

Vascular Model Repository

Specifications Document



0076_H_CORO_CAD

Legacy Name: 0189_0001

Model added: 27 Dec 2021

Species	Human
Anatomy	Coronary
Disease	Coronary Artery Disease
Procedure	Coronary Artery Bypass Graft

Clinical Significance and Background

Coronary

Just like every tissue in the body, the heart itself also requires oxygenated blood to function. The coronary arteries supply blood to the heart and stem from the root of the ascending aorta. The two main coronary arteries are the left main and right coronary arteries, and they wrap around the outside of the heart.

The left main coronary artery (LCMA) supplies blood to the left side of the heart muscle and divides into two branches: the left anterior descending (LAD) artery and the left circumflex (LCX) artery which supply blood to the front left and outer backside of the heart respectively.

The right coronary artery (RCA) supplies blood to the right ventricle, the right atrium, and the SA (sinoatrial) and AV (atrioventricular) nodes, which regulate the heart rhythm. Together with the left anterior descending artery, the right coronary artery also helps supply blood to the middle or septum of the heart.

Coronary Artery Disease

Coronary artery disease (CAD) is a type of heart disease where the arteries of the heart cannot deliver enough oxygen-rich blood to the heart. It is often caused by cholesterol, a waxy substance that builds up inside the lining of the coronary arteries forming plaque. This buildup can partially or totally block blood flow in the large arteries of the heart. Coronary artery disease is a very common heart condition with the most common symptoms being shortness of breath and angina (chest pain). If left unchecked, a serious case of CAD could result in a complete blockage of the coronary arteries which causes a heart attack.

Coronary Artery Bypass Graft

Coronary artery bypass graft surgery (CABG) is a procedure used to treat coronary artery disease. One way to treat the blocked or narrowed arteries is to bypass the blocked portion of the coronary artery with a piece of a healthy blood vessel from elsewhere in your body. Blood vessels, or grafts, used for the bypass procedure may be pieces of a vein from your leg or an artery in your chest. An artery from your wrist may also be used. Your doctor attaches one end of the graft above the blockage and the other end below the blockage. Blood bypasses the blockage by going through the

new graft to reach the heart muscle.

Clinical Data

General Patient Data

Age (yrs)	72
Sex	Female

Specific Patient Data

Heart Rate (beats/min)	46
Stroke Volume (mL)	80

Notes

See below for information on the image data.

Image Modality: CT

Image Type: VTI

Image Source: UCSD

Image Manufacturer: GE MEDICAL SYSTEMS

Publications

There are no publications associated with the featured model.

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AND/OR

N.M. Wilson, A.K. Ortiz, and A.B. Johnson, "The Vascular Model Repository: A Public Resource of Medical Imaging Data and Blood Flow Simulation Results," J. Med. Devices 7(4), 040923 (Dec 05, 2013) doi:10.1115/1.4025983.

AND/OR

Reference the official website for this data: www.vascularmodel.com

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