The Journal of Tehran University Heart Center

Photo Clinic

A Case of Myocardial Lipomatous Metaplasia as a Late Complication of Myocardial Infarction

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Received 28 September 2022; Accepted 05 February 2023

A 57-year-old man was referred to our echocardiography laboratory for a more accurate evaluation of left ventricular (LV) function. The patient had experienced an anterior myocardial infarction (MI) and undergone angioplasty 2 years earlier and now presented with a recurrent acute anterior MI and in-stent restenosis based on coronary angiography. Transthoracic echocardiography revealed severe LV dilation (LV end-diastolic volume index=103 mL/m^2) and severe LV systolic dysfunction (LV ejection fraction=26% by the Simpson method) with aneurysmal and akinetic LV apical segments. There was a hypoechogenic region around the apical segments of the myocardium, similar to pericardial fat pad tissue. Accordingly, we suspected localized pericardial effusion or intramyocardial hematoma. Additionally, a region of hyper-echodensity was observed in the LV apical segments, raising suspicion of apical thrombosis (Figure 1). The differential diagnosis of myocardial hypoattenuation in echocardiography includes myocardial scar tissue, intramyocardial hematoma, thrombosis, and adiposis infiltration. The first diagnosis based on echocardiography was thrombosis, and the second hypothesis was intramyocardial hematoma. A computed tomography angiography identified myocardial lipomatous metaplasia as the primary diagnosis. However, that the patient did not undergo cardiac magnetic resonance imaging (CMR) renders the final diagnosis dubious (Figure 2).

Lipomatous metaplasia of the myocardium is a rare manifestation of chronic myocardial ischemia and the replacement of myocardial fibers with adipose tissue.[1] The accurate etiology of this pathology is unknown, but it is almost always seen in myocardial fibrosis in the background.[1] Usually, echocardiography is unable to recognize this pathology; therefore, CMR is the gold standard for diagnosis.[1] In CMR, this scenario should not be confused with late gadolinium enhancement.[1]

Cardiac computed tomography can also recognize myocardial lipomatous metaplasia; nonetheless, CMR is the best diagnostic modality.[2]

Lipomatous metaplasia is also seen in dilated cardiomyopathy and arrhythmogenic cardiomyopathy.[3] Myocardial lipomatous metaplasia can be misdiagnosed as thrombosis.[2] A few associations have been documented between lipomatous metaplasia and the increased risk of ventricular arrhythmia, heart failure, and large infarct size in patients with a history of myocardial infarction.[2] Notably, lipomatous metaplasia increases the risk of heart failure hospitalization, mortality, and life-threatening arrhythmias.[2]

J Teh Univ Heart Ctr 2023;18(4):308-309

This paper should be cited as: Zoroufian A, Borjian S. A Case of Myocardial Lipomatous Metaplasia as a Late Complication of Myocardial Infarction. J Teh Univ Heart Ctr 2023;18(4):308-309.

Keywords: *Myocardial infarction; Echocardiography; Lipomatous; Metaplasia; Ischemia*

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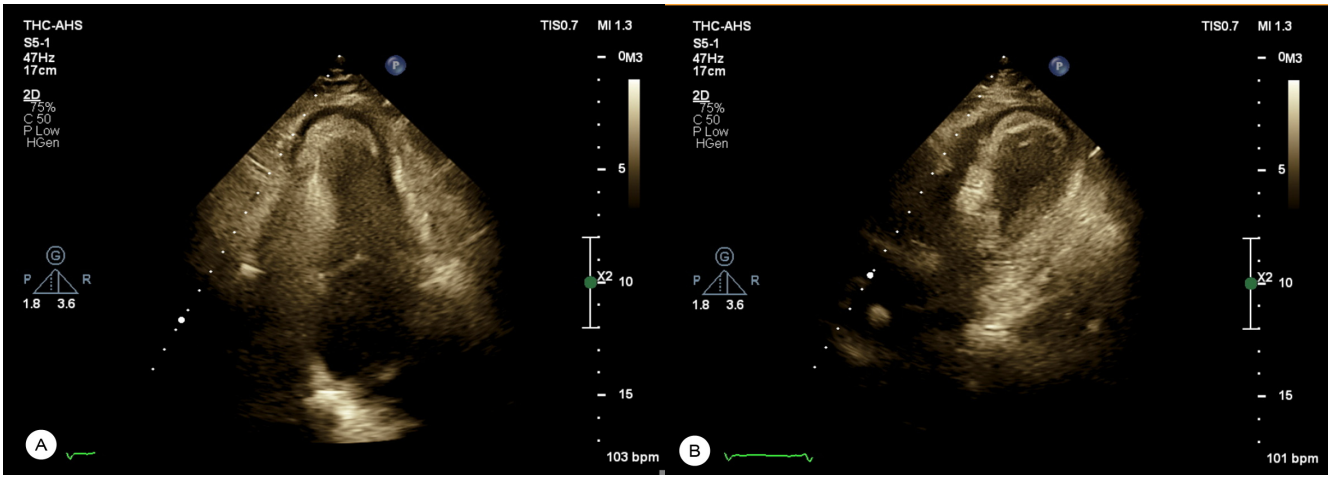

Figure 1. The patient's transthoracic echocardiographic examination in the apical 4-chamber view shows left ventricular apical thinning and aneurysmal formation with a hyperechoic mass, raising suspicion of thrombosis.

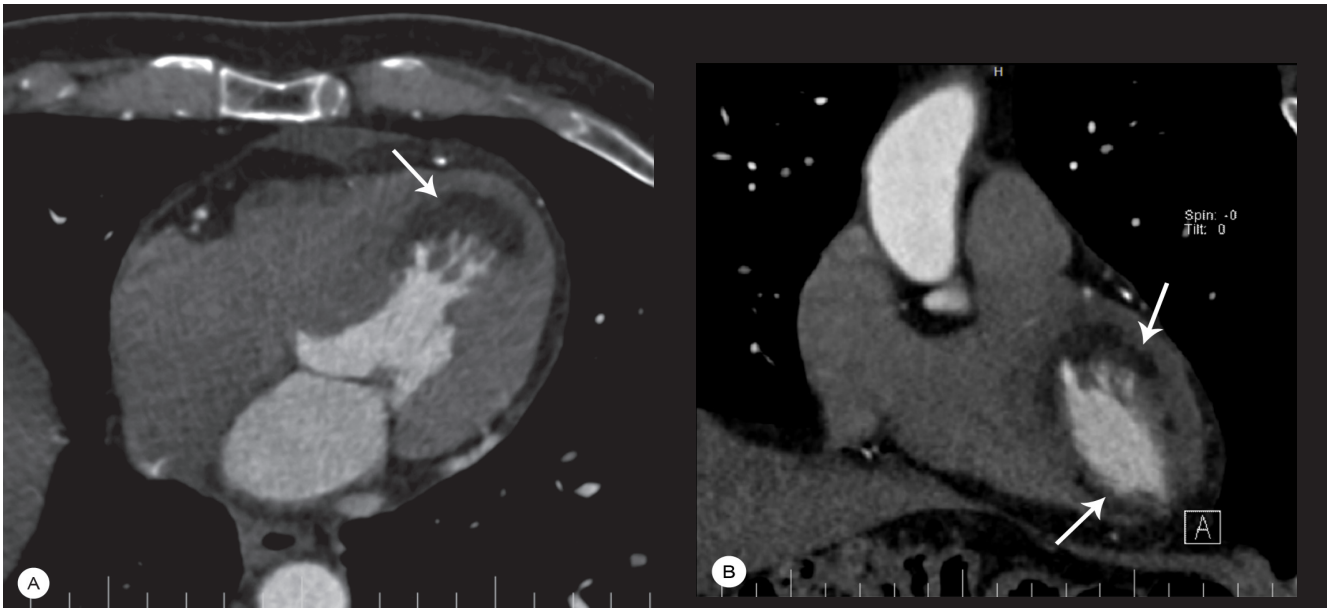

Figure 2. The images present the patient's computed tomography angiography, showing myocardial lipomatous metaplasia in the axial and coronal views.

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