Multimodality non-invasive imaging of a coronary cameral fistula

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A 69-year-old asymptomatic man was referred for transthoracic echocardiography to evaluate a diastolic heart murmur. Colour and pulse Doppler imaging demonstrated prominent diastolic transmyocardial flow from the epicardial surface into the left ventricular cavity (Supplementary data online, Video S1; Panels A and B), and an intramyocardial diastolic, bi-directional colour flow Doppler signal suggestive of tortuous epicardial vessels (Panel C).Appearances were suspicious for a coronary cameral fistula, and a coronary computed tomographic angiography (CCTA) was performed to delineate coronary anatomy. CCTA demonstrated a tortuous and ectatic left anterior descending artery (LAD), wrapping around the apex of the left ventricle (LV), coursing along the LV inferior wall before terminating in a fistulous communication with the LV cavity at the basal inferolateral segment (black arrow, Panels D–E, Supplementary data online, Video S2). A 2 cm fusiform aneurysm in the intramural course of the LAD [red arrow, Panels D–E]. (Key: Ao- aortic root; LA- left atrium; LV- left ventricle; RV- right ventricle; IVS- interventricular septum; LAD- left anterior descending artery; RCA- right coronary artery; PLV- posterior left ventricular branch) and small fistulae between the dilated posterior lateral ventricular branches of the right coronary artery and distal LAD were also identified.

Coronary cameral fistulae are rare congenital vascular anomalies that present largely as asymptomatic, incidental findings on imaging studies. Echocardiographic evidence of holodiastolic flow from the epicardial surface into the LV cavity on colour Doppler imaging warrants evaluation for a coronary cameral fistula. CCTA offers a non-invasive alternative to invasive coronary angiography for characterization of fistula course and anatomic relations. In this case, classic echocardiographic and CCTA findings were complementary in non-invasively establishing the diagnosis. Conservative management of this clinically silent coronary cameral fistula was favoured for our patient.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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