**Special points of interest:**

- There are many situations requiring "to rule out coronary artery disease"

- All tests that are traditionally performed are **"indirect methods"** for assessing this issue

- 64-slice cardiac CT is the only non-invasive modality that accurate, **"directly"** depicts coronary artery anatomy and pathology

- The accuracy of 64-slice CT in assessing normality is greater than 97%

More reading & viewing

- More references discussing and more cases showing the use of cardiac CT at **www.ctcardiac.com**
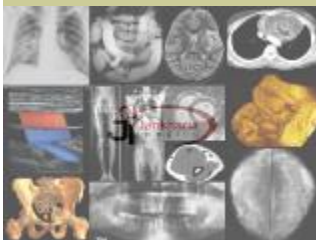
To R/O Coronary Artery Disease

There are many situations where it is necessary "to rule out coronary artery disease". These include the following indications

- Family h/o coronary artery disease

- High triglyceride levels

- Diabetes

- Atypical chest pain

- Pre-adult congenital heart disease or cardiac tumor surgery

- Pre-major surgery in adults over the age of 50

- Smoking

Many tests are performed "to rule out coronary artery disease". These include ECG, treadmill stress test, stress thallium, dobtamine stress echo and dobutamine stress MRI. All these tests are **indirect** tests that assess changes in myocardial perfusion, electrical conduction or contractility to look for normality or coronary artery disease.

64-slice cardiac CT is the only non-invasive modality, short of a conventional catheter angiogram, that **directly** allows us to accurately depict coronary artery anatomy and pathology.
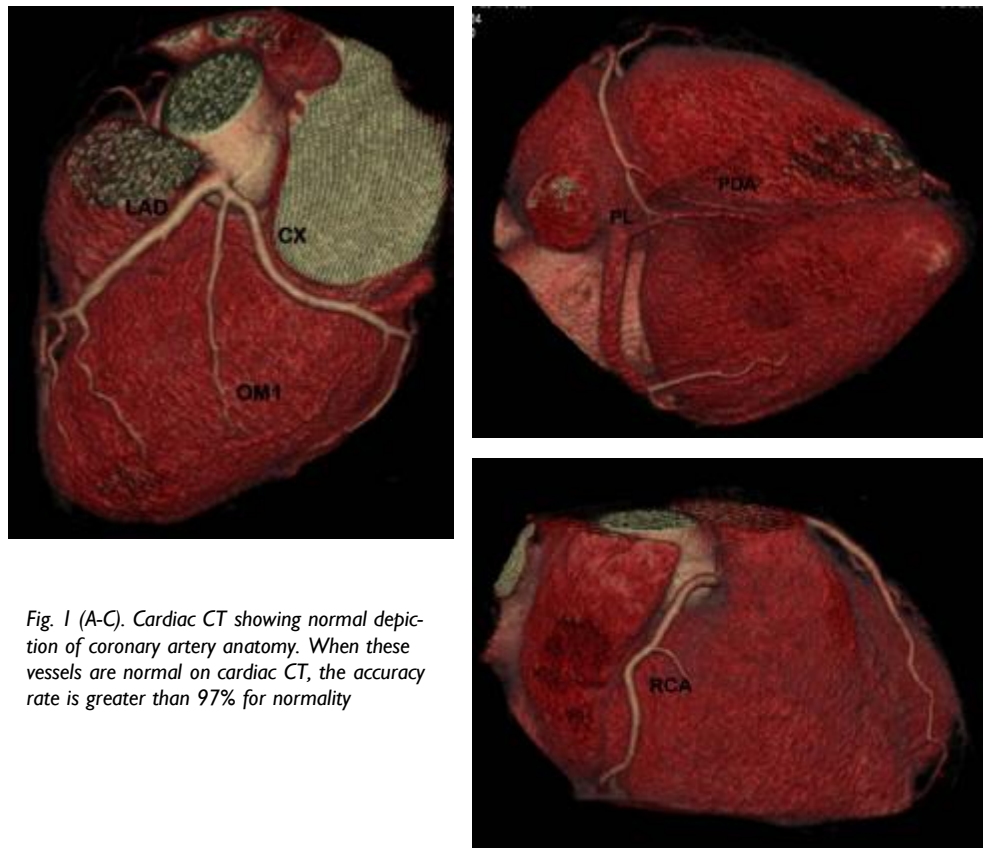
Fig. 1 (A-C). Cardiac CT showing normal depiction of coronary artery anatomy. When these vessels are normal on cardiac CT, the accuracy rate is greater than 97% for normality

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Numerous studies [1,2] have now shown that the predictive value of cardiac CT for assessing normality, is above 97%. In effect, 64-slice cardiac CT is far superior to any indirect method when the question is "to rule out coronary artery disease"

Cardiac CT also has the unique ability to assess plaques, especially soft plaques, which are usually not directly seen even on catheter angiography. The presence of soft plaques without significant stenosis is a great motivator for patients to institute life style changes and to take statins regularly.
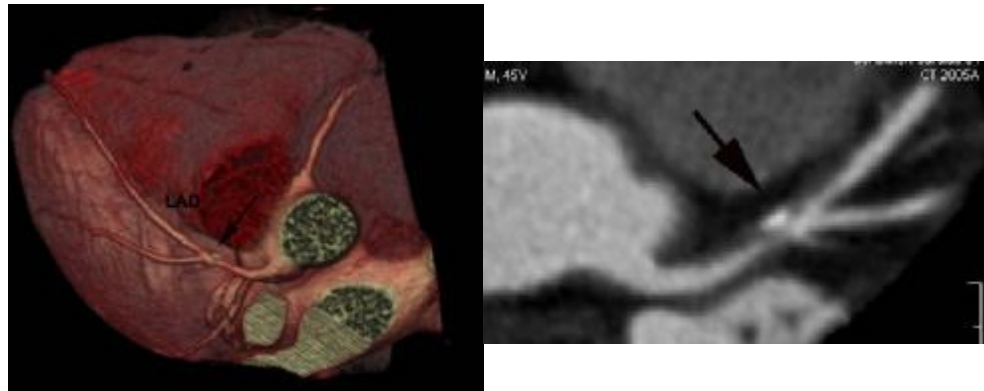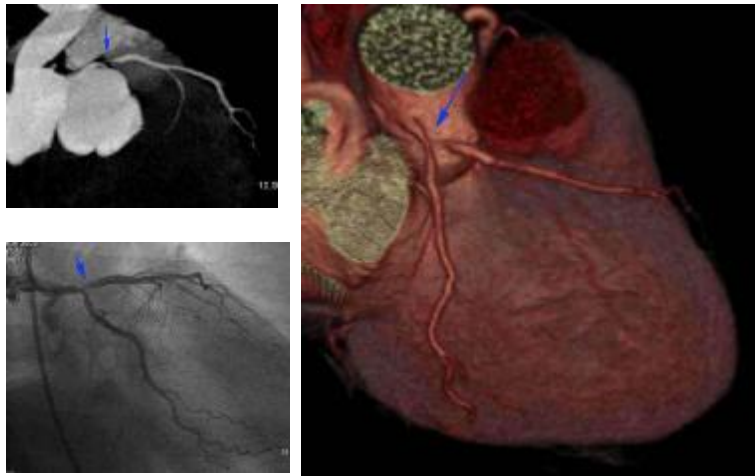

Fig. 2 (A, B). A long segment soft plaque with a calcific focus involving the LAD (black arrow). This is a 45-years old asymptomatic man with a strong family history of coronary artery disease. The rest of the coronary vessels are normal, except for the plaque involving the LAD. There is no significant stenosis, but the lesion was a strong motivator for the patient to make significant life style changes

Stenotic lesions are also well visualized, though there is a discrepancy of about 10-15% in the extent of stenosis as measured on cardiac CT and on conventional angiography. In the presence of calcified plaques, this discrepancy may go up by another 10-15%.

Fig. 3 (A-C): This patient, with a strong family history, had an episode of chest pain a month ago with an equivocal stress test. The cardiac CT shows a severe stenotic lesion in the proximal LAD (blue arrows), which was confirmed on the catheter angiogram (C) and the patient was successfully stented.

REFERENCES:
1. Leschka et al. Eur Heart J 2005; 26: 1482
2. Leber et al. JACC 2005; 46: 147

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