

A rare, life-threatening effort angina and anomalous origin of the left circumflex coronary artery: CT and SPECT findings

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DESCRIPTION

In July 2012, a 63-year-old man presented with effort angina occurring in a predictable fashion. He worked as a porter and when carrying heavy loads, angina with palpitations and feeling loss of consciousness, suggested prodromal symptoms of syncope owing to arrhythmia. Stress/rest thallium-201 single-photon emission cardiac tomography (SPECT) revealed inferior and septal wall reversible defects (ischaemia) without ST-depression at peak during a bicycle maximal exercise test. Cardiac CT documented an anomalous origin of the left circumflex coronary artery (ACXCA) arising from the right sinus of Valsalva with an extramural course between the aorta and the left atrium (figure 1).¹ The angina aetiology was mainly caused by the transient coronary flow reduction elicited by the systolic compression of the ACXCA that is produced by the aorta and the left atrium at peak exercise. In addition, the finding of hypoplastic right coronary artery (RCA) and myocardial bridge over the first diagonal branch (D1) contribute to the coronary reserve worsening during stress exercise (figure 2).² The patient was treated with slow-release metoprolol, 200 mg was given once daily for 4 months and stress/rest SPECT was repeated. Metoprolol reduced the myocardial oxygen consumption, ACXCA systolic compression and thus

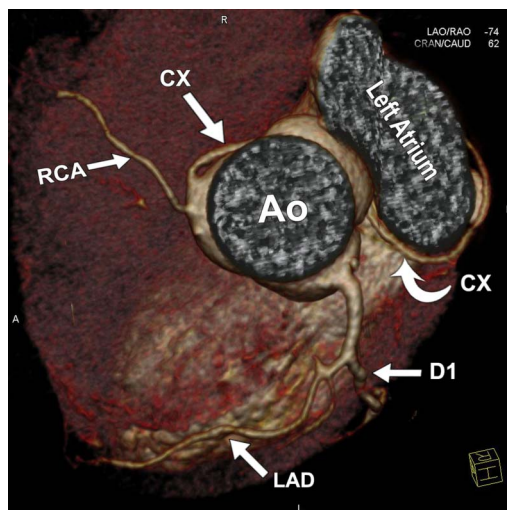


Figure 1 Volume-rendered cardiac CT images indicates extramural anomalous origin of the left circumflex (CX) coronary artery arising independently from the right sinus of Valsalva and with retroaortic course between the aortic root (Ao) and the left atrium; hypoplastic right coronary artery (RCA). Left anterior descending coronary artery (LAD) with a myocardial bridge over the first diagonal branch (D1).

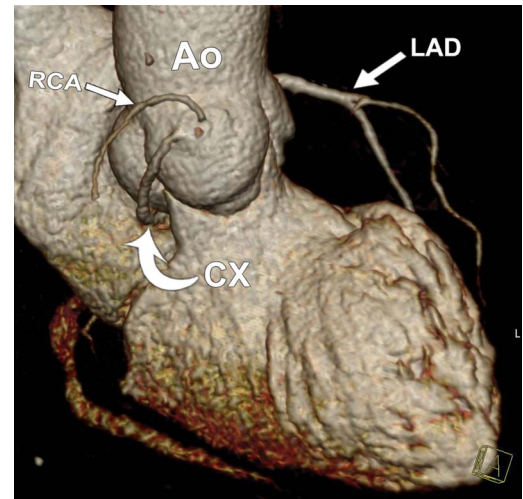


Figure 2 The right oblique volume-rendered reconstruction better delineate the independent origin of the left circumflex coronary artery (CX) from the right sinus of Valsalva and its course between the aortic root and the left atrium. Hypoplastic right coronary artery (RCA) and the left anterior descending coronary artery (LAD).

provided the release of the exercise-induced ischaemia on SPECT (figure 3). The β -blocker therapy thus protects this patient from myocardial ischaemia, myocardial infarction³ and sudden death during daily activities. Combined cardiac CT and SPECT were thus crucial techniques in determining mechanisms and proper therapy of this rare and life-threatening effort angina.

Learning points

- ▶ Myocardial ischaemia may be caused by anomalous origin of the left circumflex coronary artery with retroaortic course and hypoplastic coronary arteries.
- ▶ Cardiac CT has been established as an excellent non-invasive test to identify and classify congenital coronary anomalies.
- ▶ Stress/rest single-photon emission cardiac tomography may assess the efficacy of the medical treatment.

Contributors GPC wrote the manuscript, PS produced the CT images and revised the manuscript.

Competing interests None.

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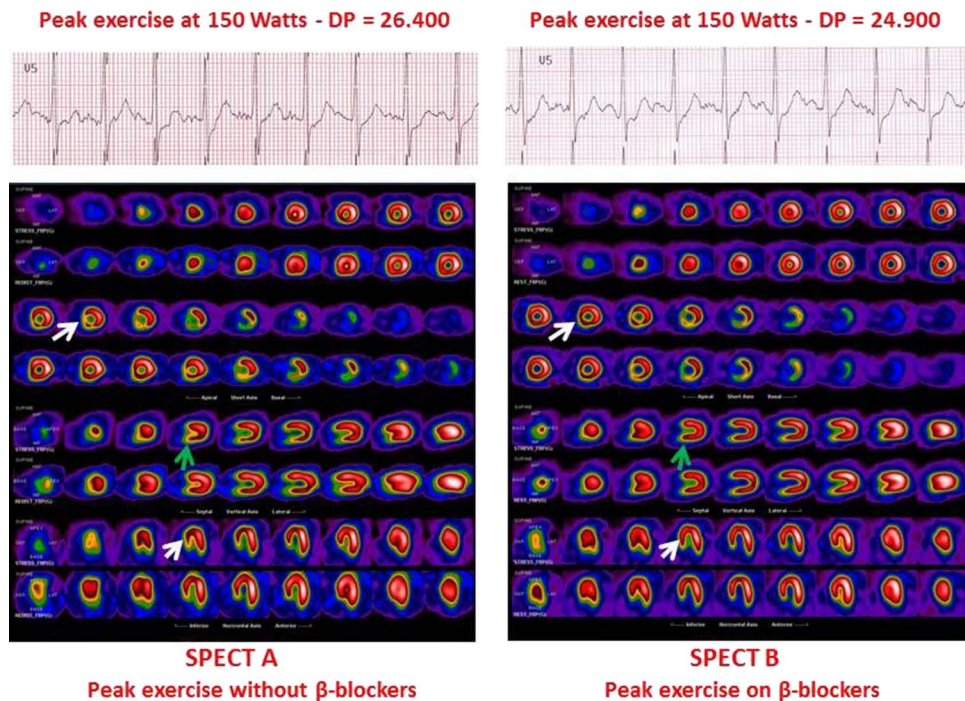


Figure 3 Stress/rest thallium-201 single-photon emission cardiac tomography before (SPECT A) and after (SPECT B) therapy. Reversible perfusion defects, septal (white arrows) and inferior (green arrow). DP, double product.

Patient consent Obtained.

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