

Image in cardiology

Don't Look at ST Segment Only

No mire solamente el segmento ST

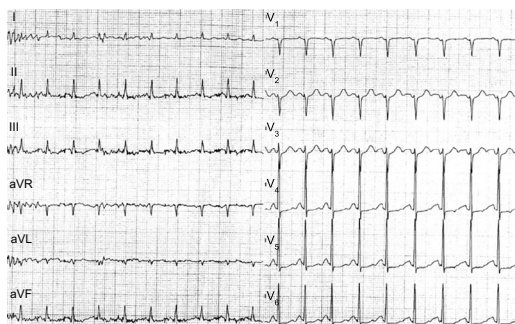
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Figure 1.

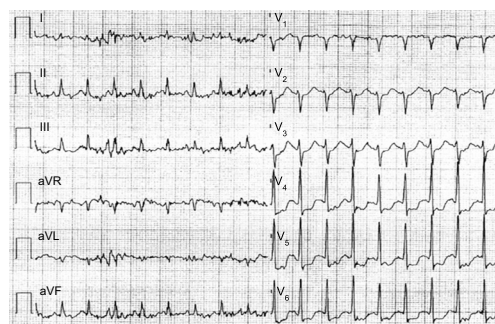


Figure 2.

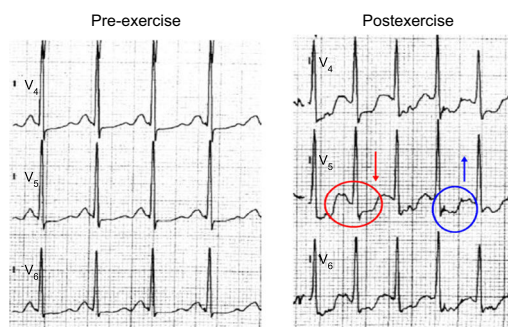


Figure 3.

A 55 years old female with intermediate coronary artery disease profile underwent to exercise stress test for atypical chest pain. Baseline electrocardiogram (ECG) showed PR interval at lower limits, a possible ectopic atrial rhythm and mild repolarization abnormalities (Figure 1). Transthoracic echocardiography was unremarkable. Exercise test was interrupted after 1 minute and 22 seconds (heart rate 166 bpm; 99% of the maximal predicted heart rate) because of a 3 mm ST segment depression from V₄ to V₆ (Figure 2). The patient was asymptomatic. Single-photon emission computed tomography study and computed tomography scan resulted negative.

Atrial repolarization (AR) is usually hidden in the QRS complex. It has an opposite direction to the P wave and has a magnitude up to 200 V. However, especially during exercise, it may extend into the ST segment mimicking myocardial ischemia. During stress, especially in asymptomatic patients with good exercise tolerance, ST depression associated with a marked downslope of the PR segments and a peak exercise heart rate > 125 bpm, is usually suggestive for AR. In our case, since coronary artery disease and perfusion abnormalities were ruled out by single-photon emission computed tomography and computed tomography scan, ECG findings can be explained as induced by AR. In this case AR is characterized by a shift heart rate related of a high voltage P wave on the isoelectric line, which drags down the ST segment, leading to a marked ST depression, mimicking myocardial ischemia. This ECG pattern could also be explained by a delayed or prolonged AR extended to the following P wave (Figure 3).

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