Coronary Aneurysms in Kawasaki’s Disease Detected by Magnetic Resonance Coronary Angiography

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A 20-year-old woman with a history of Kawasaki’s disease as a child and coronary aneurysms underwent cardiac MRI for reevaluation before an intended pregnancy. The patient regularly participated in athletic activities, and the physical examination was unremarkable. The ECG showed normal sinus rhythm and nonspecific T-wave abnormalities in the precordial leads. MRI (1.5-T ACS-NT, Philips Medical Systems) revealed normal left ventricular size and function. During an exercise stress test performed at the scanner with an MRI-compatible ergometer, the patient achieved 90% maximal predicted heart rate with no segmental wall abnormalities at peak exercise. ECG-triggered and navigator-gated and -corrected 3D coronary MR angiography was performed, demonstrating aneurysms of both the left and right coronary arteries (Figure 1). A turbo-field echo pulse sequence incorporating a T2 preparation pulse to enhance blood-myocardium contrast was used. Images were acquired over multiple heartbeats with a 63-ms acquisition window in middiastole. Separate oblique data sets were acquired for the left and right coronary arteries. Both the right coronary artery and the left anterior descending coronary artery (LAD) could be clearly delineated up to 5.5 cm from their origin. Multiplanar reformats show a large aneurysm, 14×16×11 mm in diameter, of the proximal LAD at the junction of the left main, LAD, and left circumflex coronary arteries and a smaller aneurysm, 6 mm in diameter, in the proximal right coronary artery (Figures 2 and 3).

Reference
Figure 1. Single image of 3D data set acquired to delineate right coronary artery. Small aneurysm in proximal right coronary artery is seen (small arrow), as well as a large circular aneurysm of LAD filling left atrioventricular groove (large arrow). Ao indicates aorta; PA, pulmonary artery; LA, left atrium; and RA, right atrium.

Figure 2. Multiplanar reformatted image of right coronary artery with a small aneurysm near its origin (arrow). Aneurysm is 6 mm in diameter. No associated stenosis is seen in remaining course of right coronary artery. Abbreviations as in Figure 1.

Figure 3. Large aneurysm is seen in LAD on reformatted image (arrow). Flow-related signal within aneurysm is homogeneous, with no evidence of thrombosis. LAD and left circumflex artery arise directly from aneurysm. Abbreviations as in Figure 1.
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