

Anomalous Origin of the Coronary Arteries

CASE 1

Detection of the anomalous origin of the circumflex artery from the pulmonary artery through non-invasive methods.

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A 35 year-old patient with no cardiovascular risk factors, who presents with effort angina. The angiotomography (performed with a 64-multislice dual-source cardiac CT scanner Phillips Brilliance MX 8000 –dual CT 64 scanner–, with cardiac shot synchronized with ECG) corroborated the anomalous origin of the circumflex artery (Figure 1). Surgery was decided due to detection of ischemia in the circumflex artery territory with functional test, and circumflex artery ostium was reimplanted. The patient progressed with no complications.

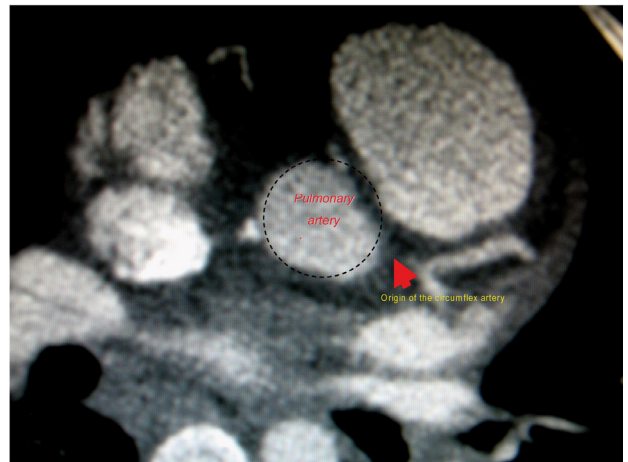


Fig. 1. Angiotomography showing the anomalous origin of the circumflex artery from the pulmonary artery.

CASE 2

Origin of the right coronary artery from the left coronary sinus

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A 65 year old male patient, with controlled hypertension as the only coronary risk factor, who presents with chest pain after intense physical effort. Physical examination within normal limits. Resting ECG and transthoracic echocardiogram showed no abnormalities. ST segment depression in V4-V6 with no pain was observed during the ergometric test. Coronary angiography by computed tomography was indicated, which was performed with a 64-multislice scanner (Somatom Sensation, Forchheim, Siemens), in which coronary calcifications were not detected, and the origin of the right coronary artery from the left coronary sinus was observed (Figures 2 and 3). The patient was warned of his condition, and was advised that he should avoid intense efforts and come to medical consultation regularly.

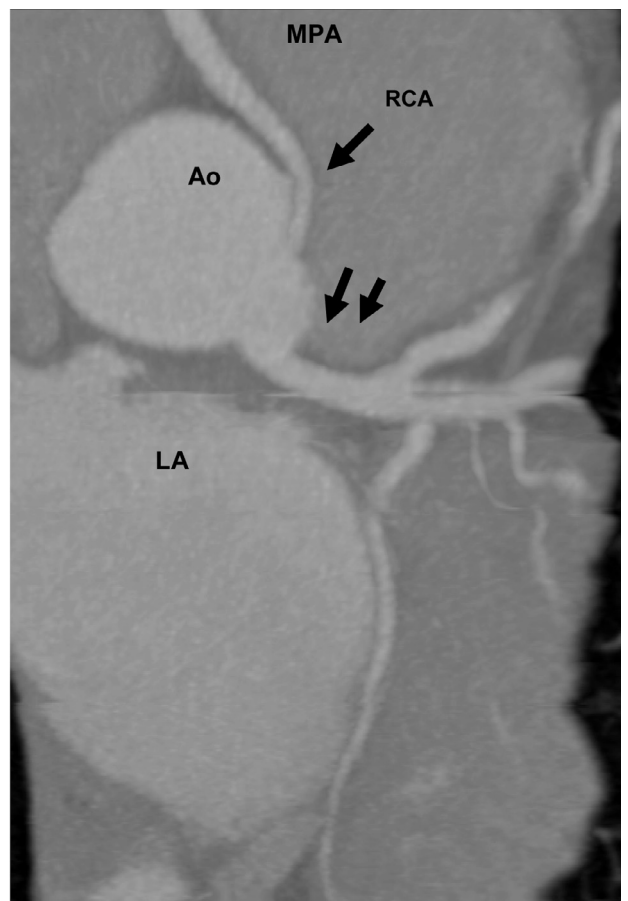


Fig. 2. Curved, fine maximum intensity reconstruction. The origin of the right coronary artery (RCA) from the left coronary sinus is demonstrated. Slight narrowing in the proximal area between the aorta (Ao) and the main pulmonary artery (MPA). Double arrow: left main coronary artery. Ao: aorta. LA: left atrium.

CASE 3

Anomalous origin of the circumflex coronary artery

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A 39 year old female patient, housewife, obese, heavy smoker (40 cigarettes a day), under stress, who has been consulting since January 2006 because of oppressive chest pain on a daily basis, radiating to the neck and not related to physical exertion. Both ECG during pain and at rest were similar, with no changes suggestive of ischemia. A transthoracic ECG was performed, which revealed a vascular image related to the aortic root consistent with anomalous coronary artery (Figure 4).

Finally, the study was completed with coronary angiography, which revealed the left main coronary artery and anterior descending artery with no marked angiographic lesions, dominant right coronary artery, well-developed and with no substantial angiographic lesions, and hypoplastic circumflex artery with caliber < 1.2 mm, anomalously originated from the right coronary sinus (Figure 5). The results of the vasospasm test with intracoronary acetylcholine infusion were within normal limits.

CASE 4
Anomalous origin of the right coronary artery from the left sinus of Valsalva, detected by chest angiotomography scan.

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A 32 year old patient who complains about unusual chest pain episodes on exertion. An ergometric test is performed, during which pain repeats with ischemic changes in inferior wall derivations (negative T waves). An angiotomography is performed, which determined the anomalous origin of the right coronary artery (Figure 6). Surgery was decided as a result of ischemia detection, and the circumflex ostium of the right coronary artery was reimplanted in the right sinus of Valsalva.

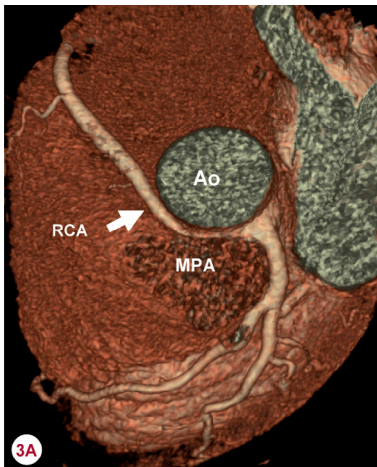


Fig. 3. Volumetric reconstruction (3D). Cranial view. Right coronary artery (RCA) and left main coronary artery (double arrow) originate independently from the left coronary sinus (LCS).

Fig. 4. Transthoracic echocardiogram. Apical long axis view that identifies the same vascular structure.

Fig. 5. Coronary angiography. Right coronary artery in left anterior oblique projection. Hypoplastic circumflex artery is identified, emerging from the right ostium with its retroaortic course.

Fig. 6. A-C. Chest angiotomography scan that shows the anomalous origin of the right coronary artery.

