

# Dual Source CT Coronary CTA in a Patient with Previous Allogenic Heart Transplantation and a Heart Rate of 102 Beats/Minute

## SOMATOM Definition Cardiac scanning

Johannes Rixe, MD, PD Thorsten Dill, MD, Department of Cardiology, Kerckhoff-Clinic, Bad Nauheim, Germany

### HISTORY

A 66-year-old male patient who had undergone allogenic heart transplantation 16 years ago was referred to non-invasive coronary angiography for the exclusion of significant coronary artery stenoses.

### DIAGNOSIS

The mean heart rate during examination was 102 beats per minute (bpm), no administration of beta blockers was performed prior to the scan.

After calculation of the contrast transit time using a test bolus approach, coronary CT-Angiography was performed in craniocaudal direction injecting 65 ml of iodine contrast agent followed by a 50 ml saline chaser, both at 5 ml/s. Due to the relatively high heart rate a pitch of 0.39 was chosen, resulting in scan time of 7 seconds.

A systolic reconstruction at 40 % of the RR-cycle provided the artifact-free visualization and allowed the exclusion of significant stenoses and plaque burden in the Left Artery Descending and the Ramus Circumflex. Even the Right Coronary Artery, which is frequently affected by motion artifacts at heart rates of more than 60 bpm, could be visualized in its entire course without artifacts.

### COMMENTS

In conclusion, this case confirms the ability of DSCT to visualize coronary artery lumina without motion artifacts independent from the patient's heart rate and without precedent heart rate lowering medication.

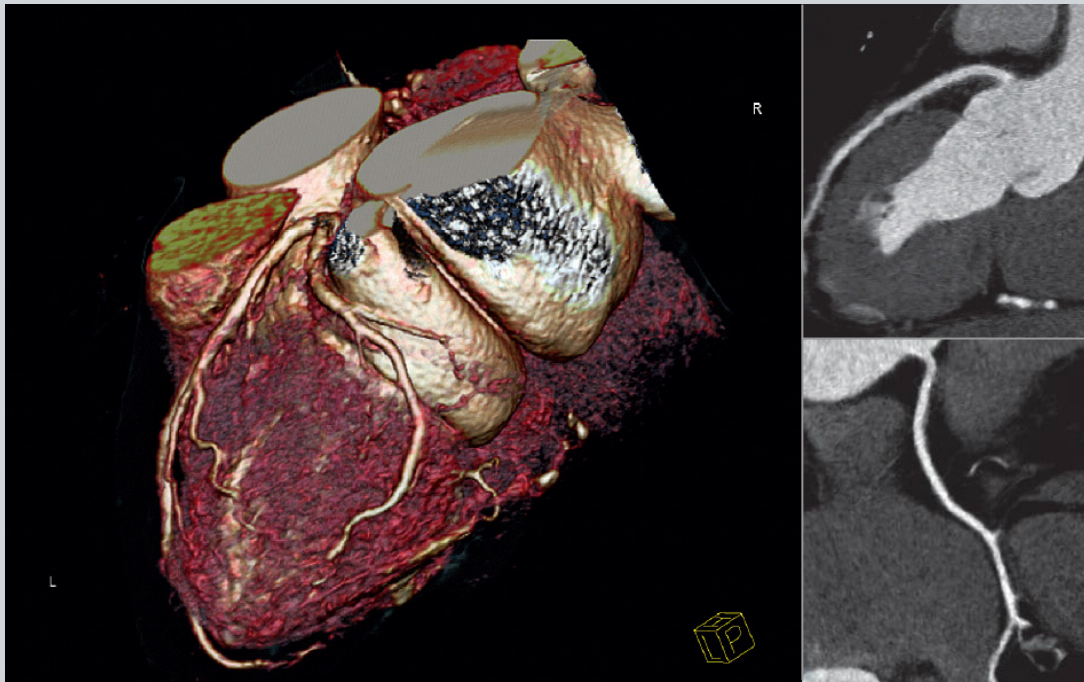


Fig 1: Artefact-free VRT visualization of Left Artery Descending and Ramus Circumflex (left). Exclusion of significant stenoses and plaque burden in Left Artery Descending (upper right) and right coronary artery (lower right).

## EXAMINATION PROTOCOL

<b>Scanner</b>	<b>SOMATOM Definition</b>
<b>Scan area</b>	<i>Heart</i>
<b>Scan length</b>	<i>140 mm</i>
<b>Scan time</b>	<i>7 s</i>
<b>Scan direction</b>	<i>Cranio-caudal</i>
<b>kV</b>	<i>120 kV</i>
<b>Rotation time</b>	<i>0.33 s</i>
<b>Slice collimation</b>	<i>0.6 mm</i>
<b>Reconstructed slice thickness</b>	<i>0.6 mm</i>
<b>Spatial Resolution</b>	<i>0.33 mm</i>
<b>Contrast Amount</b>	<i>65 ml Enhance / 50ml NaCl</i>
<b>Contrast Flow rate</b>	<i>5 ml/sec</i>

The information presented in this case study is for illustration only and is not intended to be relied upon by the reader for instruction as to the practice of medicine. Any health care practitioner reading this information is reminded that they must use their own learning, training and expertise in dealing with their individual patients. This material does not substitute for that duty and is not intended by Siemens Medical Systems to be used for any purpose in that regard.

The drugs and doses mentioned herein are consistent with the approval labelling for uses and/or indications of the drug. The treating physician bears the sole responsibility for the diagnosis and treatment of patients, including drugs and doses prescribed in connection with such use. The Operating Instructions must always be strictly followed when operating the CT System. The source for the technical data is the corresponding data sheets. Results may vary.