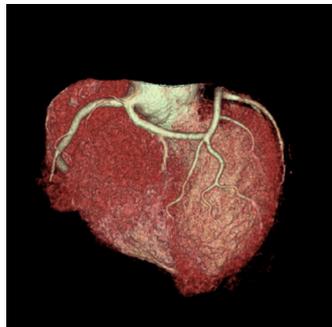
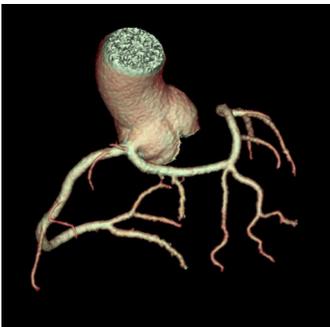
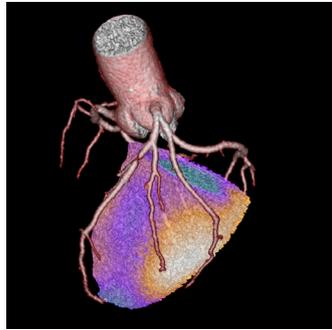
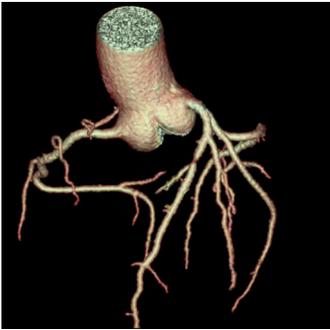


Case study

Low-dose and High-resolution Cardiac Imaging with Revolution™ CT



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Case 1

Detailed and Reliable Stenosis Detection in One Heart Beat

Patient history

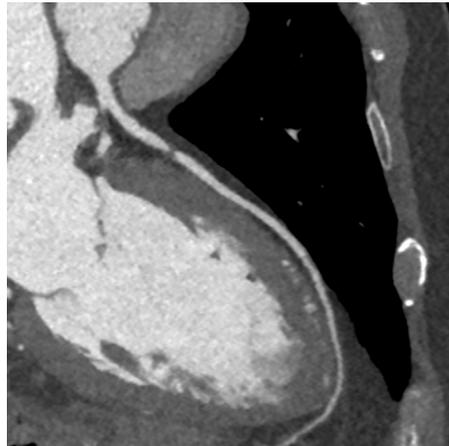
A man in his 60s complaining of typical angina pectoris and status after TIA was referred to coronary CT angiography after an exercise test clinically positive and electrically negative.

Acquisition

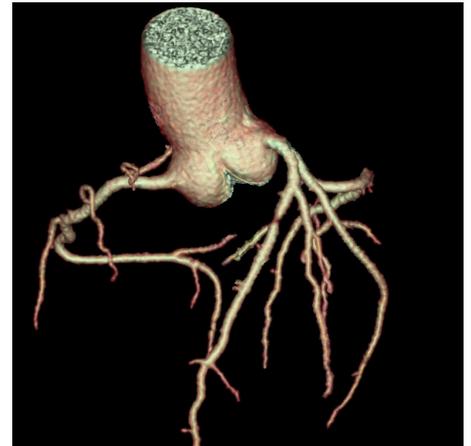
One-beat cardiac acquisition:

- **160 mm axial scanning** with ECG gating
- 100 kV and 270 mA
- 75% acquisition peak
- BMI: 25
- ASiR-V™¹ to lower dose
- 0.28 sec rotation speed
- Heart rate: 46-48 BPM
- **DLP 45 mGy-cm**
- **0.63 mSv²**
- **Exposure time: 0.28 sec**

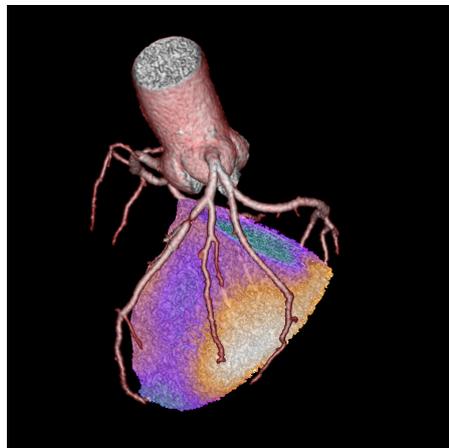
Results



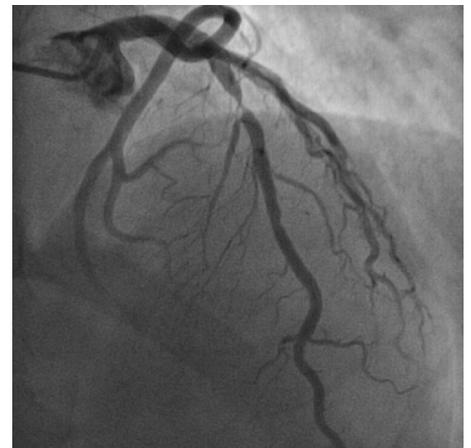
Curved - LAD



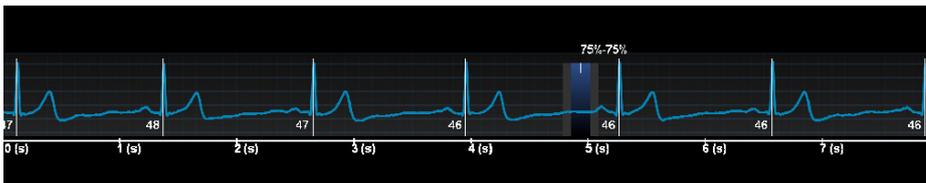
3D - Coronary Tree



SPECT Hybrid



Coronary angiogram



Conclusion

In this patient with a calcium score of 0, a subtotal occlusion of the LAD (90-99 %) could be visualized on the CT images.

Correspondingly, SPECT revealed a large reversible perfusion defect in the anterior wall. The patient underwent coronary angiogram where the diagnosis was confirmed and stenting of the lesion was performed.

“ Thanks to the one-beat axial acquisition, the new iterative reconstruction technology ASiR-V and the high image quality at low kV, Revolution CT delivers cardiac CT with excellent soft plaque differentiation at very low dose in routine use. ”

Dr. Ronny R. Buechel

Case 2

Rapid Exclusion of CAD with Ultra-low-dose CCTA

Patient history

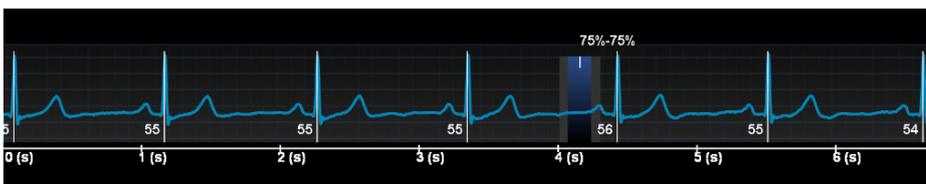
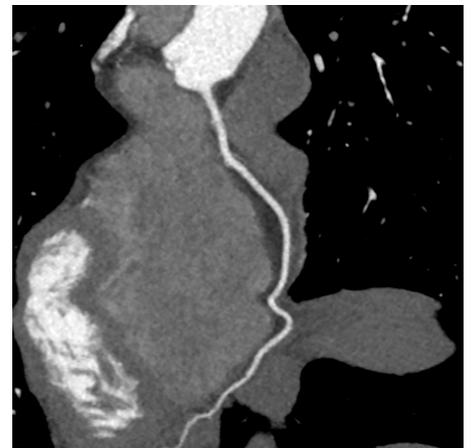
A woman in her 60s, with no cardiovascular risk factors, but complaining of exercise dependent, atypical chest pain was referred to coronary CT angiography after an exercise test clinically positive and electrically negative.

Acquisition

One-beat cardiac acquisition:

- **160 mm axial scanning** with ECG gating
- 80 kV and 180 mA
- BMI: 17
- ASiR-V¹ to lower dose
- 0.28 sec rotation speed
- Heart rate: 56 BPM
- 40 cc of contrast media (320 mg I/ml) including SmartPrep phase triggering
- **DLP 14 mGy-cm**
- **0.19 mSv²**
- **Exposure time: 0.28 sec**

Results



Conclusion

Thanks to the 160 mm coverage and ASiR-V the exam was performed with ultra-low dose and very low iodine load to exclude CAD.

“ On the first 100 cardiac CT exams that we performed, we achieved an average dose of 0.5 mSv, thanks to the one-beat axial acquisition, the new iterative reconstruction technology ASiR-V and the high image quality at low kV. ”

Prof. Dr. Philipp A. Kaufmann

Case 3

Congenital Anomalous Course of Left Coronary Artery

Patient history

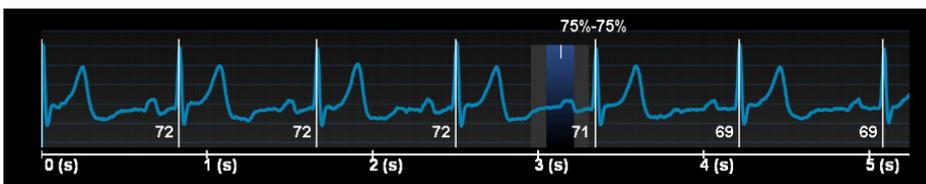
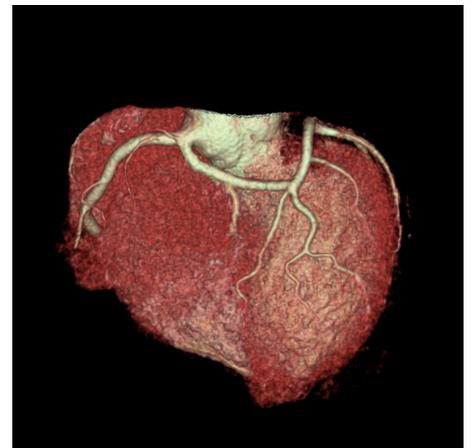
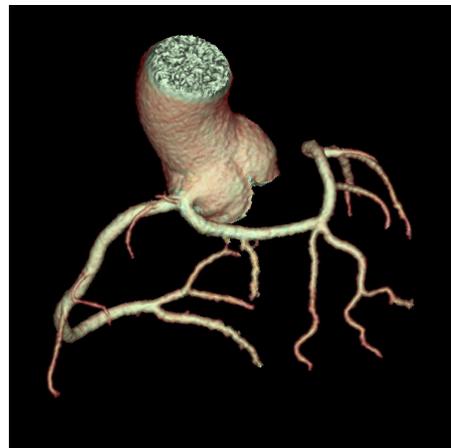
A man in his 40s with elevated coronary risk profile and atypical chest pain was referred to CT for risk stratification.

Acquisition

One-beat cardiac acquisition:

- **160 mm axial scanning** with ECG gating
- 100 kV and 256 mA
- BMI: 26
- ASiR-V¹ to lower dose
- 0.28 sec rotation speed
- Heart rate: 69-72 BPM
- **DLP 37 mGy-cm**
- **0.52 mSv²**
- **Exposure time: 0.28 sec**

Results



Conclusion

This congenital anomaly of the left coronary artery reveals a joint origin of the LMA and RCA from the right coronary cusp with interarterial course of the left main artery.

This rare anomaly is associated with sudden cardiac death particularly during strenuous exercise.

For further evaluation a myocardial SPECT with exercise stress testing is planned to evaluate the relevance of the finding in this particular case.

“ Thanks to the one-beat cardiac acquisition and ASiR-V, a confident and reproducible diagnosis of coronary arteries can be performed with very low dose, even at high heart rates.

Dr. Fran Mikulicic

”



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GE imagination at work

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The clinical cases are displayed for educational purposes only and for the benefit of healthcare students and professionals.

¹In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice.

A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

²Obtained using a chest factor of 0.014*DLP

Legal Mentions : The system is intended to produce cross-sectional images of the body by computer reconstruction of x-ray transmission projection data from the same axial plane taken at different angles. The system has the capability to image whole organs in a single rotation. Whole organs include but are not limited to brain, heart, liver, kidney, pancreas, etc..

The system may acquire data using Axial, Cine, Helical, Cardiac, and Gated CT scan techniques from patients of all ages. These images may be obtained either with or without contrast. This device may include signal analysis and display equipment, patient and equipment supports, components and accessories.

Class: IIb - Manufacturer: GE Medical Systems LLC, USA - LNE/G-MED - NB 0459 - GMDN 37618.

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