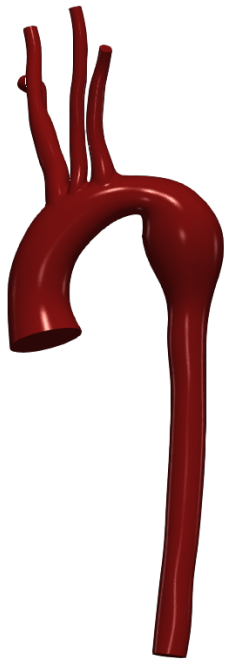
Vascular Model Repository Specifications Document



0021_H_AO_MFS

Legacy Name: 0129_0000

Model added: 27 Dec 2021

Species	Human
Anatomy	Aorta
Disease	Marfan Syndrome
Procedure	None

Clinical Significance and Background

Aorta

The largest blood vessel and the primary artery of the human body, the aorta is responsible for carrying oxygenated blood pumped from the heart to the rest of the body. The aorta is divided into four sections: the ascending aorta, the aortic arch, the thoracic aorta, and the abdominal aorta.

The ascending aorta starts at the left ventricle of the heart where at the root, it supplies blood to the heart muscle through the coronary arteries. From the aortic root, the ascending aorta continues to rise until it reaches the aortic arch.

The aortic arch loops over the bifurcation of the pulmonary trunk and has three major artery branches leaving through the top: the brachiocephalic trunk, the left common carotid artery, and the left subclavian artery. The brachiocephalic trunk sends blood to the right side of the brain and right arm/neck/chest while the left common carotid artery sends blood to the left side of the brain and the left subclavian artery sends blood to the left arm/neck/chest.

After the aortic arch, the aorta begins to descend to the abdomen. The section of the descending aorta that starts after the aortic arch and ends at the diaphragm is called the thoracic aorta, and it supplies blood to the chest and spinal cord.

The last section of the aorta, the abdominal aorta, starts at the diaphragm and ends just above the pelvis. This section is responsible for supplying blood to the stomach, kidneys, liver, and intestines. Past the abdominal aorta, the artery branches into two separate iliac arteries, one for each leg, and both iliac arteries are responsible for supplying oxygenated blood to the legs and lower half of the body.

Marfan Syndrome

Marfan syndrome is an inherited disorder that affects connective tissue, also known as the fibers that support and anchor your organs and other structures in your body. Marfan syndrome most commonly affects the heart, eyes, blood vessels, and skeleton. The most dangerous complications of Marfan syndrome involve the heart and blood vessels. Faulty connective tissue can weaken the aorta, the large artery that arises from the heart and supplies blood to the body. Marfan syndrome can lead to aortic

aneurysms, aortic dissection, and valve deformations.

The pressure of blood leaving your heart can cause an aortic aneurysm where the wall of your aorta bulges out, like a weak spot in a tire. In people who have Marfan syndrome, this is most likely to happen at the aortic root where the artery leaves your heart.

The wall of the aorta is made up of layers. Aortic dissection occurs when a small tear in the innermost layer of the aorta wall allows blood to squeeze between the inner and outer layers of the wall. This can cause severe pain in the chest or back. An aortic dissection weakens the vessel structure and can result in a rupture, which may be fatal.

People who have Marfan syndrome can have weak tissue in their heart valves. This can produce stretching of the valve tissue and abnormal valve function. When heart valves do not work properly, your heart often has to work harder to compensate. This can eventually lead to heart failure.

Clinical Data

General Patient Data

Age (yrs)	18
Sex	Male

Specific Patient Data

Weight (kg)	59
Height (m)	185.42
Heart Rate (beats/min)	51
P sys SP cuff	110
P sys DP cuff	67

Notes

See below for information on the image data.

Image Modality: CT

Image Type:	VTI
Image Source:	STAN
Image Manufacturer:	GE MEDICAL SYSTEMS

Publications

There are no publications associated with the featured model.

License