An overlooked diagnosis on transthoracic echocardiography: 
apical hypertrophic cardiomyopathy

Transtorasic ekokardiyografide gözden kaçan bir tanı: Apikal hipertrofik kardiyomiyopati

Ömer Yiğiner, M.D., Bekir Yılmaz Cingözbay, M.D., Ömer Uz, M.D., Bekir Sıtkı Cebeci, M.D.

Department of Cardiology, Haydarpaşa Training Hospital, Gülhane Military Medical Academy, İstanbul

Apical hypertrophic cardiomyopathy (HCM) may be overlooked during routine echocardiography. A 54-year-old male patient with dyslipidemia and positive family history presented with atypical chest pain. The 12-lead electrocardiogram showed increased QRS voltage and deep T-wave inversions in precordial leads. Transthoracic echocardiography performed with poor echocardiographic windows demonstrated normal findings. Coronary angiography showed normal coronary arteries. Left ventriculography revealed a spade-like deformity (ace of spades), typical for apical HCM. Cardiac magnetic resonance imaging confirmed the diagnosis.

**Key words:** Cardiomyopathy, hypertrophic; catheterization; echocardiography; electrocardiography; magnetic resonance imaging.

Limited transthoracic echocardiographic examination due to poor echocardiographic windows demonstrated normal findings with an ejection fraction of 64%. We decided to perform coronary angiography in order to clarify the findings on his electrocardiogram. Angiography showed normal coronary arteries without any stenosis in the coronary tree. Left ventriculography revealed a spade-like deformity (ace of spades), typical for apical HCM at diastole and marked obliteration of the left ventricular apex at systole (Fig. 2). Cardiac magnetic resonance imaging (MRI) also demonstrated marked thickening of the left ventricular apex, confirming apical HCM (Fig. 3).

**DISCUSSION**

Patients with apical HCM may have little or no symptoms. Large negative T-waves and increased QRS
voltage in leads V3-6 are characteristic ECG findings for apical HCM.\[5\] Although echocardiography is the tool of choice for the diagnosis of all types of HCM, apical HCM may be overlooked in patients with poor echocardiographic windows, as in our case.\[3\] Cardiac MRI may be used especially if the apex is difficult to visualize on transthoracic echocardiography.\[6\] On catheterization, apical HCM has a distinctive left ventricular appearance, “ace of spades”, with obliteration of the apex during systole.\[5,7\] Apical HCM generally has a more benign course compared to other variants of HCM. Although it usually does not lead to outflow tract obstruction like other variants, it may cause arrhythmias.\[1\] Therefore, it may be necessary to identify patients at risk for sudden death. In an asymptomatic patient with no evidence for myocardial ischemia or significant arrhythmia, no specific therapy is needed.\[1\]

In conclusion, a routine echocardiogram without contrast may not exclude apical HCM in patients with unexplained repolarization abnormalities on precor-
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Further imaging with cardiac MRI or contrast echocardiography may be required.

REFERENCES