



# A Nonobstructive Cyst in the Left Ventricular Outflow Tract of a Patient with Hypertrophic Cardiomyopathy

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A 50-year-old man presented to our hospital with the chief complaint of palpitation. Physical examinations were unremarkable except for irregular heart rhythms. Electrocardiography demonstrated an atrial fibrillation rhythm and a right bundle branch block.

The patient was a known case of nonobstructive hypertrophic cardiomyopathy of several years' duration. Additionally, he had recently suffered an episode of syncope, and electrocardiography Holter monitoring had revealed multiple episodes of nonsustained ventricular tachycardias. He also had a history of hypertension, which was controlled with bisoprolol, amlodipine, and furosemide. Accordingly, the patient was candidate for intracardiac defibrillator implantation. Transthoracic echocardiography, in the absence of good echo windows, only confirmed the presence of asymmetric septal hypertrophy with a maximal thickness of 25 mm. Moreover, the left ventricular ejection fraction was about 65%, there was no left ventricular outflow tract (LVOT) obstruction, and the left atrium was moderately enlarged. Transesophageal echocardiography demonstrated the presence of a cystic lesion (6×8 mm), containing a thin wall and an echo-free center attached to the posterior wall of the LVOT near the anterior mitral leaflet's attachment. Additionally, there was a small membrane on the opposite side of the LVOT, on the interventricular septum (Figure 1). Finally, the patient underwent intracardiac defibrillator implantation. We also added warfarin to his drug regimen because of the presence of the atrial fibrillation rhythm. In the follow-up of the patient, transesophageal echocardiography was not done, and transthoracic echocardiography was not informative regarding the fate of this cyst because of poor echo windows.

To our knowledge, we are the first to report an incidental cystic lesion in the LVOT of a patient with hypertrophic cardiomyopathy. Cystic subaortic membranes, hydatid cysts, foregut cysts, and blood cysts comprise the differential diagnosis.<sup>1-5</sup> The mitral valve is the most common site for intracardiac blood cysts. The acquired form is due to trauma, and the congenital form is in consequence of blood compaction and entrapment in endothelial tears, which are eventually sealed off.<sup>6</sup> A similar mechanism has been proposed for the formation of cystic subaortic membranes.<sup>2</sup>

In our patient, we incidentally found a cyst that was suggestive of a discrete type subaortic membrane or blood cyst without hemodynamic effects, and we opted for medical follow-up. Notably, conservative management for blood cysts in asymptomatic patients without LVOT obstruction is recommended.<sup>6</sup> The existing literature contains few cases of cystic lesions in the LVOT without any impact on the mitral apparatus; therefore, this report serves as a reminder that cystic lesions may occur in the LVOT

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and that their differential diagnosis is of significance.

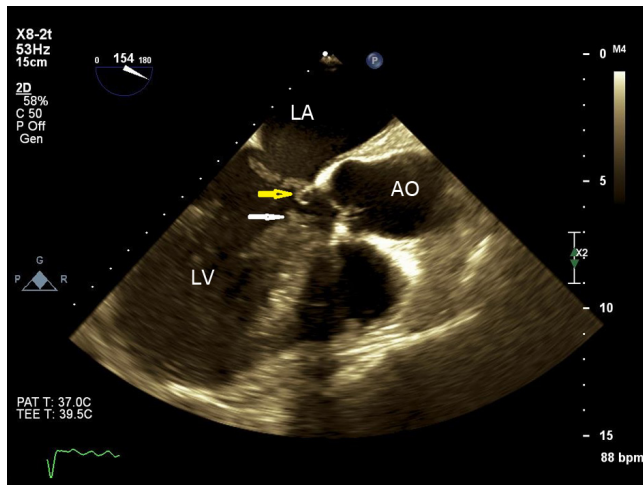


Figure 1. Nonobstructive cyst in the posterior wall of the left ventricular outflow tract (yellow arrow) and a membrane on the opposite wall (white arrow) in the modified long-axis view of transesophageal echocardiography AO, Aorta, LA: Left atrium; LV, Left ventricle

**To watch the following video, please refer to the relevant URL:**

<https://jthc.tums.ac.ir/index.php/jthc/article/view/1201/942>

Video 1. Nonobstructive cyst in the posterior wall of the left ventricular outflow tract and a membrane on the opposite wall in the modified long-axis view of transesophageal echocardiography

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