

Multiple Coronary Artery Fistulas to Pulmonary Artery

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Coronary artery fistula (CAFs) are present in 0.002% of the general population representing 0.4% of all cardiac malformations. Fistulas can originate from the right coronary (50-60%), left anterior descending (25-42%), circumflex (18.3%), diagonal branch (1.9%), or left main coronary artery (0.7%) (1). Single fistulas are most common, 74-90% (2). However, multiple fistulae with separate origins from the coronary artery tree are rare. Here we present a case of multiple CAFs arising from different sites to pulmonary artery.

A 7 year old girl with a history of symptomatic heart murmur was found to have collateral flow entering the pulmonary artery by echo (Figure 1). CAF was suspected and a cardiac catheterization was performed. Inhalation induction was applied followed with endotracheal intubation and there was no event in whole procedure. Multiple CAFs of various sizes were found arising from left main and anterior descending coronary (LAD) artery entering the proximal pulmonary artery (Figure 2). Because the child was asymptomatic and closure of the larger fistulae will likely result in rapid enlargement of the smaller others, it was decided to defer interventions for later in life when a long covered stent can be a viable option. This patient had an uneventful recovery at PACU and was discharged to home on the same day.

Most children with CAFs are asymptomatic and continuous cardiac murmur is the most commonly reported finding on physical examination. Symptoms of myocardial ischemia arise due to diversion (steal) of oxygenated coronary blood flow to the lower pressured pulmonary artery circulation. Other symptoms may include volume overload due to left-to-right shunt, arrhythmia, aneurysm and rupture (3). Transthoracic echocardiography (TTE) has proved useful in the diagnosis of CAF, but not suitable for the functional evaluation of the fistulae. Cardiac catheterization provides the hemodynamic evaluation of the fistula and remains the modality of choice for defining coronary artery patterns for structure and flow. It also can be used for therapeutic embolization with high efficiency and safety. Surgical treatment is generally reserved for single, large, symptomatic fistulae that are present with angina. For any procedure, a thorough preoperative evaluation, avoiding large increases in myocardial oxygen demand and maintaining coronary perfusion pressure are the major considerations for smooth anesthetic management.

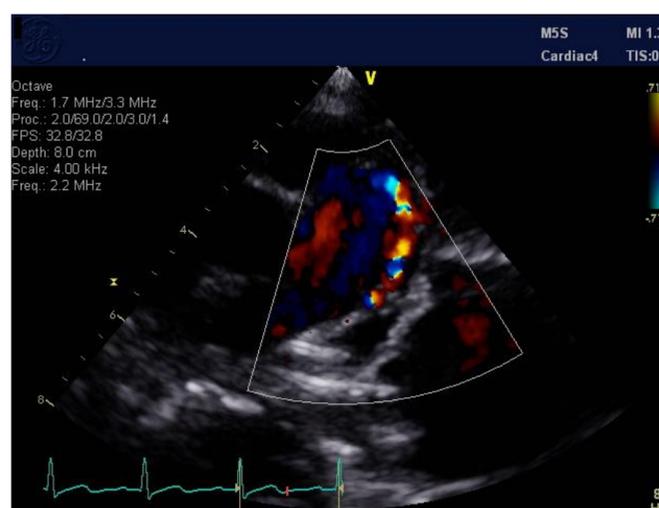
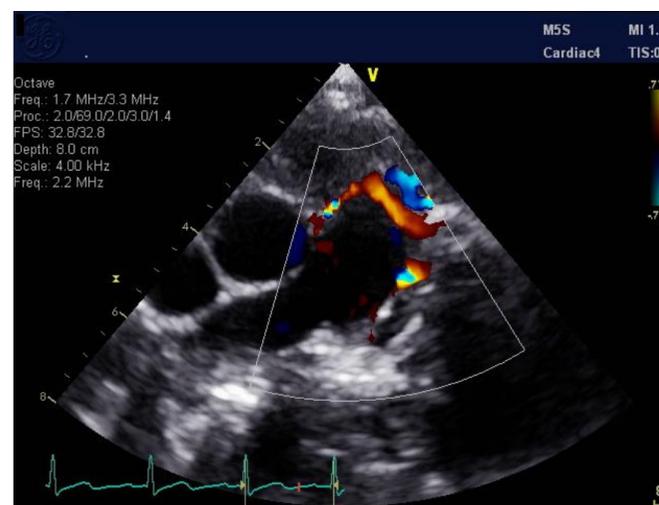


Figure 1. collateral flow entering the pulmonary artery was observed by Transthoracic echo.

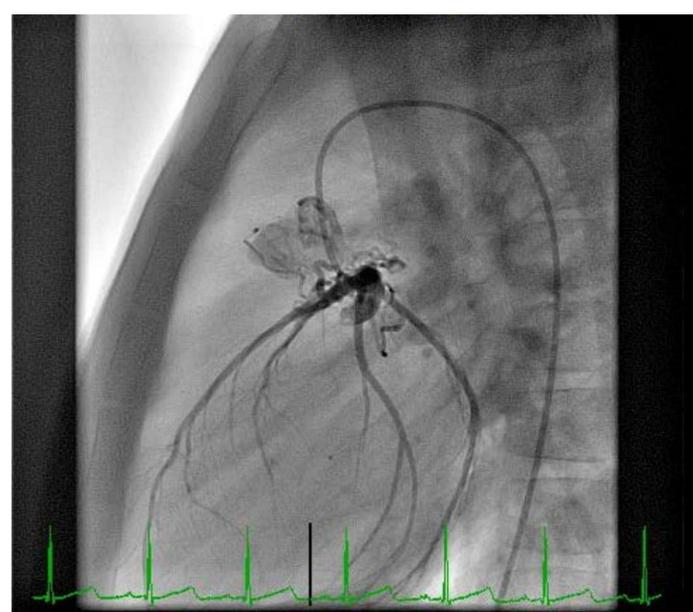


Figure 2. Multiple CAFs of various sizes were confirmed by coronary artery angiography.

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