A 61-year-old woman without any symptoms referred for evaluation of an abnormal ECG obtained at a routine check-up. Physical examination revealed no abnormal findings. A 12-lead ECG showed complete right bundle branch block and left ventricular (LV) hypertrophy in voltage. Two-dimensional echocardiogram revealed a dilated LV cavity with deformity and hypokinetic LV wall motion. Cardiac catheterization demonstrated normal epicardial coronary vessels. Cardiac cine magnetic resonance imaging (MRI) demonstrated a moderately dilated LV with end-diastolic volume of 269 mL and severely depressed LV contractility with an ejection fraction of 19%. Multiple prominent ventricular trabeculations were observed in LV apical, septal, and lateral wall segments, resulting in a clover-like LV shape in the four-chamber view (Panel A). The ratio of the non-compacted to compacted myocardium was over 2.3 in diastole, compatible with isolated non-compaction of the ventricular myocardium (INVM). Furthermore, late gadolinium enhanced MRI showed focal late gadolinium enhancement in the endocardial side of the compacted myocardium, suggesting myocardial fibrosis (Panels B and C). However, the pathogenesis of INVM is yet to be elucidated, the previous INVM case report showed that the myocytes did not have an intricate arrangement, but there was hypertrophy and interstitial fibrotic changes. It is the first case that shows the myocardial fibrosis images of INVM non-invasively.

Panel A. Cardiac cine magnetic resonance imaging in the four-chamber view of the left ventricle.
Panel B. Arrows indicate late gadolinium enhancement in the endocardial side of the compacted myocardium, which would be consistent with myocardial fibrosis.
Panel C. Cardiac cine magnetic resonance imaging in the axial view of the left ventricle. Arrows indicate trabeculations of non-compacted myocardial wall. Left, systole; right, diastole.

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