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An unusual case of large left ventricular aneurysm: Complementary role of echocardiography and multidetector computed tomography in surgical planning

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Abstract

We report a case of a 68-year-old man in whom myocardial infarction was complicated by a large and unusual left ventricular aneurysm. Peculiar anatomic features of a very large aneurysm of the posterior wall of the left ventricle were clearly suspected on transthoracic and transesophageal echocardiography and precisely defined through multidetector computed tomography. This technique not only confirmed echocardiographic findings, but also facilitated the differential diagnosis between left ventricular aneurysm and left ventricular pseudoaneurysm and the choice of the correct surgical planning.

Keywords: Heart; Left ventricle; Aneurysm; Computed tomography; Echocardiography

1. Introduction

Left ventricular aneursym (LVA) and left ventricular pseudoaneurysm (LVPA) are serious complications of acute myocardial infarction (MI) [1]. LVA is composed by thinned area of scarred myocardium that move dyskinetically [2,3], while left ventricular pseudoaneurysm (LVPA) forms when cardiac rupture occurred, is contained by adherent pericardium or scar tissue, does not contains endocardial and myocardial cells, and is characterized by a narrow neck diameter and it could give rise more frequently to rupture [4–6]. Usual sites of LVA are apical and anterior segments, while LVPA involves more frequently the postero-lateral segments.

Because of the high risk of rupture, LVPA requires surgical treatment [6–8], while surgical indications of LVA include heart failure, angina pectoris, malignant ventricular arrhythmias or recurrent embolization [1].

We describe the case of an unusual very large aneurysm of the posterior wall of the LV in which multidetector computed tomography (MDCT) data associated with echocardiographics findings facilitated the differential diagnosis between LVA and left ventricular pseudoaneurisym (LVPA) and provided the visualization of all anatomical details for the correct surgical planning.

2. Case report

A 68-year-old patient was admitted to our hospital because of heart failure. Two months before he was admitted to another hospital for chest pain and an inferior-posterior myocardial infarction was diagnosed. During this first admission cardiac catheterization showed an occlusion of the right coronary artery and a severe stenosis of the mid-left

Abbreviations: LVA, left ventricular aneurysm; MDCTmultidetector computed tomography; LVPA, left ventricular pseudoaneurysm; MI, myocardial infarction; HFheart failure; ECG, electrocardiogram; TTE, transthoracic echocardiogram; TEEtransesophageal echocardiogram; VRvolume rendering; LAD, left anterior descending artery; RI, ramus intermedius; IMA, internal mammarian artery; AMIacute myocardial infarction

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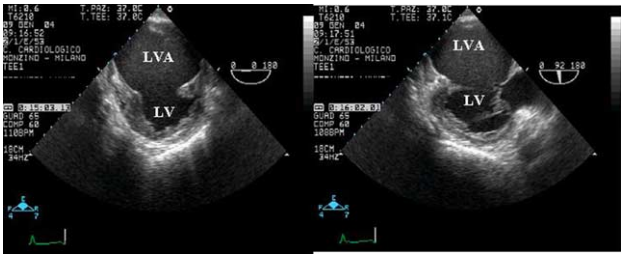

Fig. 1. Short axis (left) and long axis (right) in transgastric position view by TEE. LV: left ventricle; LVA: left ventricular aneurysm.

anterior descending artery that was treated by percutaneous transluminal coronary angioplasty and stent implantation. LV angiography and echocardiography demonstrated moderate LV systolic dysfunction and akinesia of the LV inferior wall. Two months later, the patient underwent to a transthoracic echocardiogram because of dyspnea. The examination showed the presence of a large cavity in the inferior wall of the left ventricle, and the patient was transferred to our hospital.

The patient was in NYHA functional class III, the chest X-ray showed enlargement of the LV profile, and the electrocardiogram showed sinus rhythm, Q wave with ST elevation and negative T waves in the inferior leads.

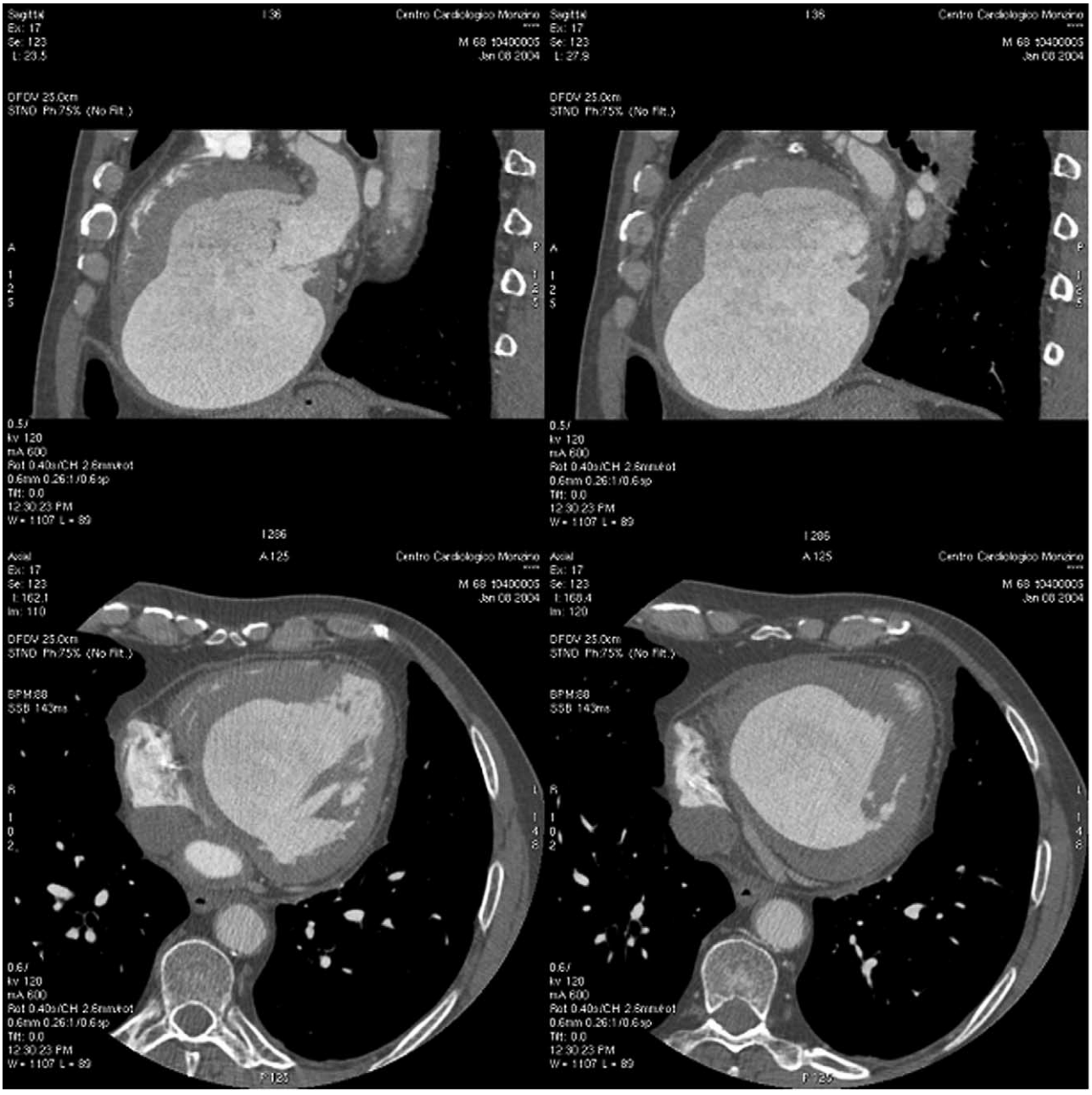

Fig. 2. Long axis view (upper) and axial view (lower) of the aneurysm by multidetector computed tomography (MDCT).