A Man With Chest Pain And Interesting Electrocardiogram

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Abstract

Electrocardiogram (ECG) is an important diagnostic tool; however, ECG sometimes can lead to differential diagnoses requiring special investigations for further assessment. We present a patient with typical ECG changes of apical hypertrophy-a rare form of cardiomyopathy.

CASE REPORT

A 66-year-old previously healthy Asian man presented to the hospital because of chest pain. He denied any dyspnoea or syncope. He was not known to have ischemic heart disease, dyslipidaemia, hypertension, or diabetes and family history was non-contributory. He was a lifelong non-smoker and did not consume alcohol. On examination the pulse was 78/min regular and blood pressure 105/70 mmHg. Heart sounds were normal with no murmur. The complete blood count and biochemical profile was within normal range. Due to the ECG changes (Fig 1) a possibility of Non-ST-Elevation-Myocardial-Infarction (NSTEMI) was considered. However, his troponin levels were normal and coronary angiogram did not show any significant luminal narrowing.
Echocardiogram suggested apical hypertrophy, which was confirmed by magnetic resonance imaging (Fig 2).

Figure 1

Figure 1: ECG showing “giant” negative T waves in the lateral leads, defined by Yamaguchi et al6 as negative T waves with greater than 10-mm (1-mV) amplitude

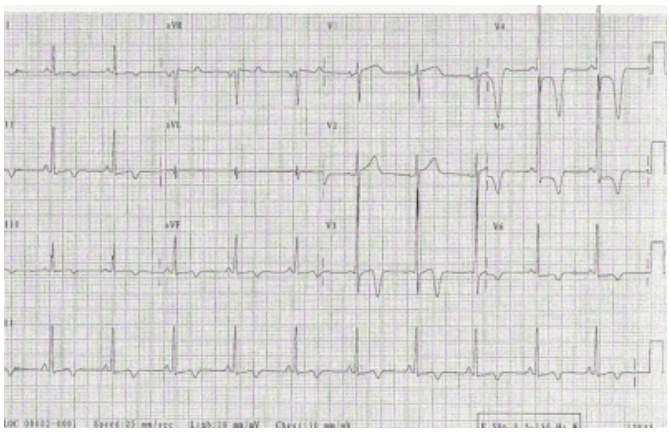
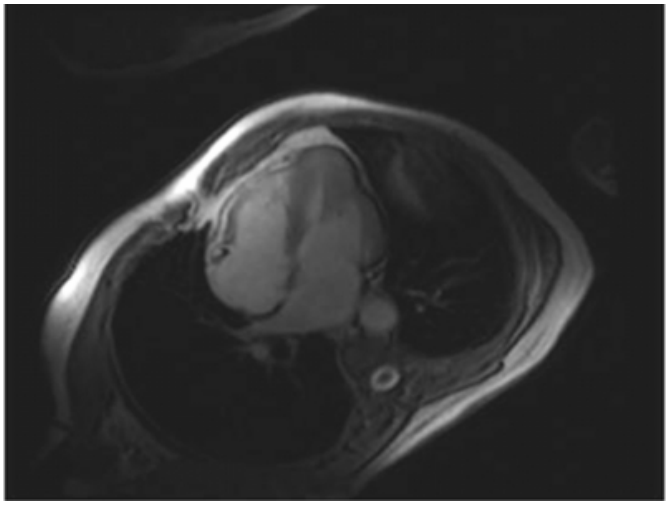


Figure 2

Figure 2: Magnetic resonance image showing apical hypertrophy



DISCUSSION

Apical hypertrophy (AH) has been regarded as an atypical phenotype of non-obstructive hypertrophic cardiomyopathy (HCM) with an indistinguishable histology.[1] Whilst in Japan this apical variant constitutes about 25% of patients with HCM it is uncommon in other parts of the world accounting for around 2% of patients

with HCM.[2,3] AH has also been occasionally recognized as familial disease, implicating a primary role for genetics in the development of hypertrophy.[4] The characteristic spade-like appearance of AH was originally described in 1976 by Sakamoto et al[5] and AH became known as “Japanese heart disease” after its second description in 1979. The giant negative T waves seen in AH were defined by Yamaguchi and colleagues,[6] and presentation with these ECG changes

can be alarming and cause diagnostic dilemma.[7] Transthoracic echocardiography is useful but sometimes other diagnostic modalities, like contrast echocardiography and magnetic resonance imaging (MRI) are necessary for the diagnosis.[8] Patients with AH can present with chest pain, dyspnoea, palpitations or syncope. Long-term follow-up, primarily in Japanese patients, has shown AH to be a benign disorder. However, complications like ventricular tachycardia, atrial fibrillation, apical myocardial infarction and apical aneurysm can occur and may have prognostic importance.[9] The ECG changes can be labile and even disappear during the long term follow-up and disappearance of giant negative T wave may suggest the development of apical aneurysm. Follow-up with ECG and echocardiogram/MRI is recommended to detect complications. Although AH is uncommon in western world it should be considered in the differential diagnosis in our increasingly multi-ethnic society.

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