Left ventricular asynchrony in early isolated cardiac sarcoidosis

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A 43-year-old asymptomatic man was screened for premature ventricular contractions on electrocardiography during an annual health check-up. Echocardiography demonstrated preserved left ventricular function with a normal radial strain profile (Panel A). However, three-dimensional analysis revealed left ventricular asynchrony with delayed peak excursion in the septal to inferior wall (Panel B). No abnormalities were detected on coronary computed tomographic angiography. Cardiac magnetic resonance imaging revealed late gadolinium enhancement in the septal to inferior wall (Panel C). Fluorodeoxyglucose-positron emission tomography/computed tomography demonstrated high uptake in the interventricular septum (Panel D). Endomyocardial biopsy of the interventricular septum demonstrated non-caseating granuloma (Panel E) with negative Ziehl–Neelsen staining results. Although the patient was in the early stage of cardiac sarcoidosis without major cardiac symptoms and other organ involvement, with positive tuberculin and negative laboratory test results (serum/urinary calcium and angiotensin-converting enzyme), he was successfully diagnosed using modern cardiac imaging modalities. Thus, the patient was treated with corticosteroids for 9 months, which improved the septal asynchrony (Panel F).

The prognosis of cardiac sarcoidosis is poor if untreated and immunosuppressive therapy is needed at the time of diagnosis. In our patient with early isolated cardiac sarcoidosis, the polar map of the peak excursion time on three-dimensional echocardiography enabled us to easily recognize asynchronously contracting sites of the left ventricle, which is one of the regions most commonly affected by cardiac sarcoidosis. This diagnostic tool has a potential to precisely screen for subclinical left ventricular dysfunction in early cardiac sarcoidosis.