Computed Tomographic Angiography (CTA) of the Coronary Arteries

UNIVERSITY RADIOLOGY GROUP PC

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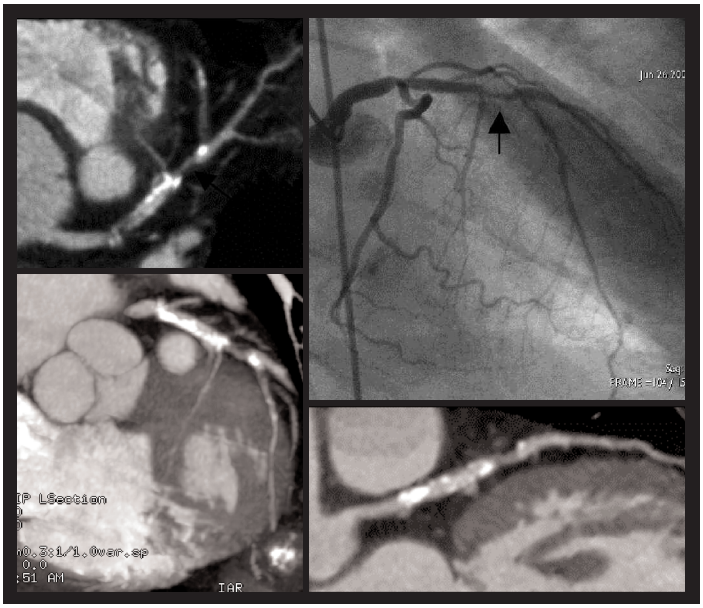

Figure 1: Three CTA images showing severely atherosclerotic LAD with a significant stenosis indicated by the arrow. The conventional angiogram, top right, is shown for comparison.

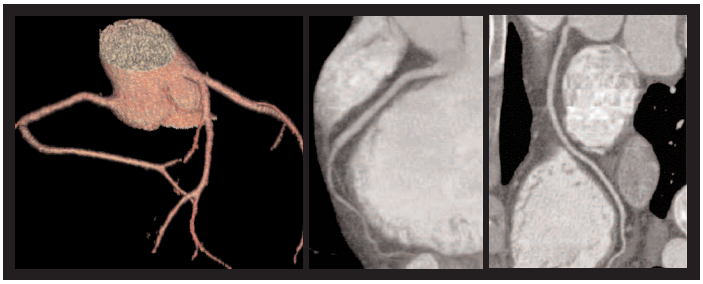

Figure 2: Three CTA images of a normal right coronary artery and posterior descending artery.

What is CT Angiography?

CT Angiography of the coronary arteries offers a non-invasive method to directly evaluate the coronary arteries for atherosclerosis. Until recently, the coronary arteries could not be accurately assessed due to their small caliber and cardiac motion. Multislice CT scanners, the latest technological advance in CT imaging, can scan many times faster than conventional single slice CT scanners. Using cardiac gating, we are able to acquire images of the coronary arteries near end diastole when the heart is motionless.

What does CT Angiography require?

Through an antecubital vein, patients are given an intravenous injection of iodinated contrast, just like a standard CT scan. The CT scan is timed to acquire images when the contrast reaches the coronary arteries. To increase accuracy, the patient's heart rate should be less than 60 beats per minute. We achieve this by beta blocking the patient's prior to the exam. Additionally, the patients must be in normal sinus rhythm.

How accurate is this test?

Initial studies with state-of-the-art multislice scanners reveal sensitivities of 92-95% and specificities from 86-93% in predicting stenosis > 50%. In one of these studies, the negative predictive value was 97%.

Who should have this test?

Given the high negative predictive value, CT Angiography is useful to exclude significant coronary artery disease in patients with low probability of disease. In addition, this test should be considered for patients with:

- Atypical chest pain
- Equivocal stress tests/sestamibi tests
- Risk factors not warranting an invasive coronary catheterization
- Cardiac bypass grafts to evaluate patency
- Cardiac stents to evaluate patency of the stents

Where can I get more information?

If you have any questions or comments, Dr. Mark Bramwit would be happy to discuss them with you. He can be reached by calling 800-758-5545.

Appointments for CT Angiography can be scheduled by calling 800-758-5545.