

Echocardiography in apical hypertrophic cardiomyopathy

Tea Domjanović Škopinić^{1,*},
Vedran Carević¹,
Ivona Mustapić¹,
Paula Radić¹,
Anja Mandrapa¹,
Darija Baković Kramarić^{1,2}

¹University Hospital of Split,
Split, Croatia

²University of Split School of
Medicine, Split, Croatia

KEYWORDS: apical hypertrophic cardiomyopathy, ventriculography, global longitudinal strain.

CITATION: Cardiol Croat. 2023;18(5-6):141-2. | <https://doi.org/10.15836/ccar2023.141>

***ADDRESS FOR CORRESPONDENCE:** Tea Domjanović Škopinić, Klinički bolnički centar Split, Šoltanska 1, HR-21000 Split, Croatia. / Phone: +385-98-9757-677 / E-mail: tea.domjanovic@gmail.com

ORCID: Tea Domjanović Škopinić, <https://orcid.org/0000-0002-4989-6974> • Vedran Carević, <https://orcid.org/0000-0002-0009-5009>
Ivona Mustapić, <https://orcid.org/0000-0002-1534-3642> • Paula Radić, <https://orcid.org/0000-0002-7273-6696>
Anja Mandrapa, <https://orcid.org/0009-0002-3416-5906> • Darija Baković Kramarić, <https://orcid.org/0000-0001-6751-5242>

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 $\geq 1.5^2$. 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 bloodwork 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.

RECEIVED:
March 15 2023

ACCEPTED:
March 29, 2023





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

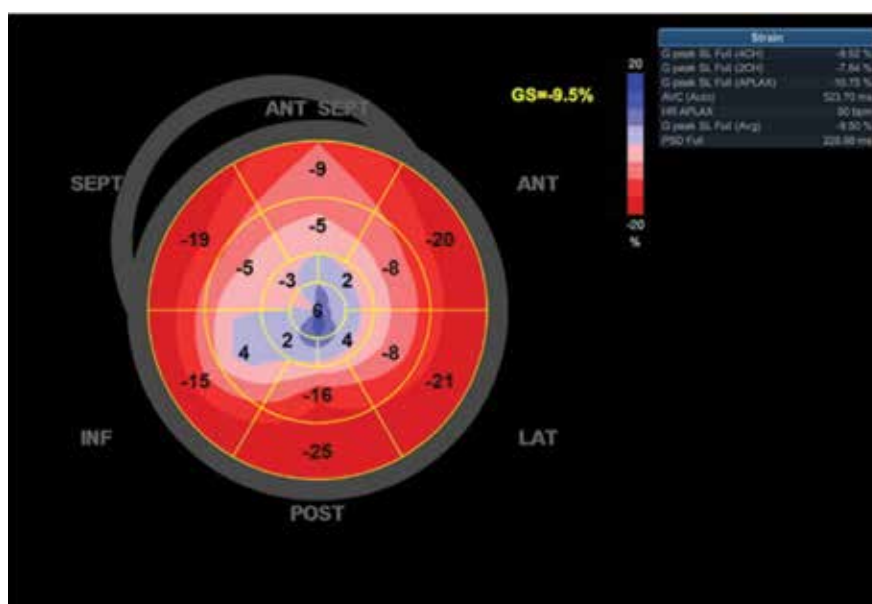


FIGURE 3. Global longitudinal strain in apical hypertrophic cardiomyopathy.

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

1. Klarich KW, Attenhofer Jost CH, Binder J, Connolly HM, Scott CG, Freeman WK, et al. Risk of Death in Long-Term Follow-Up of Patients With Apical Hypertrophic Cardiomyopathy. *Am J Cardiol.* 2013 Jun;111(12):1784-91. <https://doi.org/10.1016/j.amjcard.2013.02.040>
2. Eriksson MJ, Sonnenberg B, Woo A, Rakowski P, Parker TG, Wigle ED, et al. Long-term outcome in patients with apical hypertrophic cardiomyopathy. *J Am Coll Cardiol.* 2002 Feb 20;39(4):638-45. [https://doi.org/10.1016/S0735-1097\(01\)01778-8](https://doi.org/10.1016/S0735-1097(01)01778-8)