Rev Port Cardiol. 2016;35(10):545.e1–545.e4

Revista Portuguesa de
Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

CASE REPORT

Congenital left ventricular apical aneurysm presenting as ventricular tachycardia

José Amado*, **Nuno Marques, Rui Candeias, Paula Gago, Ilídio de Jesus**

Cardiology Department, Centro Hospitalar do Algarve, Faro, Portugal

Received 5 November 2015; accepted 6 February 2016

KEYWORDS
Congenital left ventricular aneurysm;
Ventricular tachycardia;
Catheter ablation

Abstract The authors present the case of a 34-year-old male patient seen in our department due to palpitations. On the electrocardiogram monomorphic ventricular tachycardia (VT) was documented, treated successfully with amiodarone. The subsequent study revealed a normal echocardiogram and an apical aneurysm of the left ventricle on magnetic resonance imaging, confirmed by computed tomography coronary angiography that also excluded coronary disease.

He underwent an electrophysiological study to determine the origin of the VT and to perform catheter ablation using electroanatomical mapping. VT was induced and radiofrequency applications were performed in the left ventricular aneurysm area. VT was no longer inducible, with acute success. Despite this it was decided to implant a subcutaneous implantable cardioverter-defibrillator (ICD). Eight months after the ablation the patient was admitted again due to VT, treated by the ICD.

PALAVRAS-CHAVE
Aneurisma congénito do ventrículo esquerdo;
Taquicardia ventricular;
Ablação por cateter

Aneurisma apical do ventrículo esquerdo congénito manifestado por taquicardia ventricular

Resumo Os autores apresentam o caso de um doente do sexo masculino, com 34 anos de idade, que recorreu ao serviço de urgência por palpitações. No eletrocardiograma inicial foi documentada uma taquicardia ventricular (TV) monomórfica. O estudo subsequente revelou um ecocardiograma sem alterações, tendo sido observado um aneurisma apical do ventrículo esquerdo na ressonância magnética cardíaca e confirmado na angiografia coronária por tomografia computorizada que excluiu doença coronária.

O doente foi submetido a estudo eletrofisiológico com o objetivo de ser determinada a origem da TV e realizar ablação por cateter recorrendo a mapeamento eletroanatómico. Foi possível induzir TV e efetuar aplicações de radiofrequência na área do aneurisma do ventrículo esquerdo.

* Corresponding author.
E-mail address: pina_amado@hotmail.com (J. Amado).

No final do procedimento a TV deixou de ser induzível. Apesar do sucesso agudo, foi decidido implantar um cardioversor desfibrilhador subcutâneo. Aos oito meses após ablação, o doente foi novamente admitido em internamento por TV, tratada com choques de CDI.

Introduction

Congenital left ventricular aneurysm (LVA) was first described in 1816.[1] It is a rare cardiac malformation, defined as a protrusion from the ventricular cavity with a wide connection (ratio of the connection to the body of the anomaly >1) and without contractility, which may present with an akinetic or dyskinetic movement during systole.[2] Ohlow et al.[3] reported the prevalence of congenital left ventricular aneurysms and diverticulum as 0.76% in a coronary angiogram population.

According to a recent review congenital left ventricular aneurysms are asymptomatic in 41.8% of patients,[4] but can be associated with heart failure, arrhythmias, systemic embolization and sudden death due to ventricular rupture.[2,5]

Ventricular tachycardia may be present in 18.4% of patients with LVA,[5] but few data are available concerning these patients' clinical outcome. Treatment of ventricular tachycardia (VT) in patients with congenital aneurysms can be difficult, and surgical and electrophysiological strategies have been described.[6–8]

Our case documents a rare case of monomorphic VT in a young patient with a congenital left ventricular apical aneurysm, diagnosed by a multimodality imaging study, and our treatment options.

Case report

A 34-year-old male, a regular sports player, presented to our department due to palpitations that had started while playing tennis. He had a past history of Hodgkin lymphoma treated by chemotherapy eight years before, with no evidence of recurring disease.

Previous to the documented episode the patient described two episodes of self-limited palpitations, the first four years previously while playing table tennis, and another eight weeks before the described episode during an argument. He had no family history of sudden death, syncope, ventricular arrhythmias or cardiomyopathy.

On the day that he presented to our department an electrocardiogram (ECG) was performed (Figure 1), which revealed monomorphic ventricular tachycardia with right bundle branch block morphology and superior axis, with a ventricular rate of 256 bpm. As the patient was stable, amiodarone infusion was started, achieving sinus rhythm. His ECG in sinus rhythm showed no changes (Figure 2). The echocardiogram (Figure 3A) revealed no structural abnormalities and the physical examination and laboratory tests showed no remarkable findings.

In order to exclude structural cardiac abnormalities it was decided to perform cardiac magnetic resonance imaging (Figure 3B and C) that exhibited a left ventricular apical aneurysm: ''a saccular apical formation with a thin wall on late gadolinium enhancement, without any scarring of the surrounding myocardium''. He underwent computed tomography coronary angiography that excluded coronary disease and described the same left ventricular apical formation (Figure 3D).

After the diagnosis it was decided to perform an electrophysiological study to determine the origin of the VT and to perform catheter ablation. It was possible to induce VT similar to the clinical VT during the electrophysiological study, and electroanatomical mapping was performed (Figure 4). The reentry circuit and exit point of the tachycardia were inside the aneurysm. Radiofrequency applications were performed with an open-irrigated ablation catheter, targeting diastolic potentials during VT, the tachycardia being terminated during applications. Additional radiofrequency applications were performed in sinus rhythm targeting the exit point of the clinical VT with pace mapping. Radiofrequency applications were limited to 30 W, with a total time of 7 min. At the end of the procedure VT was no longer inducible. Despite this success, it was decided to

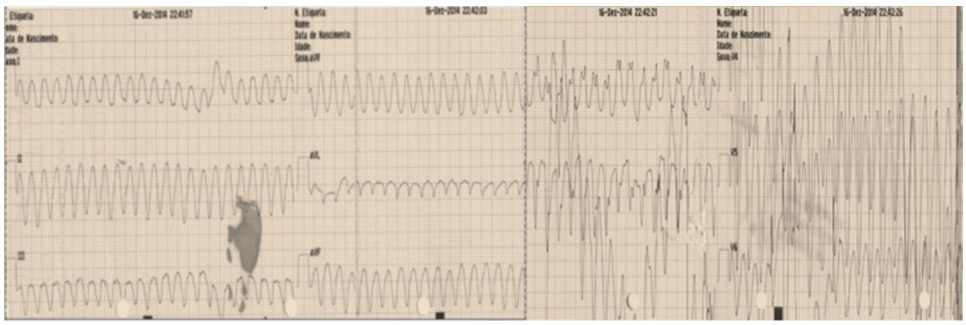

Figure 1 Electrocardiogram of clinical ventricular tachycardia (256 bpm).