

Supraventricular tachyarrhythmia as a first sign of aortic aneurysm

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Abstract

We report the case of a 50-year-old man who presented with palpitations, without any other symptoms. An electrocardiogram (ECG) showed rapid supraventricular tachyarrhythmia (atrial flutter 2:1). Transthoracic echocardiography showed severe left ventricular dilatation and left atrial enlargement, sustained by the severe dilatation of the aortic root and an ascending aortic aneurysm. A computed tomography (CT) scan of the chest confirmed the aortic dilatation. Thoracic aortic disease presents in many different ways, often incidentally after a chest X-ray is performed for other reasons. Our patient had no such risk factors for an aortic aneurysm. The existing literature features some reports of aortic dissection presenting with supraventricular arrhythmias, but to our knowledge, this is the first report of an arrhythmia as the first sign of an aortic aneurysm (not dissected). The guidelines for the management of atrial fibrillation do not specify the timing of performing echocardiography. We think that during the assessment of a patient who is in the emergency room with paroxysmal tachyarrhythmias, performing echocardiography early can be very useful.

KEY WORDS: aortic aneurysm; arrhythmias,cardiac; echocardiography.

Riassunto

Viene descritto il caso di un uomo di 50 anni che si è presentato in pronto soccorso per la comparsa di palpitazioni, senza altra sintomatologia associata. All'elettrocardiogramma era presente una tachicardia sopraventricolare (flutter atriale 2:1). L'ecocardiogramma transtoracico evidenziava una severa dilatazione del ventricolo sinistro, un ingrandimento dell'atrio sinistro ed una severa dilatazione della radice aortica e dell'aorta ascendente. Alla TAC del torace veniva confermato il reperto di dilatazione severa dell'aorta, senza segni di dissecazione.

Un'ectasia dell'aorta toracica può presentarsi in vari modi e spesso è riscontrata incidentalmente durante l'esecuzione di un esame radiologico prescritto per altre ragioni. Il paziente da noi osservato non aveva fattori di rischio per un aneurisma aortico. In letteratura sono descritti casi di dissecazione aortica presentatisi unicamente con una aritmia sopraventricolare, ma, per quanto si conosce, quello da noi descritto è il primo caso di un'aritmia come segno di presentazione di un aneurisma aortico non dissecato. Le linee guida per la gestione ed il trattamento della fibrillazione atriale e delle aritmie sopraventricolari non specificano il momento in cui andrebbe eseguito l'ecocardiogramma. Riteniamo che in un paziente che si presenta in pronto soccorso con una tachiaritmia parossistica, la precoce esecuzione di un ecocardiogramma possa essere di estrema utilità clinica.

TAKE-HOME MESSAGE

Thoracic aortic disease presents in many different ways, often incidentally, without symptoms. During the assessment of a patient in the emergency room with paroxysmal tachyarrhythmias, performing early echocardiography can be very useful.

Competing interests - none declared.

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Cite this article as - Villa A, Corticelli A, Russo G, Zarifi D, Bona A, Armieri S. Supraventricular tachyarrhythmia as a first sign of aortic aneurysm. J Health Soc Sci.2016;1(2):137-142

DOI 10.19204/2016/sprv17

Received: 15/04/2015

Accepted: 12/06/2016

Published: 15/07/2016

INTRODUCTION

A recent issue in *Practical Guide to Clinical Management of Thoracic Aortic Disease* [1] reports that physicians and surgeons are often faced with patients with incidental findings of dilated thoracic aortas. Thoracic aortic aneurysms tend to be asymptomatic until acute aortic complications occur.

We report the case of the occasional finding of severe aortic ectasia during the observation of a supraventricular tachyarrhythmia.

CASE REPORT

A 50-year-old man presented in the morning to the emergency room due to the onset of palpitations the previous night. He smokes 5-6 cigarettes a day, drinks 7-8 cups of coffee a day, does not take drugs of abuse and practices regular sport activities. In the past, he has occasionally experienced borderline diastolic blood pressure values. He denied chest pain or dyspnea.

His vital signs were stable, with blood pressure 150/95 mmHg, irregular heart rate 145/minute, respiratory rate 14/minute and normal oxygen saturation (100%). The patient was not marfanoid and was neither pale nor cyanotic. No heart failure was found, and distal pulses were equal.

Laboratory routine exams were normal, in particular: hemoglobin 17.0 g/dl, D-dimer 302 mcg/l, creatinine 1.01 mg/dl, sodium 143 mMol/l and potassium 4.4 mMol/l.

An electrocardiogram (ECG) showed a rapid supraventricular tachyarrhythmia (atrial flutter 2:1).

Transthoracic echocardiography showed severe left ventricular dilatation (telediastolic volume [TVD] 311 ml) with mild systolic dysfunction (ejection fraction [EF] 49%) and left atrial enlargement (LA area: 39 mm; LA volume: 152 ml), sustained by the severe dilatation of the aortic root (64 mm) and an ascending aortic aneurysm (64 mm) with severe aortic regurgitation (Fig. 1).

A computed tomography (CT) scan of the chest confirmed ascending thoracic aortic dilatation from the origin for a length of 6.6 cm, with a transverse diameter of 6.8 cm and

an antero-posterior diameter of 6 cm, due to a saccular aneurysm.

After five days in the cardiology ward, where the arrhythmia was treated with amiodarone and the sinus rhythm was restored, the patient was transferred to a cardiac surgery center.

DISCUSSION

Thoracic aortic disease presents in many different ways, often incidentally after a chest X-ray is performed for other reasons.

In older adults, a history of hypertension, cigarette smoking, hyperlipidemia and a previous abdominal aortic aneurysm are important risk factors for isolated degenerative or atherosclerotic thoracic aortic aneurysms. In younger adults, the focus is more on concomitant congenital heart disease and evidence of previous medical complications. Moreover, chest trauma, evidence of systemic autoimmune disorders and other genetic disorders should be excluded [1]. Apparently, our patient had no such risk factors for an aortic aneurysm.

Two cases of asymptomatic and occasional giant thoraco-abdominal aortic aneurysms were reported recently [2, 3], highlighting echocardiography's potential role in preventing severe complications.

A literature search using the key words 'aortic dilatation' or 'aortic ectasy' and 'supraventricular tachyarrhythmias' or 'atrial fibrillation' was performed using PubMed.

Some reports of aortic dissection presenting with supraventricular arrhythmias exist [4-8], but to our knowledge, this is the first report of an arrhythmia as the first sign of an aortic aneurysm (not dissected). The severe dilatation of the aortic root with aortic regurgitation resulted in left atrial enlargement responsible for the onset of an arrhythmia.

The guidelines for the management of atrial fibrillation [9, 10] do not specify the timing for performing echocardiography.

We think that during the assessment of a patient with paroxysmal tachyarrhythmias in the emergency room, performing echocardiography early can be very useful.

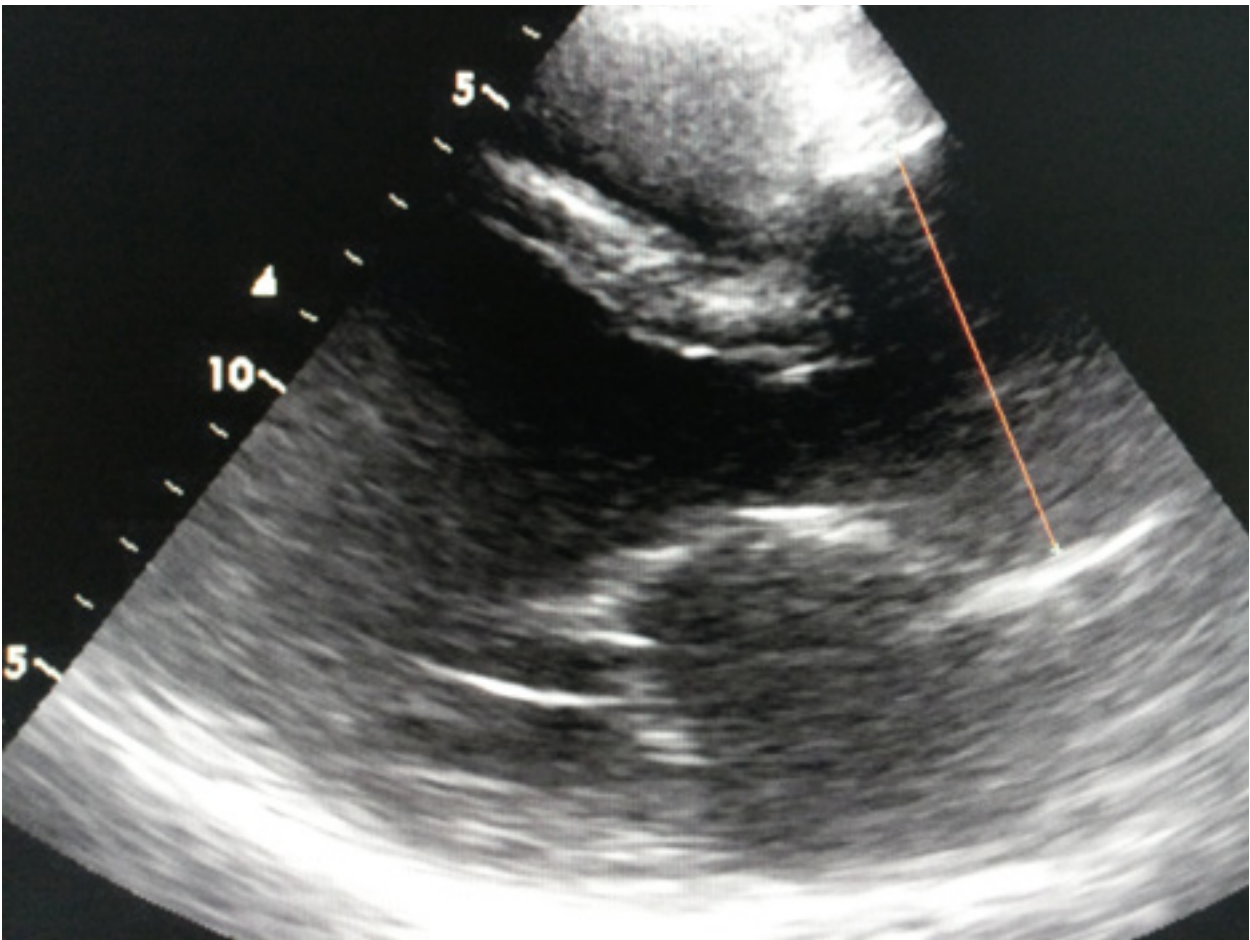


Figure 1. Ascending aortic dilatation on trans-thoracic echocardiography

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