Vascular Model Repository Specifications Document

0147_1001

Species	Human
Anatomy	Aortofemoral
Disease	Aneurysm
Procedure	-

Clinical Significance and Background

Aortofemoral

The abdominal aorta runs from the diaphragm and ends just above the pelvis, where it divides into the iliac arteries. There are five arteries that branch from the abdominal aorta: the celiac artery, the superior mesenteric artery, the inferior mesenteric artery, the renal arteries and the iliac arteries. The celiac artery provides blood to the stomach, liver and pancreas; the superior mesenteric artery supplies blood to the small intestine; the inferior mesenteric artery supplies blood to the large intestine; and the renal arteries provide blood to the kidneys as well as the muscles of the abdominal wall and the lower spinal cord. The end of the abdominal aorta branches into the iliac arteries, which supply blood to the legs and the organs in the pelvis.

Each of the iliac arteries then branch and lead into the femoral artery, which is the main blood vessel supplying blood to the lower body. The femoral artery starts in the upper thigh, near the groin and runs down to the back of the knee. The function of the femoral artery and its branches is to supply the lower body with blood. 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)	63
Sex	Male

Specific Patient Data

Height (m)	1.6
Weight (kg)	70.3

P sys SP cuff	140
P sys DP cuff	80
Heart Rate (beats/min)	90

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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