Vascular Model Repository Specifications Document

0188_0001

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

Clinical Significance and Background

Coronary

Coronary arteries supply blood to the heart muscle. Like all other tissues in the body, the heart muscle needs oxygen-rich blood to function. Also, oxygen-depleted blood must be carried away. The coronary arteries wrap around the outside of the heart. Small branches dive into the heart muscle to bring it blood. The two main coronary arteries are the left main and right coronary arteries.

The left main coronary artery (LCMA) supplies blood to the left side of the heart muscle (the left ventricle and left atrium). The left main coronary then divides into branches: The left anterior descending artery which supplies blood to the front of the left side of the heart and the circumflex artery which encircles the heart muscle supplies blood to the outer side and back of the heart.

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. The right coronary artery divides into smaller branches, including the right posterior descending artery and the acute marginal artery. Together with the left anterior descending artery, the right coronary artery helps supply blood to the middle or septum of the heart.

Coronary Heart Disease

Coronary heart disease is a type of heart disease where the arteries of the heart cannot deliver enough oxygen-rich blood to the heart. The cause of coronary heart disease depends on the type. Coronary artery disease 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 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)	50
Sex	Female

Specific Patient Data

Heart Rate (beats/min)	62
Stroke Volume (mL)	61

Notes

- See below for information on the image data and boundary conditions associated with the model.

Image Modality: CT

Image Type: DICOM

Image Source: UCSD

Image Manufacturer: GE MEDICAL SYSTEMS

Publications

There are no publications associated with the featured model.

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