An echolucent structure on the anterolateral wall of the right atrium

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To the Editor,

A 34-year-old patient was diagnosed with mitral regurgitation (MR) on routine examination. A transthoracic echocardiogram revealed a bileaflet prolapse, moderately severe regurgitation (regurgitant fraction 39%), a dilated left ventricle (left ventricular end-diastolic diameter = 6.9 cm), and impaired left ventricle (LV) systolic function with an ejection fraction (EF) of 56% (in context of MR). As part of his participation in a clinical trial, the patient also received a magnetic resonance imaging (MRI) scan which confirmed significant LV dilatation and the presence of systolic dysfunction. Based on these findings, mitral valve surgery was planned.

An intraoperative transesophageal echocardiography (TEE) revealed an unusual echo on the anterolateral surface of the right atrium which, after the pericardium was opened, was confirmed as being a dilated right coronary artery (RCA) (Fig. 1). In addition, a large leash of blood vessels was found on the right ventricle. Due to the presence of the thrill of a pansystolic murmur, it was impossible to delineate if a fistula was associated with the dilated RCA. However, there was excessive blood return in the surgical field (even with caval snares in place), suggesting the presence of a fistula. After an attempted repair failed, the mitral valve was replaced with a mechanical valve and an annuloplasty ring. The patient was successfully weaned from cardiopulmonary bypass and he recovered uneventfully. On follow up, the

patient remains well, but he continues to have a soft continuous murmur most likely due to a fistula.

The related TEE and clinical findings of this case presented an interesting diagnostic and management dilemma. The diagnosis of the echolucent structure was apparent from direct inspection of the surgical field, but the presence or absence of a large fistula could not be established by echocardiography. After careful consideration and discussion, the surgeons decided not to explore the lesion further in the absence of volume overload of the right ventricle. A retrospective examination of the MRI revealed a dilated RCA (Fig. 2) that had been overlooked in the initial report. Had this been known at the time, a coronary angiogram would have been performed based on the association between the ectasia of the coronary arteries and the presence of a fistula.

Mitral valve prolapse, coronary artery ectasia, and coronary artery fistulae (CAF) occur in 2–3%, 0.3–5.3%, and 0.08–0.3% of patients, respectively. Coronary artery fistulae are rare and mostly congenital in origin. They generally represent an incidental finding on coronary angiography, and their diagnosis is described as “Class II- Relevant” based on the classification of coronary artery anomalies in adults.¹ The relevance rating is based on the potential association of CAF with angina, syncope, congestive heart failure, myocardial infarction, and death.² Anesthesiologists and cardiac surgeons should be aware that a CAF is difficult to diagnose in the presence of valvular pathology. While this case illustrates the rare coexistence of CAF along with valvular abnormalities,^{3–5} it presents a set of circumstances with unusual diagnostic and management challenges. In this situation, where TEE did not demonstrate the presence of a fistula, epicardial echocardiography could potentially have been useful.

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Fig. 1 Mid-esophageal four-chamber view of the echo of the abnormal right coronary artery

Fig. 2 Magnetic resonance image showing the dilated and tortuous proximal right coronary artery

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Conflicts of interest None declared.

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