Imaging of isolated ventricular non-compaction with dynamic cardiomyoplasty

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Isolated ventricular non-compaction of myocardium is an unclassified cardiomyopathy with an underlying mechanism of a morphogenetic abnormality involving an arrest of compaction of the loose myocardial meshwork during fetal ontogenesis. The diagnosis of this unusual condition can be readily mistaken for idiopathic dilated cardiomyopathy and it should be considered in evaluation of patients with dilated cardiomyopathy. We present an interesting image of isolated ventricular non-compaction of myocardium coexisting with dynamic cardiomyoplasty.

A 45-year-old female patient was admitted to our hospital with worsening congestive heart failure. Seven years earlier, she had been diagnosed with ‘idiopathic dilated cardiomyopathy’ and had been performed a dynamic cardiomyoplasty procedure with latissimus dorsi muscle. However, left ventricular (LV) ejection fraction did not improve significantly after operation and she was repeatedly admitted to our hospital due to congestive heart failure. At last admission, the degree of dyspnea corresponded to New York Heart Association grade III. The transthoracic echocardiography (TTE) was performed by a cardiologist familiar with the diagnosis of isolated ventricular non-compaction (IVNC) and revealed a compact epicardial layer and an endocardial layer consisting of a prominent trabecular meshwork and deep intertrabecular spaces with the ratio of non-compact/compact layer ≥ 2 in the apical levels (top in Fig. 1). The colour Doppler study showed communicating recesses with blood from the left ventricular cavity (bottom in Fig. 1). Two-dimensional echocardiography in the parasternal short...
axis view also revealed latissimus dorsi muscle wrapped around the LV (arrows in Fig. 1). Thereafter the diagnosis was changed from idiopathic dilated cardiomyopathy to IVNC. Screening of family members with TTE revealed that IVNC was also present in her 25-year-old son with preserved left ventricular function and in two brothers both have decreased LV ejection fraction. The patient was discharged with conventional medical therapy for heart failure.

**Figure 1** The transthoracic echocardiography shows the prominent trabecular meshwork and deep intertrabecular spaces in the apical levels (top in figure) and the latissimus dorsi muscle wrapped around the LV (arrows). The colour Doppler echocardiography shows the communicating recesses with blood from the left ventricular cavity (bottom in figure).