CASE REPORT

An unusual ST-segment elevation: Apical hypertrophic cardiomyopathy shows the ace up its sleeve

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Received 26 September 2012; accepted 1 November 2012
Available online 5 July 2013

KEYWORDS
Electrocardiogram; Hypertrophic cardiomyopathy; Congenital heart disease

Abstract
Apical hypertrophic cardiomyopathy is part of the broad clinical and morphologic spectrum of hypertrophic cardiomyopathy. We report a patient with electrocardiographic abnormalities in whom acute coronary syndrome was excluded and apical hypertrophic cardiomyopathy was demonstrated by careful differential diagnosis.

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PALAVRAS-CHAVE
Eletrocardiograma; Miocardiopatia hipertrófica; Cardiopatias congênitas

Elevação do segment St pouco usual: cardiomiopatia hipertrófica apical mostra o às na manga

Resumo
A miocardiopatia hipertrófica apical faz parte do amplo espectro clínico e morfológico da miocardiopatia hipertrófica. Nós reportamos um doente com alterações electrocardiográficas no qual foi excluída uma síndrome coronária aguda e foi demonstrada uma miocardiopatia hipertrófica apical usando um processo correto de diagnóstico diferencial.

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Introduction
Apical hypertrophic cardiomyopathy (AHCM) is part of the broad clinical and morphologic spectrum of hypertrophic cardiomyopathy (HCM).1 Cases of AHCM with and without apical aneurysm mimicking myocardial infarction have occasionally been reported.2-4 We report a patient with abnormalities on the electrocardiogram (ECG) in whom acute coronary syndrome (ACS) was excluded and AHCM was demonstrated by careful differential diagnosis.

Case report
A 77-year-old Caucasian woman was examined by a primary care physician because of dyspnea and atypical chest pain. The ECG showed atrial fibrillation, mean heart rate of...
Figure 1  The ECG shows an unusual 4-mm convex ST segment elevation in C4–C6 with biphasic T waves.

Figure 2  Rest-stress myocardial perfusion scintigraphy revealing reduced left ventricular chamber volume suggestive of hypertrophic cardiomyopathy without signs of ischemia or previous myocardial necrosis.
85 bpm, right bundle branch block and 4-mm convex ST segment elevation in C4-C6 with biphasic T waves (Figure 1). Due to this atypical ECG, similar to a previous one performed two years before, rest-stress myocardial perfusion scintigraphy was prescribed. This revealed a reduction of left ventricular chamber volume suggestive of HCM without signs of ischemia or previous myocardial necrosis (Figure 2). The patient was referred to our echo lab in order to complete the diagnostic procedure. Transthoracic echocardiography (TTE) demonstrated AHCM, showing left ventricular (LV) apical hypertrophy with the typical ace of spades shape (Figure 3A1). The ace of spades was therefore studied in depth using color Doppler (Figure 3A2, Video 1), Sonovue contrast TTE (Figure 3A3, Video 2) and real-time three-dimensional echocardiography (Figure 3A4, Video 3). A small area of turbulent flow and a mid-ventricular gradient of about 63 mmHg were found (Figure 4a). In order to evaluate possible modification of the mid-ventricular gradient, an intravenous bolus of atenolol (3 mg) was administered. A significant decrease of about 40 mmHg was observed while the ECG was unchanged (Figure 4b).
In conclusion, AHCM is a clinical condition that can cause various complications and simulate ACS. Its diagnosis enables ACS to be excluded in patients with atypical ST-segment elevation. TTE is usually sufficient to make the diagnosis, enabling appropriate medical treatment.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that no patient data appear in this article.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

Conflicts of interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data


References


