CASE REPORT

Sustained ventricular tachycardia as a first manifestation of hypertrophic cardiomyopathy with mid-ventricular obstruction and apical aneurysm in an elderly female patient

Polychronis Dilaveris MD¹ | Constantina Aggeli MD¹ | Andreas Synetos MD¹ | Ioannis Skiadas MD² | Christos-Konstantinos Antoniou MD¹ | Eleftherios Tsiamis MD¹ | Konstantinos Gatzoulis MD¹ | Ioannis Kallikazaros MD² | Dimitrios Tousoulis MD¹

¹1st University Department of Cardiology, Hippokration Hospital, Athens, Greece

²State Department of Cardiology, Hippokration Hospital, Athens, Greece

Correspondence

Polychronis Dilaveris, MD, FESC, 1st University Department of Cardiology, Hippokration Hospital, Athens, Greece.
Email: hrodil1@yahoo.com

Sustained ventricular tachycardia complicating left ventricular apical aneurysms has been reported previously solely in middle-aged patients with hypertrophic cardiomyopathy and mid-cavity obstruction. We report a case of an elderly female patient who presented with incessant ventricular tachycardia as the first clinical manifestation of hypertrophic cardiomyopathy with mid-ventricular obstruction and apical aneurysm.

KEYWORDS

apical aneurysm, hypertrophic cardiomyopathy, mid-ventricular obstruction, ventricular tachycardia

Hypertrophic cardiomyopathy (HCM) is one of the most common forms of primary myocardial disease with an estimated prevalence of 0.2% (1:500) in the general population (Authors/Task Force members, 2014; Maron et al., 1995). Approximately 10% of HCM patients present with mid-ventricular obstruction (Efthimiadis et al., 2013; Minami et al., 2011), which is frequently associated with an apical aneurysm without significant atherosclerotic coronary artery disease (Cui, Suo, Zhao, Li, & Liu, 2016; Fan, Chau, & Chiu, 2005; Ito et al., 2002; Jiang, Han, Wang, Lu, & Wu, 2002; Mantica, Della Bella, & Arena, 1997; Sato et al., 2007). Although the clinical course varies in HCM patients with apical aneurysms, the overall prognosis is largely unfavorable (Shah et al., 2009). The overall rate of adverse clinical outcomes, such as sudden death, embolic stroke, and progressive heart failure, is 10.5% per year, which is significantly higher than that reported in the general HCM population (Maron et al., 2008). Sustained ventricular tachycardia (VT) complicating left ventricular (LV) apical aneurysms has been reported previously only in middle-aged HCM patients (Alfonso, Frenneaux, & McKenna, 1989; Cannavà & Currò, 2015; Ito et al., 2002; Ma & Fu, 2016; Mantica et al., 1997; Mörner, Johansson, & Henein, 2011; Pérez-Riera, Barbosa-Barros, de Lucca, Jr, & de Abreu, 2016; Shah, Schaff, Abel, & Gersh, 2011).

We report a case of an elderly female patient who presented with incessant VT as the first clinical manifestation of HCM with mid-ventricular obstruction and apical aneurysm. An 80-year-old woman

was admitted to our hospital because of a syncope attack due to sustained VT. She had a 20-year history of well-controlled arterial hypertension and no family history of heart disease. The 12-lead electrocardiogram (ECG) revealed incessant monomorphic VT (182 beats/min) with right bundle branch block morphology in V₁ and a QS pattern in leads I, II, aVF, and V₂₋₆, and an axis of -143° (Figure 1a). VT was drug resistant and was only electrically cardioverted to sinus rhythm. The 12-lead ECG during sinus rhythm showed negative T waves in leads I, II, aVL, aVF, and V₂₋₆ with slight ST elevation in II, III, aVF, and V₃₋₅. QRS fragmentation was evident in leads I, V₂, and V₃ (Figure 1b). The signal-averaged ECG showed only the presence of slightly prolonged filtered QRS duration (118 ms). The patient reported no chest discomfort and laboratory tests were within normal limits, apart from a slight increase in troponin I levels postcardioversion. Echocardiography (Figure 1c) showed clear evidence of HCM with severe LV hypertrophy, mid-cavity ventricular obstruction, and an apical aneurysm. Ejection fraction was 50%. A coronary angiogram showed nonsignificant atherosclerotic coronary artery disease. Left ventriculography showed mid-cavity obliteration in systole and a large apical aneurysm (Figure 1d). Since the patient refused surgical treatment, a dual-chamber ICD was implanted.

Sustained VT complicating LV apical aneurysms has been reported previously in HCM patients with LV mid-cavity obstruction (Alfonso et al., 1989; Cannavà & Currò, 2015; Ito et al., 2002; Ma & Fu, 2016;

FIGURE 1 (a) Twelve-lead ECG during sustained monomorphic ventricular tachycardia. (b) Twelve-lead ECG during sinus rhythm. (c) Transthoracic echocardiography—apical four-chamber view with color Doppler: severe LV hypertrophy with mid-cavity obstruction and apical aneurysm. (d) Left ventriculography: mid-cavity obliteration in systole and a large apical aneurysm.

Mantica et al., 1997; Mörner et al., 2011; Pérez-Riera et al., 2016; Shah et al., 2011). The ECG characteristics during VT and sinus rhythm, as well as the echocardiographic findings in the present case report, are similar to those previously reported (Alfonso et al., 1989; Cannavà & Currò, 2015; Ito et al., 2002; Ma & Fu, 2016; Mantica et al., 1997; Mörner et al., 2011; Pérez-Riera et al., 2016; Shah et al., 2011). What makes this report unique is the patient's age. Only one report in the literature (González Torrecilla et al., 1997) disclosed the appearance of sustained VT in a 81-year-old woman with HCM, mid-cavity obstruction, and a LV apical aneurysm who presented with a lateral acute myocardial infarction. The majority of the other similar reports are confined to middle-aged HCM patients. Large cohort studies signify that the first clinical presentation of HCM should be expected at a younger age (Anastasakis et al., 2013; Elliott et al., 2016). However, the present report stresses the need to be aware of the possibility to deal with sustained VT as the first clinical presentation of HCM with mid-cavity obstruction and a LV apical aneurysm even in the elderly patients.

CONFLICT OF INTEREST

The authors have no potential conflict of interest to declare.

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