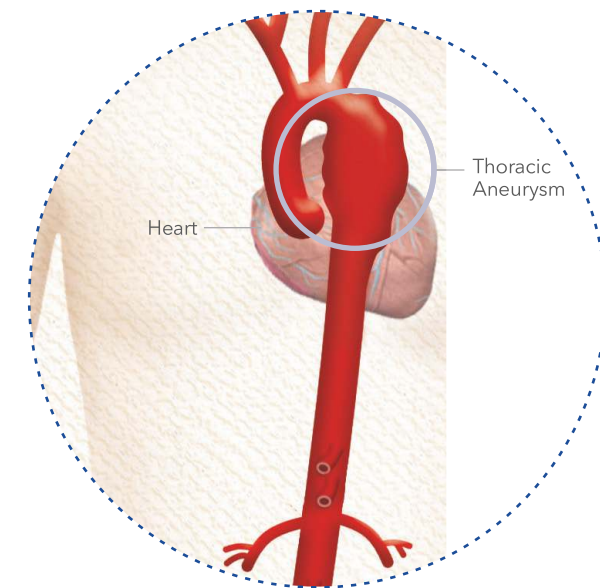


Figure 2

Diseases of the thoracic aorta

An Aortic dissection refers to an abnormal separation of the layers of the wall of the aorta.

Aortic dissection occurs when blood leaves its "channel" through a small tear in the aortic wall. It then forms a new channel between the inner and outer walls of the aorta (see Figure 3).

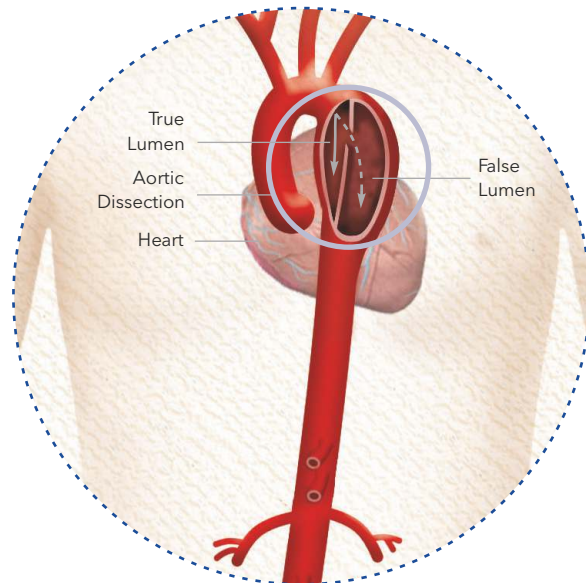


Figure 3

What is a thoracic stent graft?

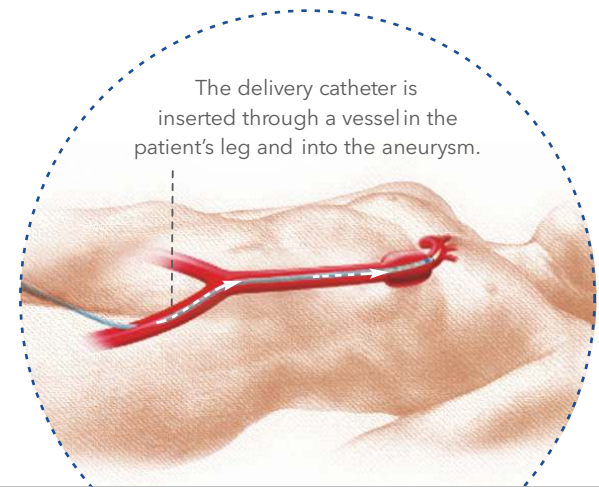
A thoracic stent graft consists of a synthetic tube supported by a metal skeleton (see Figure 4).

A thoracic stent graft is designed to exclude the diseased portion of the aorta and reinforce the weakened wall. It greatly reduces the rupture risk and restores the blood flow to its normal channel. The stent graft comes inside a delivery catheter, a long, tube-like device used to transport and release the stent graft. After deployment of the stent graft, the delivery catheter is removed from the body (see Figure 6).



The delivery catheter is inserted through a vessel in the patient's leg and into the aneurysm.

Figure 5



How is the stent graft procedure performed?

The procedure is performed using either regional (e.g. via epidural) or general anesthesia. Before the procedure, several exams are performed that let the doctor see the lesion and the area around it. To prepare for the procedure, a small incision is made in the upper thigh area to allow access of the stent graft delivery catheter. Using fluoroscopy (X-rays) for guidance, the delivery system catheter is advanced through the large vessel in your thigh to the diseased section of the thoracic aorta (see Figure 5).

When the delivery catheter is properly positioned in the blood vessel, the thoracic stent graft is released and expands to its proper size. Depending on the shape and size of your lesion, more stent grafts may be placed. The procedure typically takes one to three hours to complete. Hospital stay is typically two to four days and a stay in the intensive care unit may not be necessary.

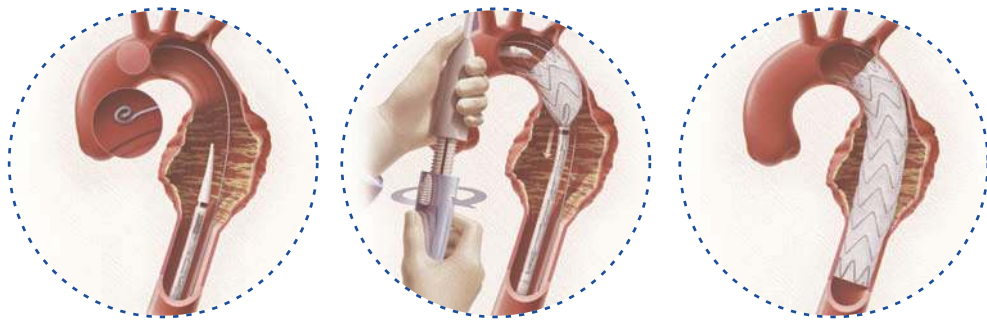


Figure 6

Follow-up after the procedure

After receiving the thoracic stent graft, your doctor will ask you to return for follow-up a few times during the first year, and at least once each year for the rest of your life. At each of these appointments, you may receive a CT scan or other imaging exams. The purpose of the visit is to check that the stent graft is still properly placed and that the aorta does not develop some new disease. In some cases, your doctor may discover during one of the follow-up visits that an additional procedure is required.

When should I call my doctor?

If you experience any of the following symptoms, contact your doctor immediately: Pain, numbness, coldness, weakness or loss of sensation in the legs. Any back, chest, abdominal or groin pain. Dizziness, fainting, rapid heartbeat or sudden weakness.

Questions you might ask your doctor

- [Is a stent graft implantation painful ?](#)

Thoracic stent graft implantation is not painful; local or general anesthesia will prevent any pain at the level of the groin. There are no nerves in the arteries, and so no pain can be felt. Some patients have reported feeling discomfort for the first few days after the procedure.

- [What is the risk of rupture with a stent graft?](#)

The risk of rupture is not increased with a stent graft. Studies show good long term treatment results in preventing rupture, but it is important to adhere to your physician's recommendation on follow-up visits.

- What are the other risks associated with a stent graft procedure?

Other risks include complications such as stroke and paraplegia, but these are rare. There are also risks of damage to the access vessels, or other risks related to the anesthesia or iodine injection. For most patients, the benefit of treatment exceeds the risks of complications. If the doctor decides to perform the procedure, the benefit of treatment largely exceeds the risk of complication. For all risks, talk to your physician.

- After the procedure, how often will I need to see my doctor?

During the first year after the implantation, you will see your doctor two or three times. Unless you have any symptoms, you will then have to come back at least once a year for check up.

- What follow-up tests will be needed?

Tests such as a CT scan or MRI are often performed. Chest X-ray or Ultrasound may also be used.

- Will I have to limit my activities after the treatment? If so, for how long?

At discharge, most patients should limit activities for 1 month to let the wound on the groin heal. Afterwards, returning to normal level of activity is then often recommended, but you should check with your physician.

- How long can the stent graft remain implanted inside my body?

Stent grafts are made of the same types of materials used in other medical implants that have remained in patients' bodies for many years. There are now patients who have been living with a stent graft for more than 8 years.

- Am I safe having an MRI exam after having a stent graft implanted?

Most stent grafts are compatible with MRI. Ask your physician for additional information.

Glossary

Aneurysm: A bulging or “ballooning” of a weakened area of a blood vessel.

Aorta: The main trunk of the arterial system of the body.

Atherosclerosis: Disease of the arterial wall caused by the deposit of fatty material.

Celiac trunk: Artery that feeds the liver and the spleen.

CT scan: A series of computerized X-rays that is used to form a picture of your aneurysm and adjacent blood vessels.

Delivery catheter: A long tube-like device, of about 8mm diameter, that assists in the placement of the stent graft within the blood vessels.

Dissection: Abnormal separation of the layers of the wall of an artery.

Endovascular: Inside the vessel.

Exclude: Shut off or remove from the main part.

Femoral Artery: The artery in the thigh that connects to the iliac artery, which in turn connects to the aorta. The delivery system for stent grafts is usually inserted via the femoral artery.

Fistula: An abnormal tubelike passage from a normal cavity or tube to a free surface or to another cavity (e.g. a tube leading from inside to outside the thoracic aorta).

Fluoroscopy: A real-time X-ray image that is viewed on a monitor.

Hypertension: Elevated blood pressure.

Iliac Artery: The artery that connects the aorta to the femoral artery.

Intra-mural hematoma: Collection of blood within the aortic wall.

Lesion: An area of disease-altered tissue.

Lumen: The space surrounded by a tubular structure or hollow organ (e.g. blood vessel).

MRI (Magnetic Resonance Image): An image of the inside of the body created by using strong magnetic fields.

Occlusion: The closure or state of being closed. Usually refers to blood vessels that have become closed or blocked.

Renal artery: Artery that feeds the kidneys.

Rupture: A tear in the vessel wall.

SMA (Superior Mesenteric Artery): Artery that feeds the intestines.

Thoracic Stent Graft: A synthetic tube graft supported by a metal skeleton, designed to exclude the diseased portion of the aorta and reinforce the weakened call.

Thrombus: A blood clot which may obstruct a blood vessel or a cavity of the heart.

Ulcer: Inflammatory lesion of the internal layer of the aortic wall.

Ultrasound image: An image created through the use of high-frequency sound waves.