Echocardiography in apical hypertrophic cardiomyopathy

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Introduction: Apical hypertrophic cardiomyopathy (HC) is a rare type of cardiomyopathy characterized by hypertrophy involving the left, and sometimes right ventricular apex. It is more prevalent in the Asian population where it accounts for 25% of patients with HC. In the non-Asian population, it accounts for 1 to 10% of hypertrophic cardiomyopathy cases[1,2]. The echocardiographic diagnostic criteria for apical HC include a demonstration of apical hypertrophy, apical wall thickness ≥ 15 mm, and a ratio of maximal apical to posterior wall thickness ≥ 1.5[2]. We present a case of apical HC in a 68-year-old patient.

Case report: 68-year-old female patient was brought to the emergency department with symptoms of chest pain and dyspnea. 12-lead electrocardiogram (ECG) showed sinus rhythm with negative T waves in the anterolateral and inferior leads and voltage criteria for left ventricular hypertrophy. Her blood-work was unremarkable, except for slightly increased values of N-terminal brain natriuretic peptide which was 1107 pg/ml. The high sensitive troponin T level was 36.1 ng/L. She was admitted to the Cardiac Intensive Care Unit for further observation and diagnostics. The coronary angiogram was normal. Ventriculography revealed a spade-like-shaped left ventricular cavity (**Figure 1**). Echocardiography confirmed the same shape of the left ventricle due to hypertrophy of apical segments of the LV with maximum wall thickness of 19 mm (**Figure 2**). The global longitudinal strain was reduced in apical and middle segments **(Figure 3**) and LVEF was 61%. The patient was scheduled for cardiac magnetic resonance imaging, but she refused the imaging due to claustrophobia.

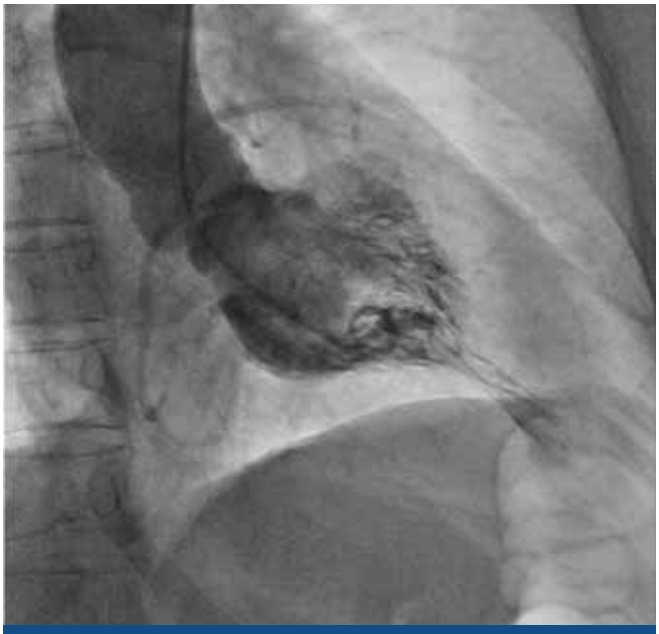

FIGURE 1. Ventriculography in patient with apical hypertrophic cardiomyopathy.

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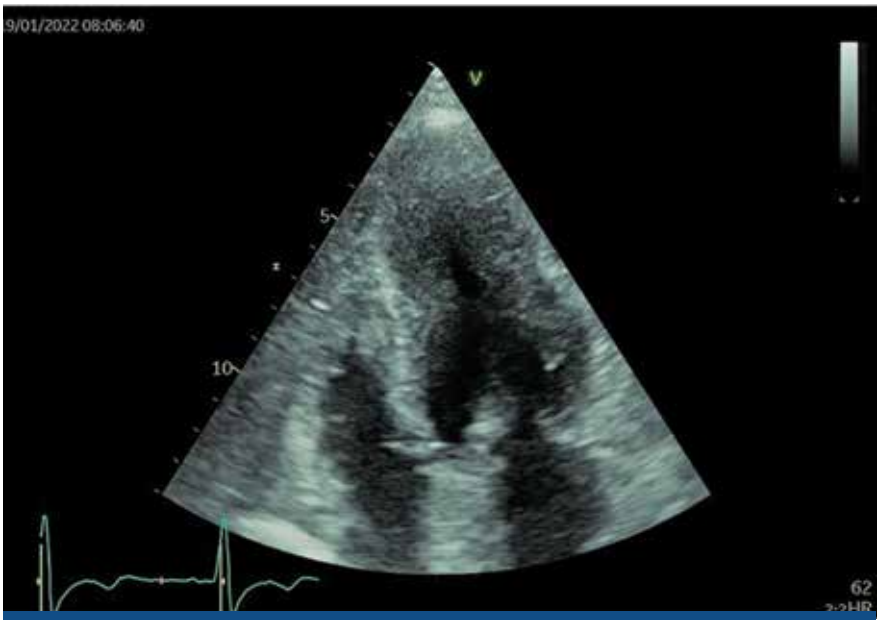

FIGURE 2. 4-chamber echocardiography view of apical hypertrophic cardiomyopathy with apical wall thickness of 19 mm and spade-like shaped left ventricular cavity.

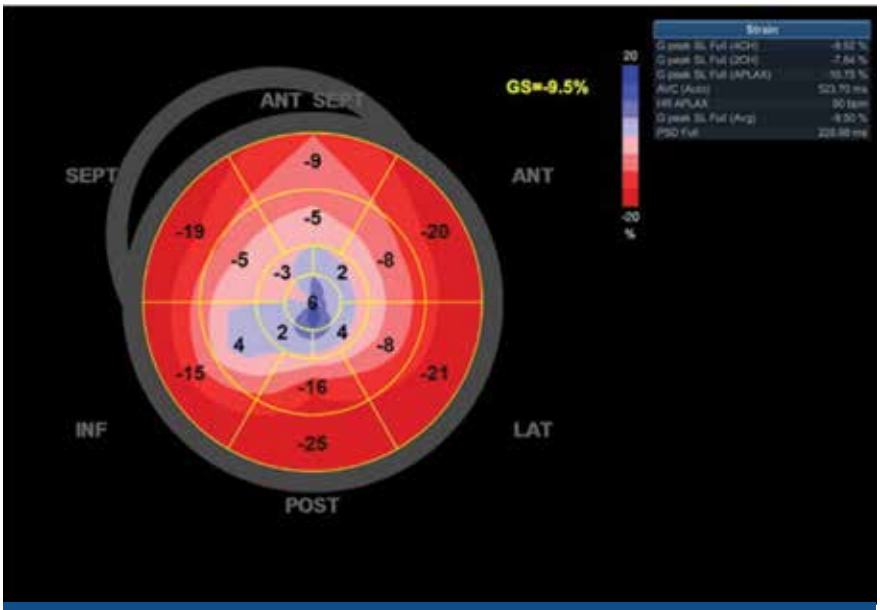

FIGURE 3. Global longitudinal strain in apical hypertrophic cardiomyopathy.

Conclusion: Although apical HC is not so common in the European population, it should be considered as a differential diagnosis in patients with typical ECG changes. These patients can present with a broad range of symptoms, including palpitations, dyspnea, syncope, exercise intolerance, and chest pain. Although it is not associated with increased cardiovascular mortality, up to one-third of patients with apical HC can develop serious complications, e.g., arrhythmias, myocardial infarction, and stroke.

LITERATURE

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