

Is there any possibility other than 'old myocardial infarction' for this 21-year-old heart?

Carlos Alberto Pastore

Electrocardiology Service, Heart Institute (InCor), HCFMUSP, Sao Paulo, Brazil

Characteristics

Woman, 21 years old, with history of von Willebrand's disease and Noonan's syndrome, asymptomatic.

Physical examination: Low insertion of ears, hypertelorism

Heart rate: 60 bpm

Blood pressure: 120 × 60 mm Hg

Electrocardiogram description

Sinus rhythm/heart rate: 55 bpm

Left atrial enlargement: 0.12 s

Normal PR interval

Axis deviation to the left and upwards: -140°

QS in the inferior wall

Absence of R wave progression in the horizontal plane.

Vectocardiogram description

Frontal plane (FP): QRS beginning upwards and to the right with clockwise rotation, and reversed rotation (anticlockwise) with axis deviation to the right.

Horizontal plane (HP): QRS beginning forward and to the right, clockwise and backward rotation with reversed (anticlockwise) rotation of QRS loop, heading to the right. The activation begins with anomalous septal orientation in the two planes.

Echocardiogram

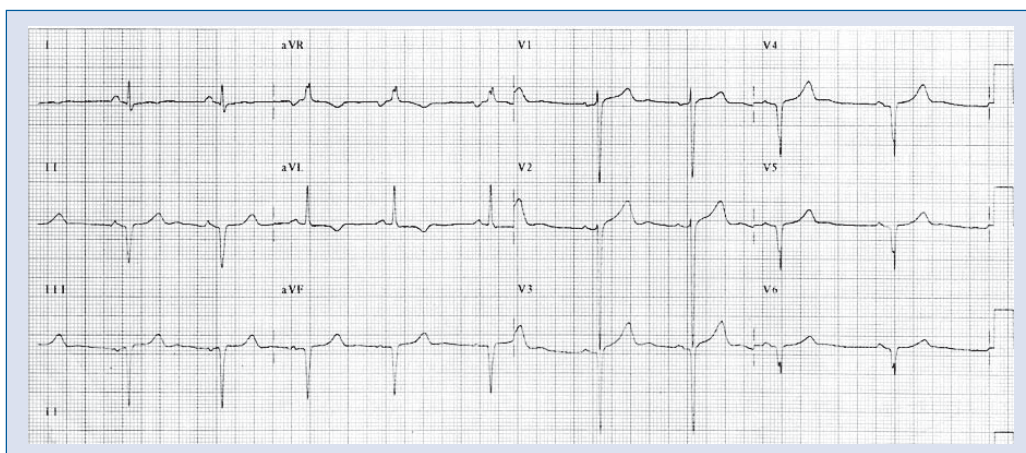
Left atrium: Moderate dilatation

Interventricular sinus: 11 mm

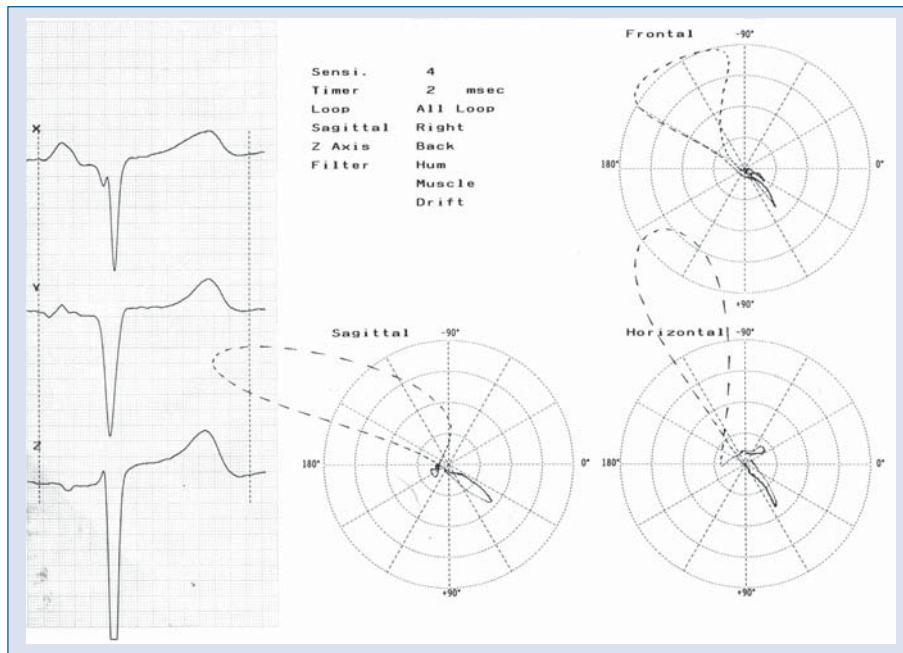
Posterior wall: 10 mm

Left ventricle: 28 × 16 mm

Moderate left ventricular hypertrophy



Address for correspondence: Carlos Alberto Pastore, Electrocardiology Service, Heart Institute (InCor), HCFMUSP, Sao Paulo, Brazil, e-mail: ecg_pastore@incor.usp.br



Magnetic resonance imaging

Localized hypertrophy in the left ventricle anterior and antero-septal basal segment.
Turbulence at the left ventricle outflow tract (obstruction).

Diagnosis

Hypertrophic cardiomyopathy (HCM)

Discussion

There is an abnormal septal activation (0–20 ms) with activation of the left ventricle free wall progressing upwardly, to the right (FP) and backwards (HP).

All these indicate the presence of a hypertrophic cardiomyopathy.

This type of QRS loop seen in the horizontal plane, oriented backwardly, to the right and upwards, is characteristic of hypertrophic cardiomyopathies (either asymmetrical or not).

Deep Q waves in the inferior and anterior walls are shown on this electrocardiogram (ECG) of a patient only 20 years old. Although possible, it is unlikely that a person this young presents with areas of infarction on the ECG. Besides, these are fast Q waves, with normal ventricular repolarisation, all of this corroborating a non ischemic finding. On the other hand, the vectorcardiogram is of great importance since it shows that the Q waves are really not typical of areas of infarction.

Finally, the T wave is normal on the vectorcardiogram.