

Vascular Model Repository

Specifications Document



0141_1001

| | |
|------------------|--------------|
| Species | Human |
| Anatomy | Aortofemoral |
| Disease | Aneurysm |
| Procedure | - |

Clinical Significance and Background

Aortofemoral

The largest blood vessel and the human body's primary artery, the aorta is responsible for carrying oxygenated blood pumped from the heart to 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 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, which are responsible for supplying oxygenated blood to the legs and lower half of the body.

Each iliac artery, in turn proceeds to branch into the external and internal iliac arteries, the former of which then becomes the main femoral artery. Again, the femoral arteries are a major component in supplying oxygenated blood to the legs and lower body. When the femoral arteries are included with the abdominal aorta, the whole system is referred to as the aortofemoral system.

Aneurysm

An aneurysm is a bulge in a blood vessel caused by a weakness in the blood vessel wall, usually where it branches. As blood passes through the weakened blood vessel, the blood pressure causes a small area to bulge outwards like a balloon. Most aneurysms do not show symptoms and are not dangerous. However, at their most severe stage, some can rupture, leading to life-threatening internal bleeding.

Clinical Data

General Patient Data

| | |
|-----------|------|
| Age (yrs) | 64 |
| Sex | Male |

Specific Patient Data

| | |
|-------------|------|
| Height (m) | 1.8 |
| Weight (kg) | 70.3 |

| | |
|------------------------|-----|
| P sys SP cuff | 130 |
| P sys DP cuff | 82 |
| Heart Rate (beats/min) | 76 |

Notes

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

Image Modality: CT

Image Type: DICOM

Image Source: MARQ

Image Manufacturer: SIEMENS

Publications

See the following publications which include the featured model for more details:

Ana K Ortiz, Ali A Aleiou, John F LaDisa, Nathan M Wilson (2013) A Sampling of Patients with Abdominal Aortic Aneurysms from a Public Repository of Image-based Computational Models and Subject-specific Blood Flow Simulation Results, BMES Midwest Biomedical Engineering Career Conference

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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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