

## IMAGES IN MEDICINE

## Two Large Left Ventricular Aneurysms in an Asymptomatic Patient

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### CASE REPORT

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**KEY WORDS:** myocardial infarction;  
left ventricular aneurysm; heart failure;  
thrombo-embolism

#### ABBREVIATIONS

LV = left ventricle  
MRI = magnetic resonance imaging

A 54-year-old man, smoker with uncontrolled hypertension, had a history of a thromboembolic episode to the ophthalmic artery five years ago. He described an episode of chest pain ten months ago, but since then he has remained asymptomatic. On physical examination, his heart rate was 75 bpm, his arterial blood pressure was 100/50 mmHg, cardiac impulse was displaced laterally, S<sub>1</sub> and S<sub>2</sub> cardiac sounds were normal and without an audible cardiac murmur. The ECG showed sinus rhythm, right axis deviation, q waves in leads I, AVL, V<sub>2-6</sub> and T-wave inversion in the same leads. The QRS complex duration was 120 ms.

Two-dimensional transthoracic echocardiography showed that left ventricular (LV) systolic function was severely reduced, with a LV ejection fraction of 20% with a large dyskinetic-aneurysmatic area relatively thin including middle and apical parts of the LV with the appearance of spontaneous contrast echo effect. A thrombus was identified as an area of increased echogenicity within the aneurysm. The basal parts of the LV had normal systolic function. Colour Doppler evaluation of the mitral valve showed moderate regurgitation. The right ventricle had normal size and contractile performance (Fig. 1).

The patient received treatment with ramipril (5 mg/day), furosemide (20 mg/day), carvedilol (25 mg bid), spironolactone (25 mg/day) and long-term oral anticoagulation. Furosemide was added a year ago because of mild heart failure symptoms. He was hospitalized because a new embolic event occurred about a year ago. Although he had initially refused, after that last episode the patient finally agreed to undergo coronary angiography, which revealed a proximal occlusion of the left anterior descending coronary artery. The other two vessels were normal. LV angiography showed a large aneurysm of the middle and apical parts of the LV. In the posterior wall there was another area similar to a pseudoaneurysm's "neck". Magnetic resonance imaging (MRI) demonstrated a large aneurysm of the middle and apical parts of the LV which contained mural thrombus. There was also a second aneurysm in the posterior wall of the LV with a significant quantity of recent thrombus. The LV end-diastolic volume was 517 ml and the end systolic volume 456 ml; the stroke volume was 60 ml and the LV ejection fraction 12% (Fig. 2 & 3).

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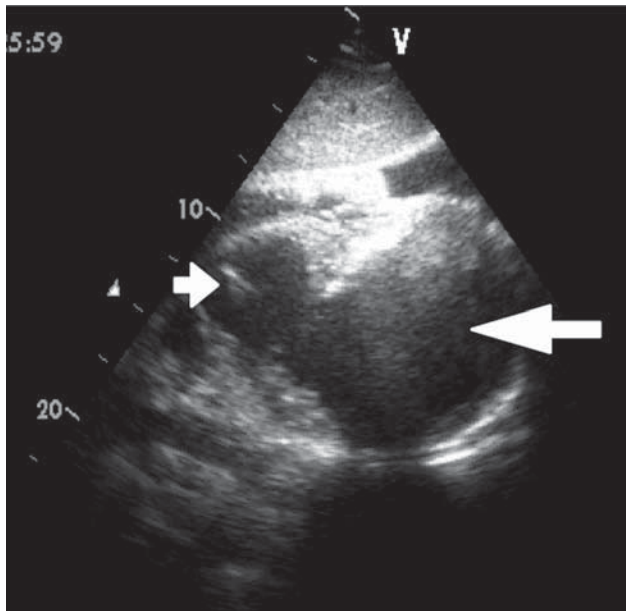
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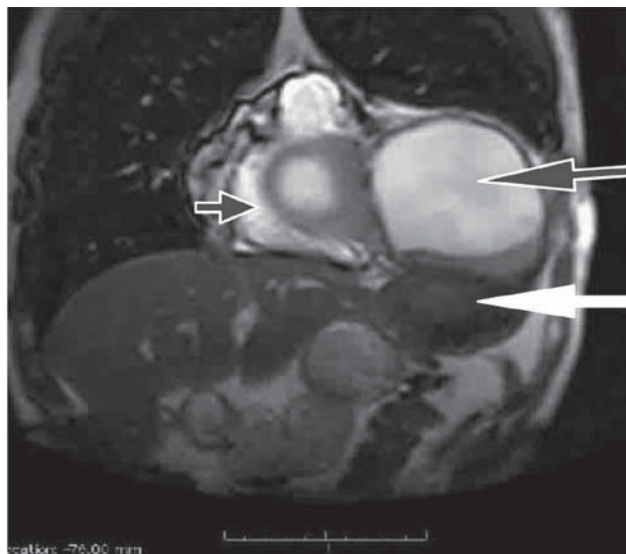
### DISCUSSION

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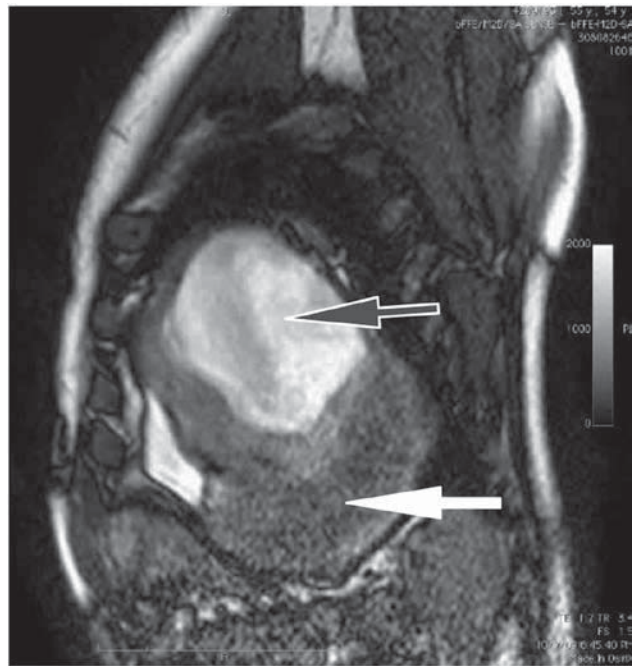
The patient remains nearly asymptomatic over the past one year, with no evidence of overt heart failure or angina. It is obvious that the cause of the two aneurysms,



**FIGURE 1.** Subcostal echocardiographic view: the small arrow indicates the mitral valve and the basic segments, and the large arrow the LV aneurysm. LV = left ventricle.



**FIGURE 2.** MRI depicts the aneurysm in the middle and apical wall of the LV with mural thrombus (black arrow), and the (false) aneurysm of the posterior wall with recent thrombus (white arrow), while the basic segment of the LV is indicated by the small black arrow. LV = left ventricle; MRI = magnetic resonance imaging.



**FIGURE 3.** MRI, short axis: the white arrow indicates the posterior wall pseudo-aneurysm, and the black arrow the true aneurysm of the middle and apical wall of the LV. LV = left ventricle; MRI = magnetic resonance imaging.

true aneurysm at the apex and in the middle of the LV and most likely a false or pseudo-aneurysm in the posterior wall of the LV, was an extensive anterior myocardial infarction as a consequence of occlusion of the left anterior descending coronary artery. The choice between surgical or medical therapy remains a difficult dilemma because we must consider a good quality of life despite the presence of two embolic events over the past five years, currently treated with anticoagulation, and the high risk of death from surgery.