Computed Tomographic Imaging of Anomalous Coronary Arteries

To the Editor:

Ropers et al. present a series of images demonstrating that the proximal course of anomalous left main and left anterior descending coronary arteries originating from the right sinus of Valsalva can be visualized by electron beam computed tomography. We are writing to communicate that more widely available, retrospectively gated multislice computed tomography (MSCT) of the heart can be used to similar effect.

For example, we recently examined a 34-year-old hypertensive smoker who was referred for evaluation of atypical chest pain and equivocal results on exercise technetium Tc-99m sestamibi scanning. Coronary angiography showed a single coronary artery, without significant stenosis, originating from the right coronary cusp. The proximal course of the left anterior descending and circumflex coronary arteries relative to the great vessels could not be established with certainty.

MSCT scanning was performed (VolumeZoom, Siemens Medical Systems), enhanced by 140 mL of nonionic contrast material injected at 2.5 mL/s. The patient’s heart rate was 57 bpm after oral administration of 100 mg of metoprolol 90 minutes before the scan. The image data were reconstructed to 1.25-mm slice thickness and gated retrospectively to a 250-ms time window, beginning 400 ms before the subsequent R-wave. The tomographic images and volume rendering unequivocally showed the anomalous left anterior descending coronary artery to course in front of the pulmonary artery and the anomalous circumflex coronary artery, behind the aorta. Therefore, referral for coronary artery bypass surgery was not needed. Instead, the patient received counseling on coronary risk factor modification and was begun on a trial of proton-pump inhibition.

Thomas C. Gerber, MD
Ronald S. Kuzo, MD
Robert E. Safford, MD, PhD
Mayo Clinic
Jacksonville, Fla

Response

The letter by Dr. Gerber and colleagues regarding our article provides an interesting description of the potential of multislice spiral computed tomography (CT) for the diagnosis of a coronary artery anomaly. In fact, the use of various tomographic imaging techniques for the diagnosis and evaluation of coronary anomalies has been described before. These techniques include electron beam tomography, multislice spiral CT, and MRI. There are no sufficient data to prove the superiority of any of these techniques, and large, comparative trials will be difficult to conduct, given the very low prevalence of coronary anomalies.

The interesting aspect in the letter by Gerber et al. is the fact that it clearly highlights the potential of noninvasive coronary imaging to lead to treatment decisions in patients with known or suspected coronary anomalies. It adds further substance to the notion that cross-sectional imaging will probably prove to be the gold standard for the exact definition of the course of anomalous coronary arteries.

Dieter Ropers, MD
Karsten Pohle, MD
Ralph Maeffert, MD
Matthias Regenfus, MD
Werner Moshage, MD
Werner G. Daniel, MD
Stephan Achenbach, MD
Department of Internal Medicine II
University of Erlangen-Nuernberg
Erlangen, Germany
E-mail dieter.ropers@rzmail.uni-erlangen.de

Gisbert Gehling, MD
Peter Schuster, MD
Department of Internal Medicine II
St Marien Hospital Siegen
Siegen, Germany

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