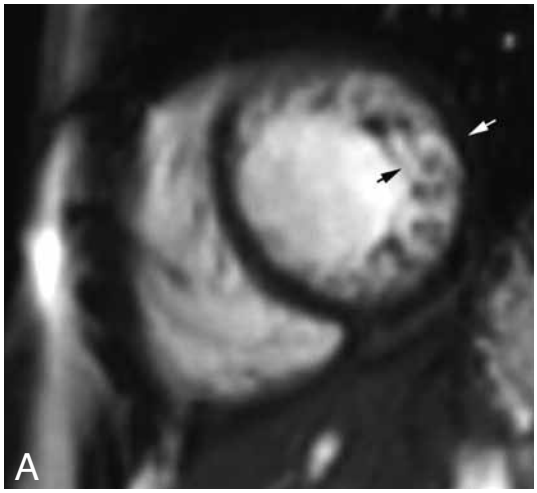
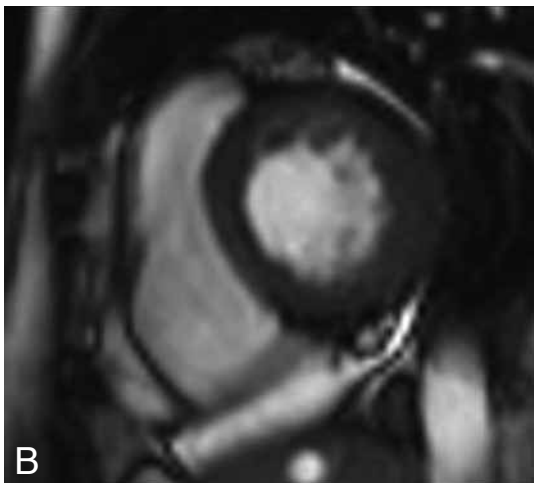
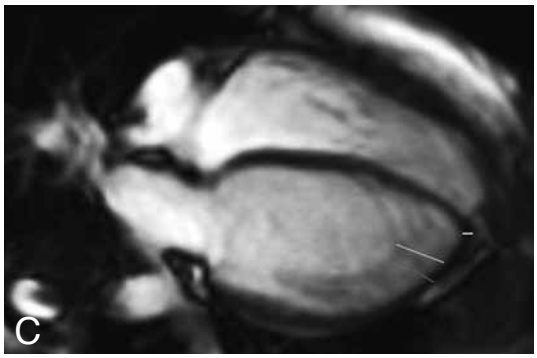
JBR–BTR, 2012, 95: 32.

IMAGES IN CLINICAL RADIOLOGY







Left ventricular non-compaction cardiomyopathy

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A 30-year-old woman presented with dull left-sided chest pain, radiating to her left arm, lasting seconds on each episode. She denied any palpitations or dyspnoea and had no cardiovascular risk factors or family history of sudden death. A twelve-lead electrocardiogram showed normal sinus rhythm at 70/min with no acute changes. Transthoracic echocardiography revealed normal left ventricular size and function, however, note was made of prominent trabeculations in the left ventricle.

Subsequent cardiac magnetic resonance (CMR) imaging confirmed the diagnosis of left ventricular non-compaction (LVNC). Short axis two-chamber views showed prominent subendocardial trabeculations and non-compacted myocardium (Fig. A, black arrow) compared to a thinner rim of normal myocardium (Fig. A, white arrow) in the left ventricle at end-diastolic and systolic phases of the cardiac cycle.

Four chamber, long-axis views at end-diastole (Fig. C) also showed increased subendocardial left ventriclular trabeculation (green line) compared to whole wall thickness (blue line) and compacted myocardium (yellow line).

The end-diastolic ratio of non-compacted to compacted myocardium (NC/C) was 2.6. T2-weighted sequences were normal and there was no evidence of late gadolinium enhancement. Anticoagulation therapy was commenced to prevent thromboembolic complications and annual follow-up was arranged to assess overall left-ventricular function with CMR.

Comment

LVNC or left ventricular hypertrabeculation is a rare cause of non-ischaemic cardiomyopathy. It is defined by the presence of a non-compacted myocardial layer in the left ventricle as a result of incomplete endomyocardial embryological development. Clinical features of LVNC include heart failure, ventricular arrhythmias and thromboembolic events from thrombus forming in the prominent trabecular recesses of the left ventricle endocardium (1). LVNC may be asymptomatic or can manifest clinically with cardiac failure, ventricular arrhythmias, thromboembolic events or chest pain. CMR imaging is now the preferred diagnostic modality where an end-diastolic NC/C ratio of > 2.3 has been shown to offer a diagnostic sensitivity of 86% and specificity of 99%. CMR imaging can also help assess the extent, severity and clinical stage of the disease. Management of patients with LVNC revolves around treatment of symptoms of cardiac failure with diuretics and renin-angiotensin-alodsterone system antagonists, prevention of arrhythmia related deaths with antiarrhythmics or ICD implantation as well as anticoagulation to prevent complications of systemic embolisation such as stroke and end-organ ischaemia.

Reference

1. Oechslin E.N., Attenhofer Jost C.H., Rojas J.R., Kaufmann P.A., Jenni R.: Long-term follow-up of 34 adults with isolated left ventricular noncompaction: a distinct cardiomyopathy with poor prognosis. *J Am Coll Cardiol*, 2000, 36: 493-500.

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