

## C A S E R E P O R T

# Routine screening with contrast echocardiography in apical infarctions? A case report

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**Abstract.** *Background:* Left ventricular (LV) thrombus detection after acute myocardial infarction (MI) impacts embolic event risk and anticoagulant therapy. *Aim and methods:* An 80-year-old male underwent routine transthoracic echocardiography the day after primary percutaneous revascularization procedure for ST-elevation myocardial infarction. When ultrasound contrast was injected, regular contrast-enhancement of the left ventricle (LV) excluded the presence of thrombus. A second echocardiogram, performed four months later, showed a hyperechoic image in the LV apex, which was confirmed after contrast injection as a thrombus. Four weeks later, a third follow-up echocardiogram appears apparently normal. However, contrast injection clearly demonstrates a new apex thrombus, in a slightly different location from the one detected previously. *Results:* Standard echocardiography is often inconclusive or falsely negative regarding the detection of apical thrombus. *Conclusion:* Maybe the time has come for routine contrast-echo screening in post-myocardial infarction patients with the high likelihood of thrombus, such as in cases of apical infarction, even if the standard echocardiogram appears unremarkable. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** Contrast Echocardiography, Thrombus, Apical Infarctions

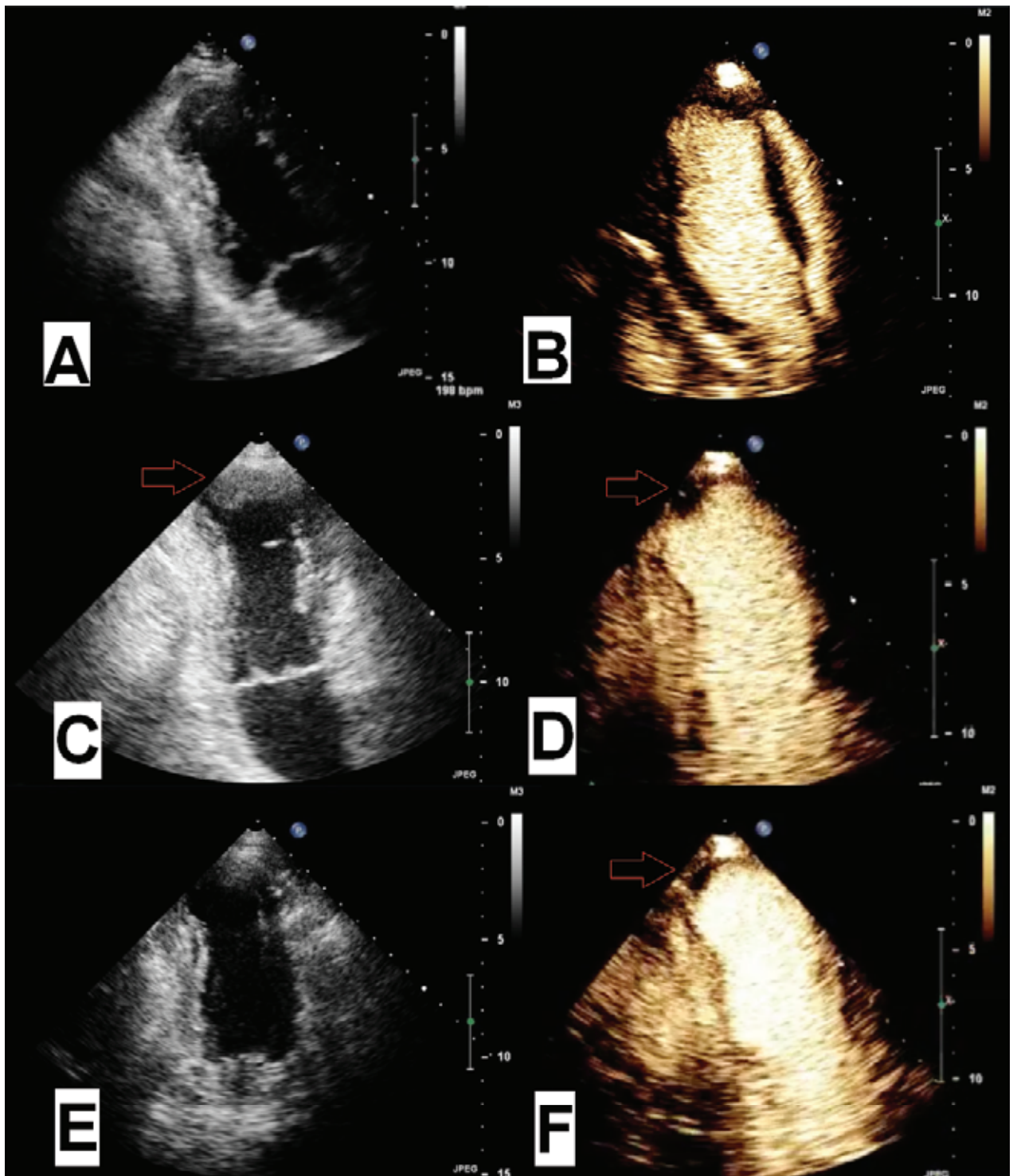
## Introduction

Left ventricular (LV) thrombus detection after acute myocardial infarction (MI) impacts embolic event risk and anticoagulant therapy (1-3). Resting echocardiograms represent the most used diagnostic tool after MI, especially to assess post-MI LV structure and function. However, suboptimal studies due to technically difficult visualization of endomyocardial borders (4), do not infrequently limit the accurate assessment of segmental wall motion, ejection fraction (EF), and the presence or absence of left ventricular thrombus (LVT) (5,6). Contrast echocardiography is simple, cost-effectiveness and capable to improve detection of left ventricular thrombus in patients with MI (7).

## Case report

A 80-year-old male underwent routine transthoracic echocardiography the day after primary

percutaneous revascularization procedure (left anterior descending coronary artery) for ST-elevation myocardial infarction (MI). Akinesia of the apex was observed (Fig. 1 A). When ultrasound contrast (Sonovue 0.5 ml) was injected, regular contrast-enhancement of the left ventricle (LV) excluded the presence of thrombus (Fig. 1 B). A second echocardiogram, performed four months later, showed a hyperechoic image in the LV apex (Fig. 1 C), which was confirmed after contrast injection as a thrombus (Fig. 1 D arrow), due to complete absence of contrast uptake. Enoxaparin was started in association with double anti-platelet therapy. Four weeks later, a third follow-up echocardiogram appears apparently normal (Fig. 1 E). However, contrast injection showed contrast “swirling”, not visible in the previous echocardiogram, and clearly demonstrates a new apex thrombus, in a slightly different location from the one detected previously. (Fig. 1 E and F).



**Figure 1.** Transthoracic echocardiography the day after primary percutaneous revascularization procedure (left anterior descending coronary artery) two-chamber view (A); contrast-enhancement of the left ventricle (LV) (B); echocardiogram, performed four months later (C); contrast injection, arrow indicating thrombus (D); echocardiogram following Enoxaparin and double anti-platelet therapy (E); new apex thrombus detection following contrast injection (E, F).

## Discussion

Improved accuracy detection of intraventricular thrombi after MI is critical since this condition associates with severe complications if not rapidly treated (1-3). Standard echocardiography is often inconclusive or falsely negative regarding the detection of apical thrombus. Some studies and guidelines support the use of contrast to improve diagnostic accuracy (8-11), especially in patients with suboptimal definition in routine echocardiography. At time, however, this diagnostic approach is not yet widespread. This case report demonstrates that the time has come for routine contrast-echo screening in post-myocardial infarction patients with the high likelihood of thrombus, such as in cases of apical infarction, even if the standard echocardiogram appears unremarkable.

**Conflict of Interest:** Each author declares that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article

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