We describe a case of a 61-year-old female patient who underwent coronary angiography for the investigation of short-lasting chest pain episodes at rest. Her medical history consisted of dyslipidemia as the only risk factor for coronary artery disease. Clinical examination was unremarkable with no signs of heart failure or additional heart murmurs. The results of a standard 12-lead ECG were normal, but the treadmill test was suggestive of ischemia due to borderline ST depression in the inferior leads on high workload. Transthoracic echocardiography, besides a normal size and function left ventricle, revealed also some color flow throughout diastole from the lateral epicardial surface into the left ventricular cavity (Figure A and Movies I and II in the online-only Data Supplement).

Coronary angiography showed normal epicardial coronary arteries. However, during selective angiography of all 3 major coronary arteries, there was extensive draining of the contrast agent to the left ventricular cavity through many small, diffuse fistulae, resulting in complete left ventricular contrast opacification (Figure B through D and Movies III through V in the online-only Data Supplement). There was no significant intracardiac shunt related to the fistulae. Continuous saturation monitoring during the procedure revealed normal oxygen saturation (98%–100%). The coronary sinus appeared to be of normal size. Thus, the diagnosis of coronary-cameral fistulae from all 3 coronary arteries was considered.

Coronary fistula is an abnormal congenital or acquired connection between a coronary artery and either a cardiac chamber (coronary-cameral fistula) or a vein (coronary arteriovenous fistula). Coronary-cameral fistula (CCF) is a rare entity reported in ≈0.08% to 0.3% of unselected patients undergoing diagnostic coronary angiography.1,2 The right coronary artery is the usual origin of the communication, draining in the right-sided chambers of the heart in 90% of cases. The connection between the left coronary arteries and the left ventricle occurs in only 10% of CCF, whereas a CCF originating from all 3 major coronary arteries that terminates into the left ventricle is an extremely rare phenomenon.3

Our case is unusual, not only because of the rareness of the particular type of CCF, but also because of the asymptomatic clinical course for many years despite the presence of multiple and significant left ventricular communications. Such sizable communications would be expected to cause symptoms of increased left ventricular end-diastolic pressure and myocardial ischemia as a result of arterio-arterial shunt and the myocardial blood flow–stealing effect distal to the site of the CCF connection. Although therapy in significant asymptomatic CCF is still controversial, the patient was treated only with a β-blocker because of the lack of severe symptoms.4

Disclosures
None.

References
Figure. A, Representative echocardiography color flow Doppler image demonstrating diastolic flow into the lateral epicardial surface of the left ventricle. B, Left anterior oblique view demonstrating the coronary-cameral fistulae arising from diagonal branches of the left anterior descending artery and the circumflex obtuse marginal artery and emptying into the left ventricle (arrowheads). C, Right anterior oblique view delineating clearly the endocardial border of the left ventricle (arrowheads) as it results from the draining of multiple fistulae arising from diagonal branches of the left anterior descending artery and the circumflex obtuse marginal artery. D, Right anterior view showing the coronary-cameral fistulae between right coronary artery and left ventricle (arrowheads). Acc indicates acceleration; Decel, deceleration; IVRT, isovolumic relaxation time; MV, mitral valve; PGr, peak gradient; PVel, peak velocity; Vel, velocity; and VTI, velocity time integral.
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