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CARDIOVASCULAR FLASHLIGHT
Coronary heart disease

Misdiagnosis of anomalous left coronary artery from the pulmonary artery as coronary cameral fistulae in an adult

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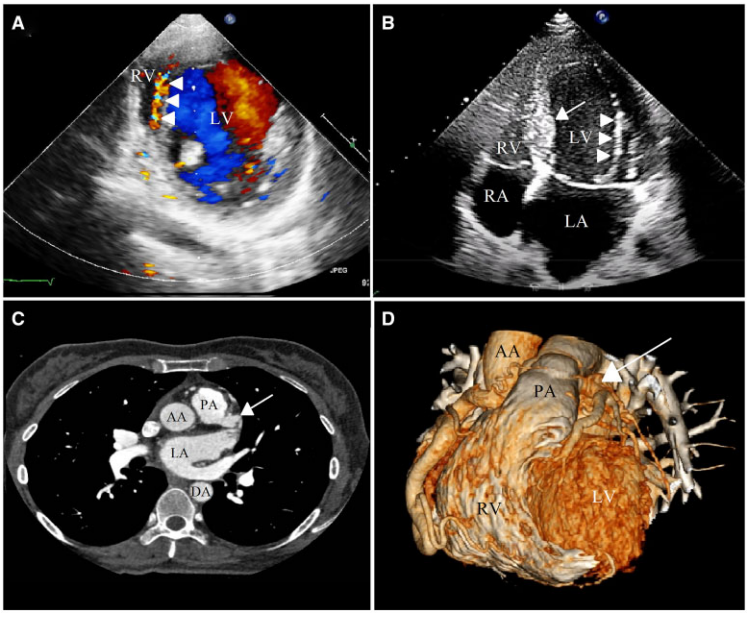
A 35-year-old woman was referred to our clinic with a history of multiple coronary cameral fistulae. Progressive chest pain and palpitation were noted over the past few years. Heart size was normal on the chest X-ray. Echocardiography revealed multiple continuous flow (arrowheads at *Panel A*, *Video 1*) at the ventricular septum. The left ventricular (LV) ejection fraction was preserved. However, significantly high echogenicity over the LV endocardium (arrow at *Panel B*) and the anterolateral papillary muscle (PM) (arrowheads at *Panel B*) was found, along with mild to moderate mitral regurgitation (MR) (*Video 2*). Baseline electrocardiogram showed left superior axis



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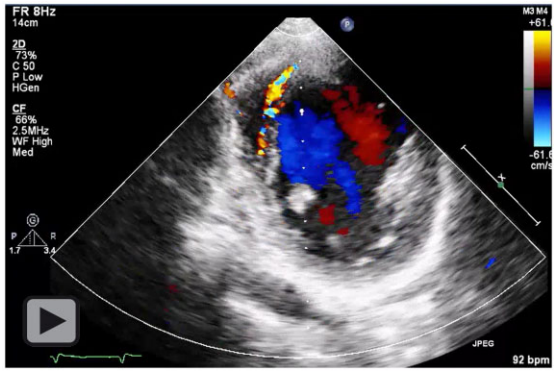
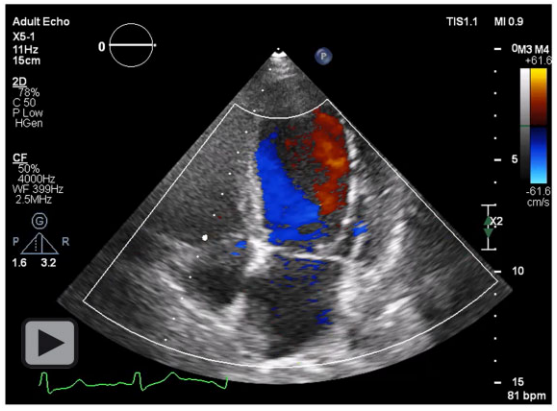
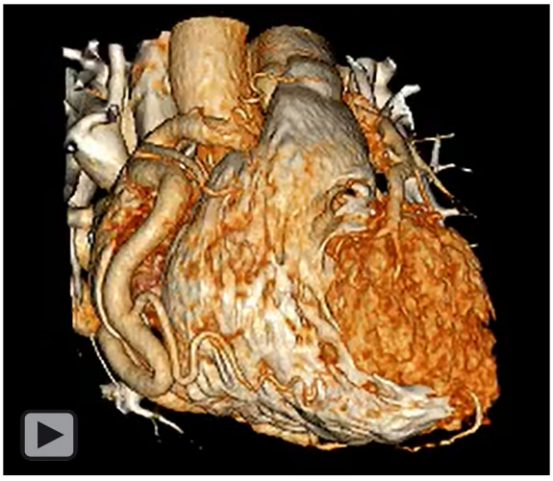


Video 1 Parasternal short-axis view revealed prominent continuous flow at ventricular septum.



Video 2 Apical four-chamber view demonstrated significantly high echogenicity over the left ventricular endocardium and papillary muscle. Significant mitral regurgitation was also noted.

deviation and deep Q wave in V1. There were no ST-T changes. However, the treadmill test revealed horizontal ST-segment depression for 2 mm at inferior and left lateral leads in Stage 4 (Supplementary material online, *Figure S1*). Because the exact coronary artery pattern was not discernible on echocardiography, computed tomography was arranged. Surprisingly, the left coronary arteries (LCA) (arrows at *Panels C* and *D*, *Video 3*) were originated from the pulmonary artery and there were extensive collateral arteries from the right coronary artery connecting to the LCA. The patient subsequently underwent LCA re-implantation. Three years after operation, the patient was clinically asymptomatic. However, the high echogenicity over the LV endocardium and PM remained significant.



Video 3 Three-dimensional reconstruction of computed tomography angiography showed anomalous left coronary artery originated from the pulmonary artery. Multiple collateral arteries from the right coronary artery were also noted.

The incidence of anomalous left coronary artery from the pulmonary artery (ALCAPA) is about 1/300 000 live births. Heart failure usually develops in the first year of life and often causes infant mortality. Diagnosis in living adults is rare, and correct diagnosis can be challenging. An important diagnostic clue of ALCAPA is increased echogenicity of the LV and PM, which is the result of myocardial damage due to watershed endocardial ischaemia. The pathophysiology of MR in our case should be attributed to PM dysfunction caused by myocardial ischaemia. When the origin of the coronary artery was uncertain in patients with a prior diagnosis of multiple coronary cameral fistulae, the presence of high echogenicity over the LV myocardium and PM should raise the suspicion of myocardial ischaemia caused by ALCAPA. AA, ascending aorta; DA, descending aorta; LA, left atrium; LV, left ventricle; PA, pulmonary artery; RA, right atrium; RV, right ventricle.

Supplementary material

Supplementary material is available at *European Heart Journal—Case Reports online*.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.