ARCHIVES OF HELLENIC MEDICINE: ISSN 11-05-3992

CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Electrocardiogram Quiz – Case 21

ARCHIVES OF HELLENIC MEDICINE 2015, 32(1):118–119
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2015, 32(1):118–119

E. Petrou,[1]
A. Tsipis,[1]
M. Boutsikou,[2]
V. Vartela,[1]
G. Karatasakis,[1]
G. Athanassopoulos[1]

[1]Division of Cardiology, "Onassis" Cardiac Surgery Centre, Athens, Greece
[2]Adult Congenital Heart Disease and Pulmonary Hypertension, Royal Brompton and Harefield NHS Foundation Trust, London, United Kingdom

A 69-year-old woman with an unremarkable past medical history, presented to the emergency department with palpitations and dizziness of half an hour duration. The patient was hemodynamically stable and afebrile. The initial 12-lead surface ECG is depicted in figure 1. Cardioversion with intravenous procainamide administration revealed the ECG depicted in figure 2.

Questions

a. Based on the ECG depicted in figure 1, why did the treating team decide to administer procainamide?
b. What is your diagnosis based on the ECG depicted in figure 2, and what further investigations and treatment would you suggest?

Comment

Hypertrophic cardiomyopathy (HCM) is one of the most common inherited cardiac disorders (affecting approximately 1 in 500

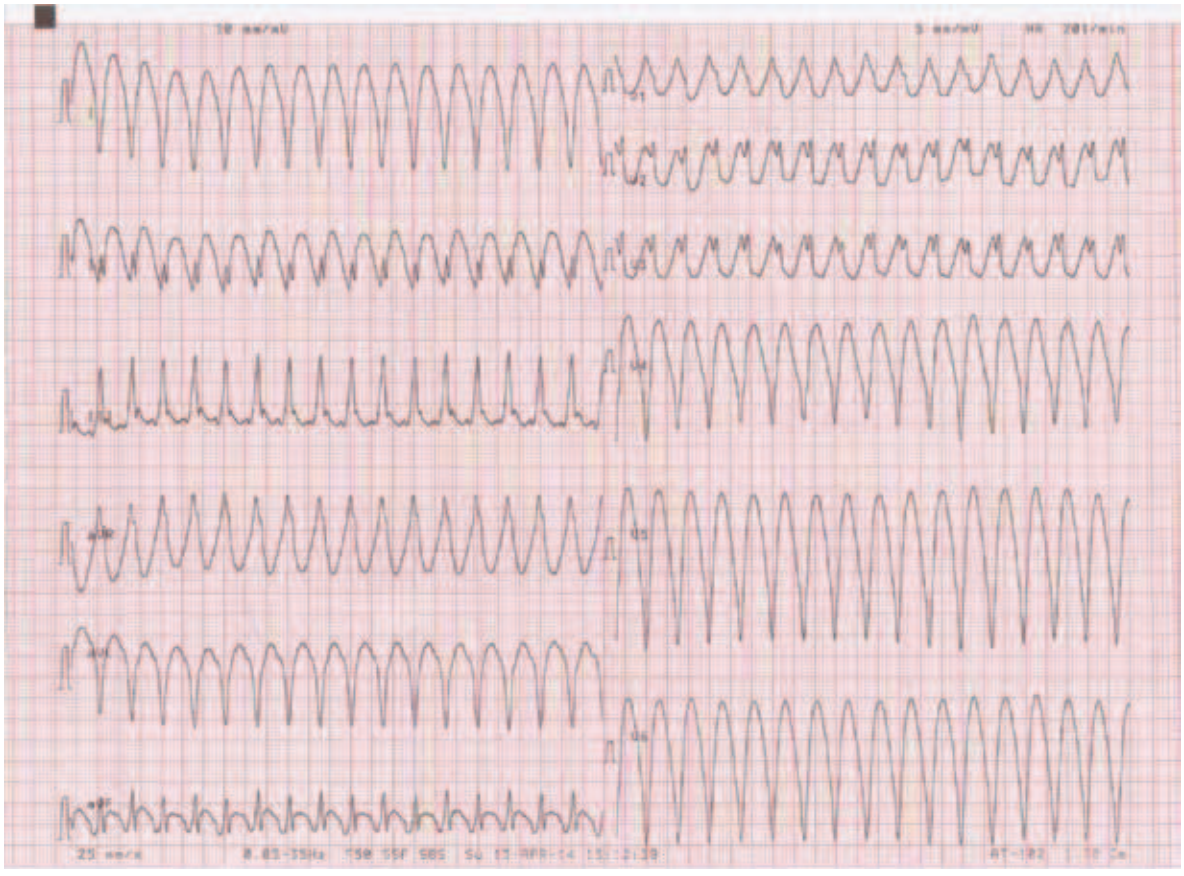

Figure 1

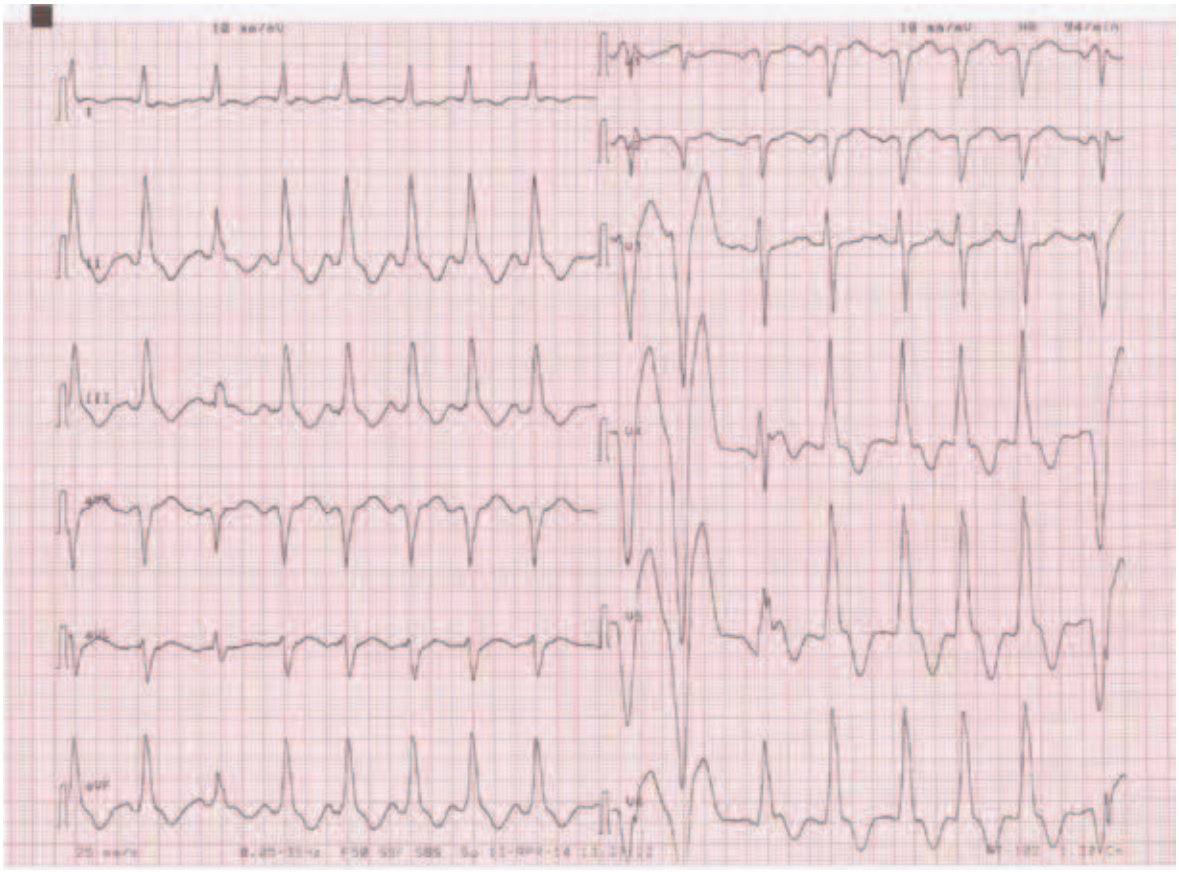

Figure 2

people) and is the number one cause of sudden cardiac death in young athletes. Annual mortality is estimated at 1–2%.

On the ECG, left ventricular hypertrophy results in increased precordial voltages and non-specific ST-segment and T-wave abnormalities. Asymmetrical septal hypertrophy produces deep, narrow ("dagger-like") Q waves in the lateral (V5–6, I, aVL) and inferior (II, III, aVF) leads, or deep T-wave inversion in the anterior leads, as in our case. Left ventricular diastolic dysfunction may lead to compensatory left atrial hypertrophy, with signs of left atrial enlargement ("P mitrale") on the ECG. There is an association between HCM and Wolff-Parkinson-White syndrome. Atrial fibrillation and supraventricular tachycardias are common. Ventricular dysrhythmias, especially ventricular tachycardia, also occur, as in our patient, and may be a cause of sudden death.

In our patient, transthoracic echocardiography revealed mid-ventricular hypertrophy with an apical aneurysm. Mid-ventricular obstructive hypertrophic cardiomyopathy comprises a very rare subtype of HCM, accounting for only 1% of cases. Coronary arteriography demonstrated normal coronary arteries, while left ventriculography revealed mid-ventricular obliteration. The patient received an implantable cardioverter-defibrillator and was discharged with explicit instructions and medication.

References

1. MARON BJ. Hypertrophic cardiomyopathy: A systematic review. *JAMA* 2002, 287:1308–1320
2. MARON MS, FINLEY JJ, BOS JM, HAUSER TH, MANNING WJ, HAAS TS ET AL. Prevalence, clinical significance, and natural history of left ventricular apical aneurysms in hypertrophic cardiomyopathy. *Circulation* 2008, 118:1541–1549
3. HOLLOWAY CJ, BETTS TR, NEUBAUER S, MYERSON SG. Hypertrophic cardiomyopathy complicated by large apical aneurysm and thrombus, presenting as ventricular tachycardia. *J Am Coll Cardiol* 2010, 56:1961
4. PETROU E, KYRZOPOULOS S, SBAROUNI E, TSIAPRAS D, VOUDRIS V. Mid-ventricular hypertrophic obstructive cardiomyopathy complicated by an apical aneurysm, presenting as ventricular tachycardia. *J Cardiovasc Ultrasound* 2014, 22:158–159

Corresponding author:

E.G. Petrou, Division of Cardiology, "Onassis" Cardiac Surgery Centre, 356 Sygrou Ave., GR-176 74 Kallithea, Greece
e-mail: emmgpetrou@hotmail.com

Diagnosis: *Hypertrophic obstructive cardiomyopathy presenting as ventricular tachycardia*