Incidentally Detected Biventricular Noncompaction Cardiomyopathy

Sir,

A 31-year-old woman with a complaint of atypical chest pain but without dyspnea or palpitation was referred to our echocardiography laboratory for further evaluation. Her medical history was unremarkable, and her electrocardiography showed a normal sinus rhythm without any abnormal findings.

Transthoracic echocardiography revealed preserved systolic functions and normal sizes for both left and right ventricles as well as hypertrabeculation in the left ventricular apex (extending to the mid part of the inferior and lateral walls) and the right ventricular apex, with deep recess formation and flow within, suggestive of biventricular noncompaction cardiomyopathy [Video 1 and Figure 1]. The patient was referred for cardiac magnetic resonance imaging, which confirmed the transthoracic echocardiographic findings [Video 2 and Figure 2].

The left ventricular noncompaction is a rare cardiomyopathy characterized by noncompacted thickness-to-compacted thickness ratio in systole of more than 2, deep recesses, and blood flow in these recesses, and apical and mid-ventricular segments are the most commonly affected places.[1] The left ventricular noncompaction can present with heart failure, arrhythmia, and thromboembolism, and even sudden cardiac death may occur in association with other congenital heart disease.[2] Favorable remodeling and improvement in ventricular systolic function is documented with appropriate medical therapy in patients with reduced systolic function and dilated ventricle.[3]

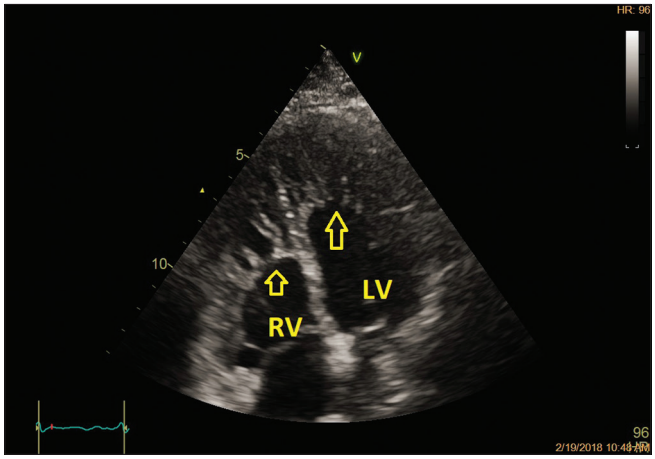

Figure 1: Transthoracic echocardiography in the four-chamber view, demonstrating hypertrabeculation with deep recesses. LV, left ventricle; RV, right ventricle

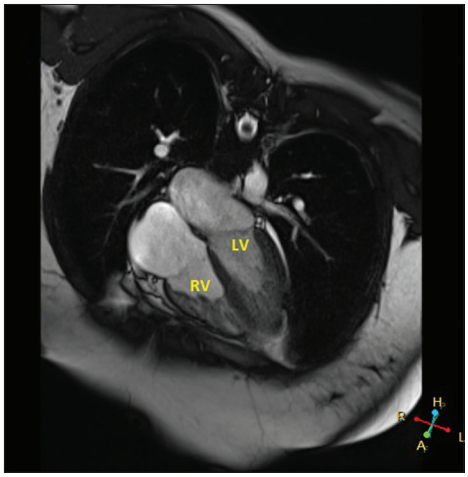

Figure 2: Cardiac magnetic resonance imaging in the transverse view, revealing noncompaction parts in the left and right ventricles. LV, left ventricle; RV, right ventricle

The right ventricular noncompaction cardiomyopathy is rare and biventricular involvement is rarer.[4] The reliable criteria for definition and clinical diagnosis of the right ventricular noncompaction cardiomyopathy are not accessible, but significant trabeculation in two-third of the right ventricular surface can be used as helpful criteria.[5] We should remember that right ventricular hypertrabeculation might be a result of right ventricular volume or pressure overload secondary to left heart side abnormalities,[6] and overdiagnosis of the right ventricular noncompaction should be reduced by pathologic or imaging studies such as cardiac magnetic resonance imaging. Although biventricular cardiomyopathy is a rare condition, cardiologists should consider the possibility of its presence in their daily routine practice.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Chebrolu LH, Mehta AM, Nanda NC. Noncompaction cardiomyopathy: The role of advanced multimodality imaging techniques in diagnosis and assessment. Echocardiography 2017;34:279-89.
2. Bennett CE, Freudenberger R. The current approach to diagnosis and management of left ventricular noncompaction cardiomyopathy: Review of the literature. Cardiol Res Pract 2016;2016:5172308.
3. Parent JJ, Towbin JA, Jefferies JL. Medical therapy leads to favorable remodeling in left ventricular non-compaction cardiomyopathy: Dilated phenotype. Pediatr Cardiol 2016;37:674-7.
4. Awasthy N, Tomar M, Radhakrishnan S. Isolated biventricular Noncompaction in an adult with severe pulmonary hypertension: An association reviewed. Images Paediatr Cardiol 2012;14:1-5.
5. Limongelli G, Rea A, Masarone D, Francalanci MP, Anastasakis A, Calabro' R, *et al*. Right ventricular cardiomyopathies: A multidisciplinary approach to diagnosis. Echocardiography 2015;32:S75-94.
6. Fazio G, Visconti C, D'angelo L, Grassedonio E, Lo Re G, D'Amico T, *et al*. Diagnosis and definition of biventricular non-compaction associated to Ebstein's anomaly. Int J Cardiol 2011;150:e20-4.

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