

IMAGING VIGNETTE

CLINICAL VIGNETTE

Ventricular Intramyocardial Dissecting Hematoma



What Is its True Clinical Evolution and the Best Treatment?

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ABSTRACT

Intramyocardial dissecting hematoma (IDH), in the setting of an acute coronary syndrome, is a rare type of cardiac rupture. However, the best treatment for IDH in each clinical scenario is not clearly defined. We present a case in which the best approach for IDH and its final outcome are discussed. (J Am Coll Cardiol Case Rep 2023;28:102085)

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A 71-year-old woman with persistent fever and leukocytosis was referred to a community hospital. Her medical history was significant for hypertension and a myocardial infarction, which was treated conservatively 10 years ago, leading to chronic heart failure. Empirical antibiotic therapy had been started according to the initial diagnosis of pyelonephritis. Among other medications, the patient was receiving double antiplatelet therapy because of her history of ischemic cardiomyopathy and anticoagulant medication with low-molecular-weight heparin at prophylactic doses due to bed rest. However, her clinical evolution was unsatisfactory and, therefore, she was transferred to our hospital. At arrival, she did not present any cardiac symptom and a troponin T test was negative. Transthoracic echocardiography was performed on suspicion of endocarditis, revealing the absence of valvular vegetation but suggesting a disruption of the myocardial free wall with an endocardial flap and an echo-free cavity (**Figure 1A, Video 1**). It also showed apical akinesia with severe left ventricular dysfunction. The administration of echocardiographic contrast demonstrated the absence of flow into the cavity, due to thrombotic occlusion of the entry tear (**Figure 1B, Video 2**). Cardiac magnetic resonance (CMR) identified an apical intramyocardial dissecting hematoma (IDH) associated with a pseudoaneurysm and confirmed the presence of a thrombosis sealing the entry tear (**Figure 1C, Video 3**). Coronary angiography demonstrated total medial occlusion of the left anterior descending artery, and heart surgery was proposed, but the patient refused. Percutaneous treatment was not feasible, due to the type of lesion, and the revascularizable territory was not viable according to CMR. Therefore, it was considered to stop anticoagulant medication, to maintain simple antiplatelet therapy and only perform relative rest. Antibiotic therapy was continued and fever resolved. Finally, she was discharged. Follow-up with imaging techniques confirmed the complete thrombosis of the IDH and the pseudoaneurysm (**Figures 1D to 1F, Videos 4 and 5**).

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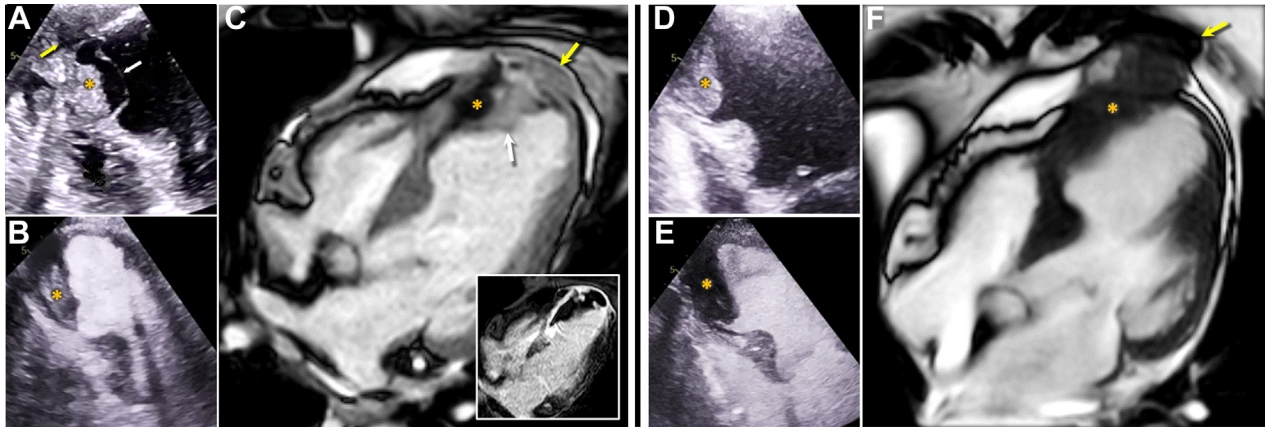
**ABBREVIATIONS
AND ACRONYMS****CMR** = cardiac magnetic resonance**IDH** = intramyocardial dissecting hematoma

Different types of cardiac rupture have been described in the setting of acute coronary syndrome, with IDH being one of the most infrequent types.^{1,2} Furthermore, several lesions can be associated in the same patient, as in our case (Supplemental Figure 1). Its treatment is not clearly defined, particularly in subacute/chronic cases with nondefined clinical course injuries such as IDH.² Surgery has been proposed as the gold-standard treatment for post-myocardial infarction rupture because of the risk of complete tearing of the ventricular wall.¹ Nevertheless, given the high surgical risk in such cases, both percutaneous and medical approaches have been postulated as feasible and safe second options depending on the type of lesion.^{1,3} When the IDH presents with entry tear thrombosis, this can seal the cavity and prevent increasing pressure on the damaged wall, reducing the potential risk of rupture and facilitating blood stasis (Supplemental Figure 2). As in our case, early interruption of anticoagulation, combined with adjustment of antiplatelet medication and relative rest, may be a conservative treatment approach that could facilitate complete thrombosis of the lesion.

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FIGURE 1 Case Evolution by Cardiac Imaging Techniques

(A) Modified apical 4-chamber transthoracic echocardiographic image illustrating an intramyocardial dissecting hematoma (IDH) with a flap (white arrow) and with a thrombus inside (asterisk). The yellow arrow indicates a pseudoaneurysm at the left ventricular apex. (B) Contrast apical 2-chamber transthoracic echocardiographic image showing the thrombus (yellow asterisk) impeding the entry of echocardiographic contrast into the IDH. (C) Cardiac magnetic resonance (CMR) imaging 4-chamber early gadolinium enhancement confirming IDH, with the wobbling flap, and a thrombus impeding the entry of blood into the cavity. The yellow arrow indicates a pseudoaneurysm at the left ventricular apex, distorting the cardiac contour. At the bottom, CMR imaging late gadolinium enhancement sequences in 4-chamber plane demonstrating lack of contrast entry into the IDH and pseudoaneurysm. Necrosis of the ventricular wall is noted in relation to the previous ischemic event and deformation of the apex with entry tear of the IDH into the pseudoaneurysm. (D, E) Modified apical 4-chamber transthoracic echocardiographic images with and without echocardiographic contrast depicting IDH thrombosis in the follow-up study. (F) CMR imaging 4-chamber cine sequences confirming complete thrombosis of the IDH and pseudoaneurysm.

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KEY WORDS cardiac magnetic resonance, echocardiography, myocardial infarction

 **APPENDIX** For supplemental figures and videos, please see the online version of this paper.