Coronary Artery Vasculitis as a Presentation of Cardiac Sarcoidosis

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A 40-year-old white man was admitted for excision of a subcutaneous lesion on his torso. He reported a 12-month history of shortness of breath and exertional chest pain, both of which were relieved by rest. The patient was otherwise asymptomatic, and physical examination was noncontributory. He was not taking any medications. Electrocardiographic monitoring during the procedure revealed third-degree heart block with junctional escape and right bundle-branch block at 38 bpm (Figure 1). The patient was hemodynamically stable. An electrophysiology consultation was requested, and the patient was found to have an elevated serum angiotensin-converting enzyme level. Histological examination of the biopsy specimen showed noncaseating granulomata, which confirmed the diagnosis of sarcoidosis.

The patient had had an ungated noncontrast chest computed tomographic examination performed approximately 1 month earlier that showed mediastinal and hilar lymphadenopathy (Figure 2) along with multiple subcentimeter lung nodules (Figure 3). In retrospect, it demonstrated infiltration of the epicardial fat surrounding the right coronary artery within the atrioventricular groove (Figure 4).

A cardiac magnetic resonance study was performed that showed hypokinesis of the basal portions of the left ventricle and interventricular septum (Movie 1), with associated myocardial delayed enhancement (Figure 5). There was infiltration of the epicardial fat surrounding the right coronary artery (Figure 6). Less severe infiltration was present along the course of the left anterior descending coronary artery. There

Figure 1. Twelve-lead ECG taken 8 minutes after procedure while the patient was in recovery. This shows third-degree heart block with right bundle-branch block and a rate of 38 bpm.
was thinning of the anteroseptal and apical portions of the left ventricular myocardium, but with relatively preserved systolic thickening (Movie 1). The patient was treated with oral prednisone 60 mg daily and implantation of a dual-chamber defibrillator.

Two months later, the patient presented for follow-up. He denied any symptoms at this time; however, an echocardiogram showed an ejection fraction of 30%. An ECG showed normal sinus rhythm with biventricular pacing. Cardiac catheterization was performed to exclude coronary artery disease; results were normal (Figures 7 and 8). The patient was told to continue taking antiarrhythmic medication and referred to the cardiac transplantation service.

The incidence of cardiac involvement in patients with sarcoidosis is on the order of 76%, although it is frequently diagnosed postmortem. Epicardial coronary artery involvement is rare; we are aware of only 1 biopsy-proven case of coronary sarcoidosis presenting as acute coronary syndrome. The present case is unusual in the severity and extent of infiltration of the epicardial fat surrounding the right coronary artery. Functional impairment due to presumed coronary vasculitis was evidenced by abnormal wall motion or thinning of the affected portions of the left ventricular myocardium.

This case further broadens the spectrum of presentations of cardiac sarcoidosis and reiterates the importance of considering this disorder in the differential diagnosis of cardiac pathology that involves both the myocardium and coronary arteries.

**Disclosures**

None.

**References**

Figure 5. Short-axis delayed-enhancement image (acquired by single-shot inversion-recovery balanced steady-state gradient-echo acquisition) shows left ventricular myocardial enhancement (black arrow), thickening and delayed enhancement of the inferior interventricular groove (broken white arrow), and enhancement of the right ventricular myocardium (solid white arrow). RV indicates right ventricle; LV, left ventricle.

Figure 6. Three-chamber true FISP (true fast imaging with steady state precession) magnetic resonance image shows extensive infiltration of the epicardial fat within the right atrioventricular groove. This T2-weighted image also demonstrates edema within the wall of the involved myocardium (lateral wall of the left ventricle and interventricular septum).

Figure 7. Image from cardiac catheterization showing a normal left main, left anterior descending, and left circumflex artery.

Figure 8. Image from cardiac catheterization showing a normal right coronary artery.
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