Clinical vignette

Congenital left main atresia in an adult diagnosed with multidetector computed tomography

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A 53-year-old female underwent non-invasive coronary angiography with 64-slice multidetector computed tomography (MDCT) due to chest discomfort and an abnormal exercise treadmill test. Although there was no evidence of atherosclerotic coronary artery disease, MDCT demonstrated the absence of the left coronary ostium and left main trunk. The left anterior descending (LAD) and left circumflex (LCx) arteries were located at their normal position, but proximally ended blindly (arrows). Their blood supply was provided from the right coronary artery (RCA) via collaterals (arrowheads).

Specifically, the LAD appeared to fill principally by a large right ventricular marginal branch, which coursed anteriorly to the mid-vessel. The LAD segment proximal to the mid-vessel was of small caliper. The LCx was mainly supplied via a separate collateral branch arising from the RCA and coursing between the pulmonary artery and the LAD. Invasive coronary angiography confirmed the MDCT findings.

Congenital left main atresia is extremely rare coronary anomaly, which differs from single coronary artery and anomalous origin of the left coronary artery. In left main atresia, the left coronary artery does not arise from the RCA or its ostium, but receives collaterals from it. Surgical revascularization with an internal mammary artery graft is recommended given the association of left main atresia with left coronary artery. In left main atresia, the left coronary artery does not arise from the RCA or its ostium, but receives collaterals from it. The ability to fully define the three-dimensional course of anomalous coronary arteries by MDCT and the quality of images in patients that usually do not have calcific atherosclerosis make MDCT an appealing option to assess coronary anomalies.

Panel A. Three-dimensional volume-rendered MDCT image.
Panel B. Left anterior oblique angiographic view by computed tomography.
Panel C. Right anterior oblique angiographic view by computed tomography.
Panel D. Left anterior oblique angiographic view by invasive coronary angiography.
Panel E. Right anterior oblique angiographic view by invasive coronary angiography.

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