

Lv Pseudoaneurysm- An Unprecedented Condition

Dr. SV Patted, Dr. PC Halkati, Dr. Ranjan Modi

I. Introduction

True aneurysms of the left ventricle are the result of myocardial infarction; characterized by a mouth or neck that is the largest part of the aneurysm and by the presence of remnants of myocardium and coronary arteries in their walls.¹⁻⁵

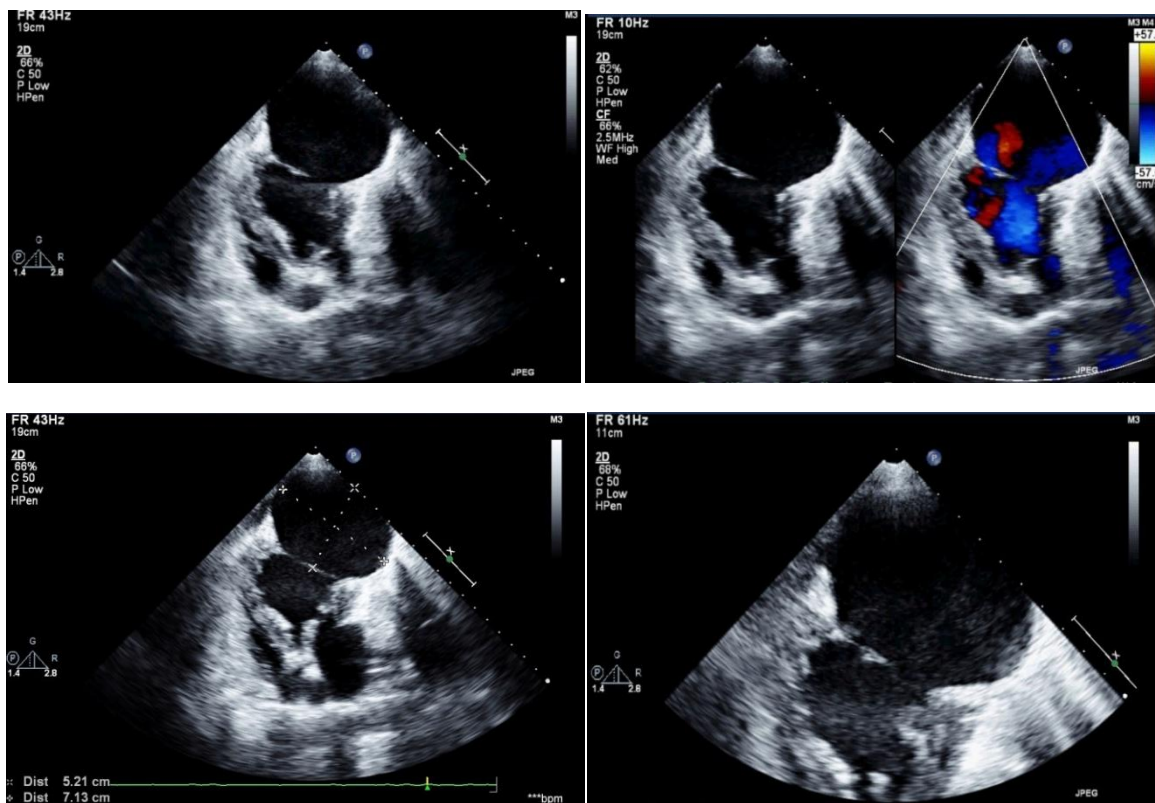
Pseudoaneurysms (false) aneurysms usually develop when cardiac rupture is contained by preexisting adhesion of the pericardium. These lesions are rare and can be distinguished from true aneurysms by a narrow neck which is devoid of myocardial elements in the walls⁶⁻¹⁰. The complication of pseudoaneurysm like angina, left ventricular failure, embolization and arrhythmias are similar to that of true aneurysm, though the likelihood of rupture are highest.

The knowledge of the natural history of patients with postinfarction LV pseudoaneurysm is sparse and limited due to high mortality and decreased survival time associated with them. We report the case of a post bypass elderly man who survived asymptotically for 4 years with an unrepaired pseudoaneurysm.

II. Case History

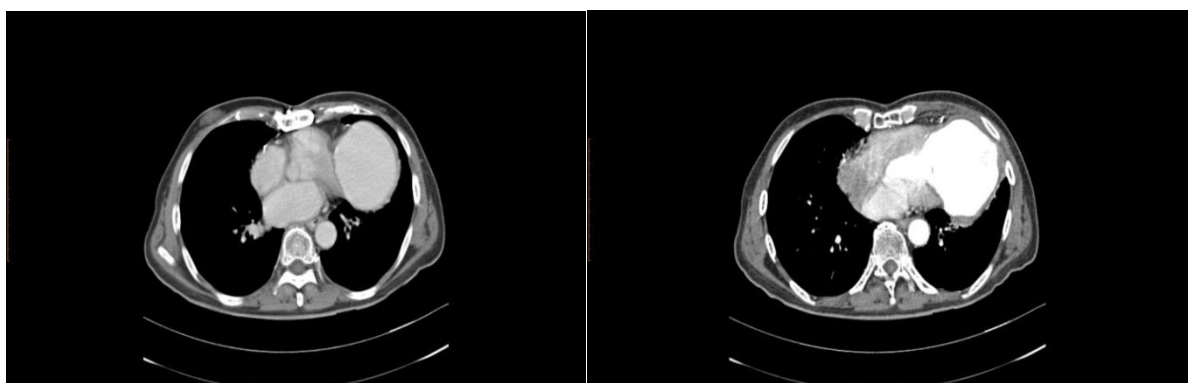
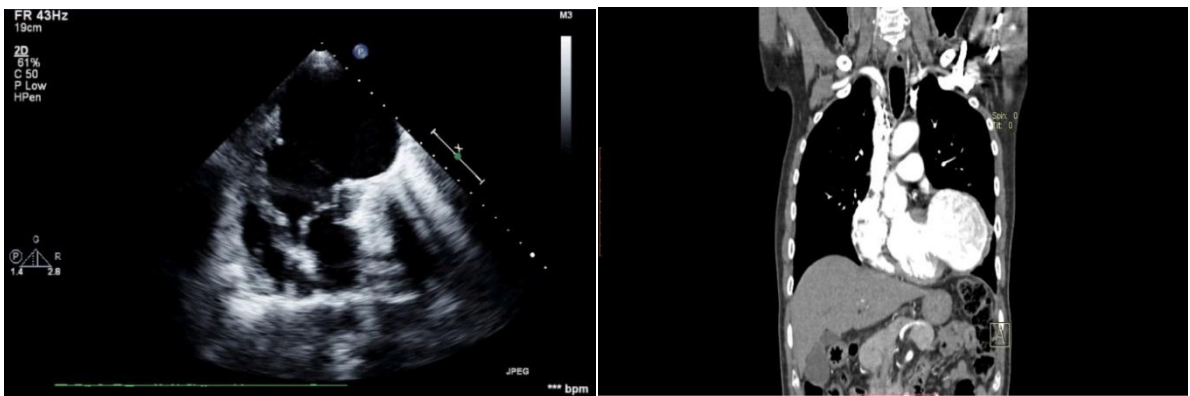
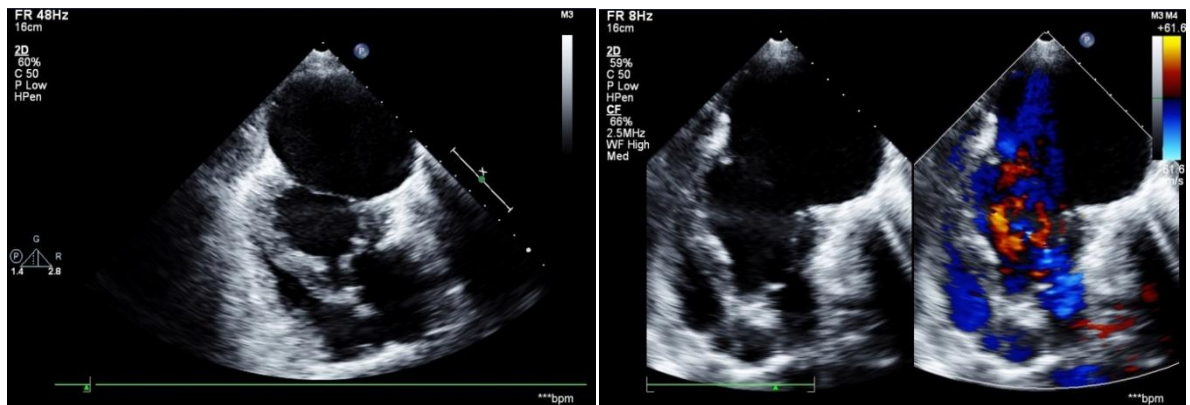
A 63 year old male, non hypertensive and non diabetic, known case of epilepsy with bells palsy presented with history of chest pain since 3-4 months and an episode of syncope on 15th december 2010.

The physical examination revealed normal findings. The patient's haematological parameters, serial serum cardiac enzymes and serum troponin T levels were normal. An electrocardiogram showed biphasic T waves in V1-V2. Chest x-ray did not reveal any abnormality. Echocardiography revealed hypokinesia of anterolateral wall, apical septum and apex with pericardial effusion towards Right Atria (RA) 0.5 cm, lateral to Left Ventricle (LV) 0.6 cm, posterior to Left Ventricle (LV) 0.9 cm, anterior to Right Atria (RA) 0.4 cm and towards apex 0.8 cms. No RA/ Right Ventricle (RV) collapse. Normal Pulmonary pressure. LV ejection fraction -45%. The patient was planned for a coronary angiography.



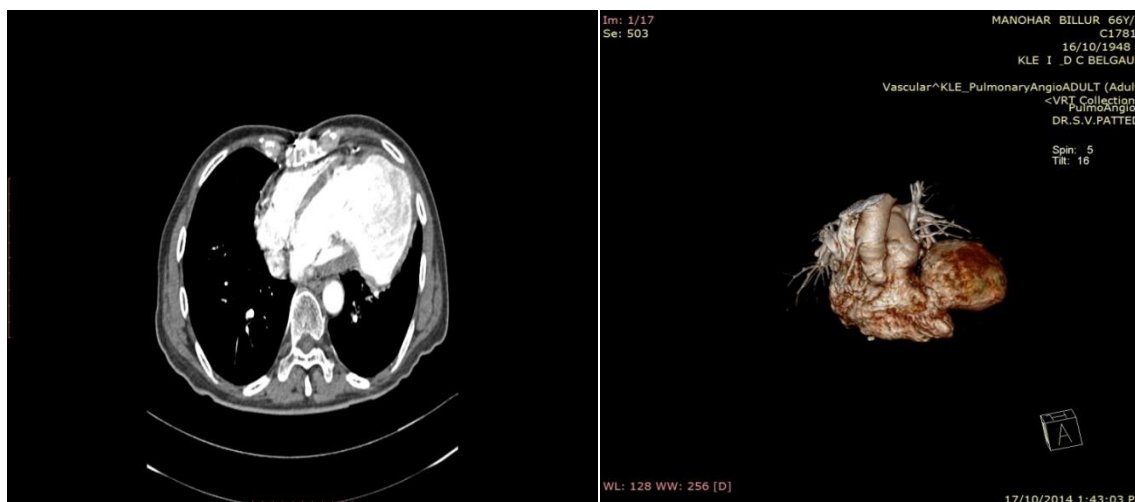


Neurological evaluation was performed before undertaking the patient for the procedure. MRI Brain revealed non specific white matter ischaemic changes in bilateral corona radiata. EEG was within normal limits. The patient underwent coronary angiography which revealed Ostial LAD : Total occlusion , Mid LAD : mild plaque, LCX: Normal , Mid RCA: mild lesion.



The patient underwent Off pump coronary artery bypass grafting after a month with insertion of LIMA to LAD -1.25 mm good wall (intramyocardial), RSVG- Distal RCA 2mm good wall . The patient had a reinfarct in the LAD territory 1 month post bypass and was treated conservatively.

At follow up post bypass Echocardiography revealed a large pseudoaneurysm arising from the lateral wall measuring 7.3 X 5.3 cms and the neck measuring 4.2 cm with moderate LV dysfunction LV ejection fraction 40%.Tornado sign seen in the pseudoaneurysm. Colour flow Doppler echocardiography visualized the high-velocity, bidirectional flow of blood between the LV chamber and the pseudoaneurysm across the 4.2 mm orifice in the LV free wall; blood flowed into the pseudoaneurysm in systole and reversed during diastole.



The patient was initiated on oral anticoagulants in addition to his previous medications of antiplatelets , statins , angiotensin converting enzyme inhibitors and beta blockers .

The patient was asked to maintain regular follow up and maintain the recommended INR values.

The patient is doing well presently after 4 years of the development of pseudoaneurysm without any symptoms of angina or dyspnoea . Follow up echocardiographies revealed no change in the size of the pseudoaneurysm. Cardiac MRI revealed pseudoaneurysm of the left ventricle .

III. Discussion

The development of LV pseudoaneurysms is rare but a lethal complication of acute myocardial infarction, cardiac surgery, trauma, and infections. Most investigators regard surgery to be an appropriate treatment for LV pseudoaneurysms¹¹ in view of the rupture when the condition is left untreated^{12,13}.

Post-infarction LV pseudoaneurysm is regarded as a surgical disease as recommended by ST-elevation myocardial infarction guidelines¹⁴. However, some studies found that death was not attributable to cardiac rupture in patients. Yeo et al.¹⁵ found that the all-cause mortality rates among patients with cardiac pseudoaneurysms were 31% (13 of 42 patients) in patients who received surgical treatment and 60% (6 of 10 patients) in patients who received medical treatment.

Sakai et al.¹⁶ did not recommend surgery if the pseudoaneurysm was connected to the LV wall with a narrow neck, or if it occurred in the presence of the postsurgical mitral valve. In addition, thrombus is frequently found in the pseudoaneurysm.

Recently, percutaneous closure of LV pseudoaneurysms has been found to be a feasible alternative for high-risk surgical candidates¹⁷. However, further long-term follow-up studies are needed.

CABG has been found to decrease LV remodeling and preserve the systolic performance in many post MI pseudoaneurysms but in our patient, the pseudoaneurysm was a result of reinfarction in the LAD territory postbypass.

The survival of our patient could be attributed to aggressive pharmacological treatment. The decline in the incidence and mortality rate of cardiac rupture after acute myocardial infarction over the last 30 years is associated with the increased use of reperfusion strategies and adjunct medical therapy¹⁸.

Our patient also illustrated the usefulness of echocardiography and MRI, which are equivalent to the invasive contrast technique^{19,20}. Although both methods have been found to be safe and specific for the diagnosis of an LV pseudoaneurysm, MRI has higher specificity and is has been found to be more comprehensive^{21,22,23}.

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