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Images in Cardiology

Late presentation of an unruptured giant sub-mitral lateral wall true left ventricular aneurysm



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1. Introduction

The first angiographic diagnosis of left ventricular aneurysm was seen in 1951.¹ Left ventricular aneurysm is one of the most common causes and one of the most serious mechanical complications of acute myocardial infarction.² True aneurysms occur when the left ventricle is thinned due to scarring of the myocardium, and thus move dyskinetically with a broad neck. They may lead to congestive heart failure, embolic events, and may also give rise to ventricular arrhythmias because of the effects of ventricular scarring.^{3,4} Left ventricular pseudoaneurysm occurs after cardiac rupture and is contained by adherent pericardium or scar tissue; notably, there are no endocardial or myocardial cells in the aneurysm and there is a narrow neck diameter.⁵⁻⁷ The most common sites for true left ventricular aneurysm are apical and anterior segments, while pseudoaneurysms most commonly occur in the posterolateral segment.

Both true aneurysm and pseudoaneurysm are detected incidentally by echocardiography or other imaging modalities.⁸ Pseudoaneurysm requires urgent surgical resection because of likelihood of rupture, while true aneurysms can be managed medically. We reported a late presentation of LV aneurysm in an uncommon location, i.e. lateral wall with wide neck in close proximity to mitral annulus detected by Echocardiography and CT Angiogram.

2. Case scenario

A 52-year-old male with a known history of hypertension, coronary artery disease, initially presented to the emergency department with symptoms of heart failure. His past history revealed that he was admitted to another hospital 2 years prior with a chief complaint of chest pain. He was diagnosed to have

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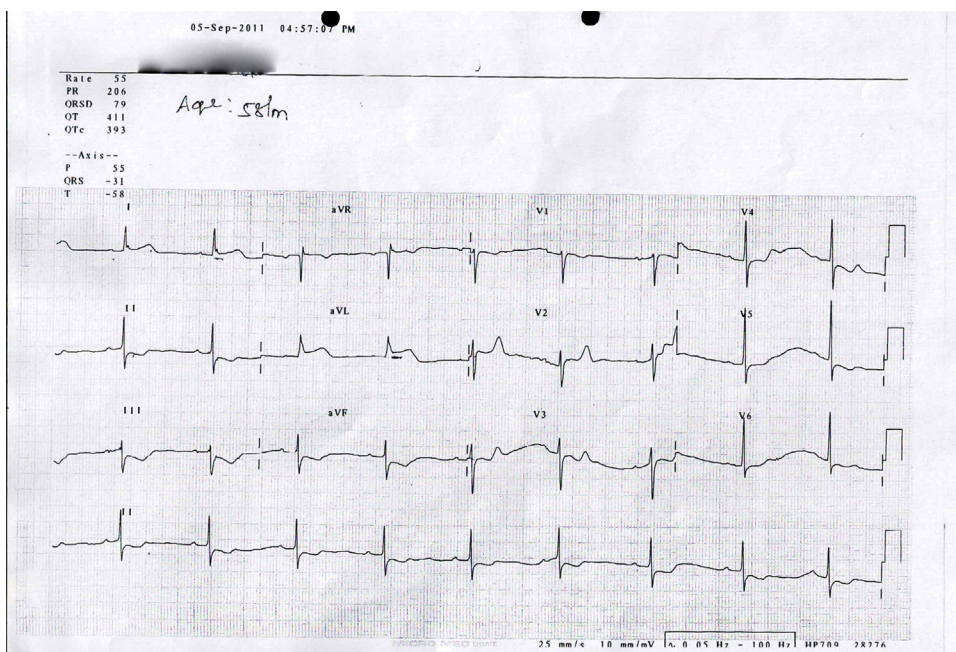


Fig. 1 – Lateral wall MI (diagnosed 2 years prior to aneurysm).

evolved lateral wall MI (Fig. 1) with mild LV systolic dysfunction and normal chamber size. Coronary angiogram revealed double vessel disease and he was advised to undergo angioplasty to a lesion in the left circumflex artery. The patient declined this procedure due to financial concerns and did not follow up as an outpatient. When the patient presented to our emergency department, he had NYHA Functional Class 4 symptoms with Type-1 respiratory failure. On electrocardio-

gram, patient was found to have sinus tachycardia with LVH strain pattern (Fig. 2). His chest X-ray demonstrated haziness with interstitial thickening in bilateral perihilar and paracardiac regions, suggestive of pulmonary edema. The patient was hospitalized for further evaluation and management. BIPAP non-invasive ventilation was initiated and he was treated with decongestive therapy, antiplatelet agents, statin, inotropic agents and supportive care. Trans-thoracic echocar-

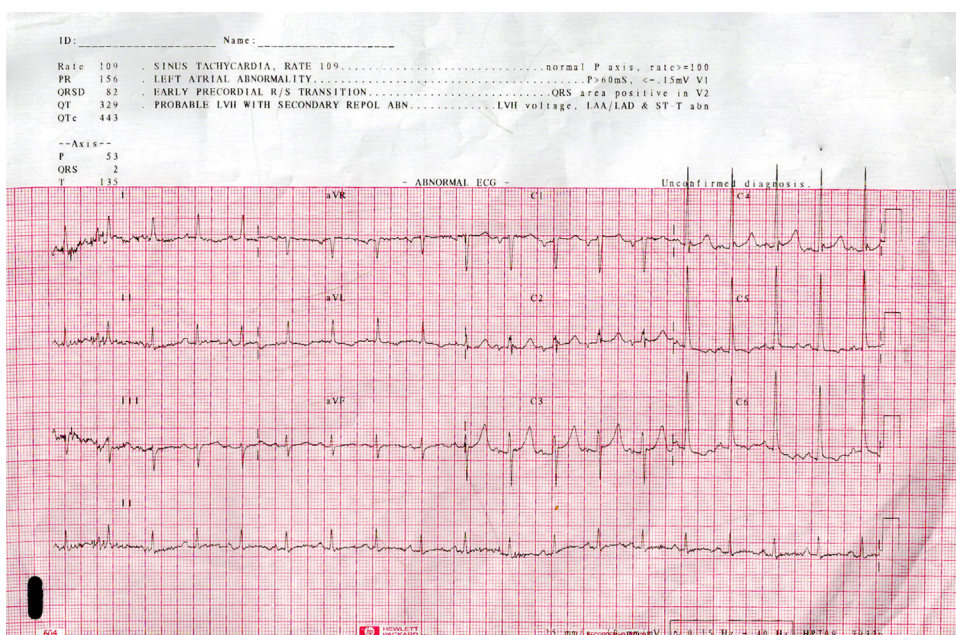


Fig. 2 – ECG showing sinus tachycardia and LVH strain pattern.

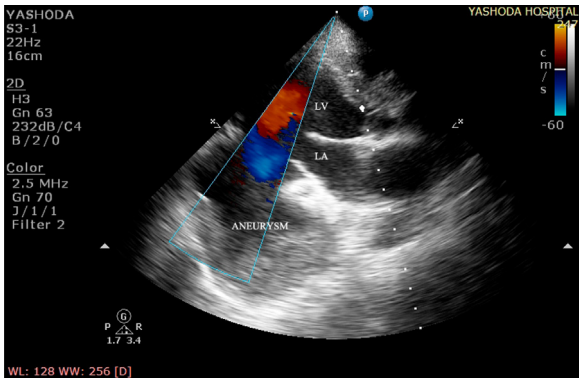


Fig. 3 – TTE of the patient showing LA, LV and the blood flow across the aneurysm in Parasternal Long axis view.

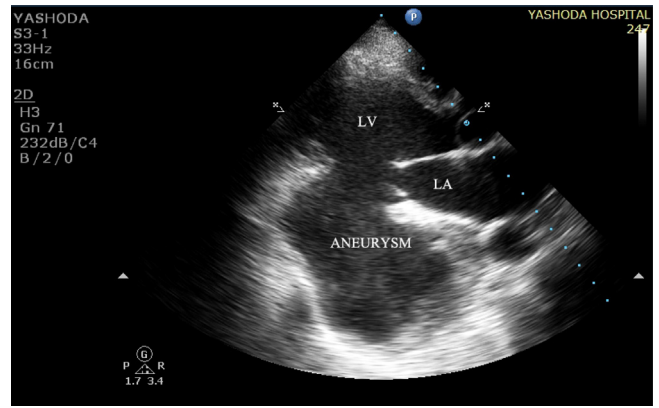


Fig. 6 – TTE shallow two chamber view showing LA, LV, and aneurysm.

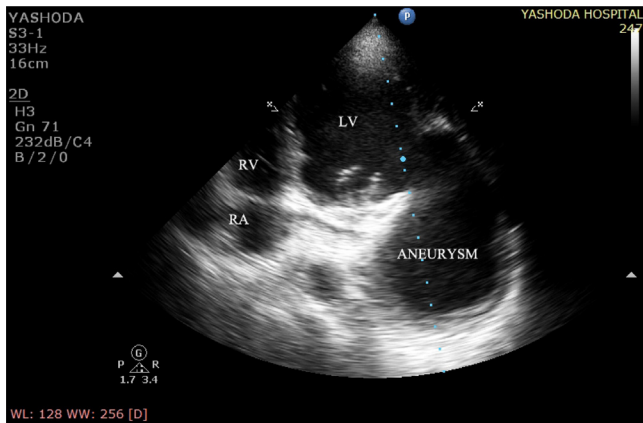


Fig. 4 – TTE on shallow four-chamber view showing the size of the aneurysm along with other structures LV, RA, and RV.

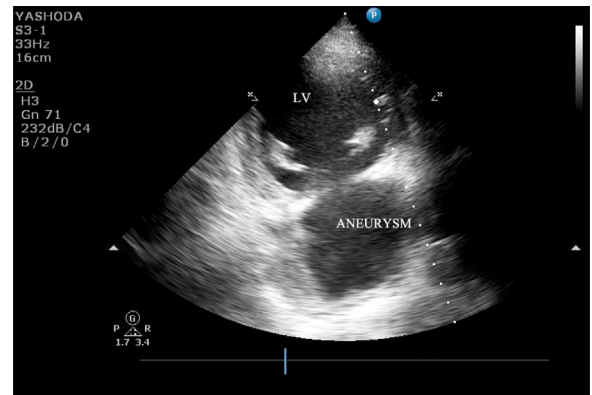


Fig. 7 – PLAX view of TTE showing thinning of LV.

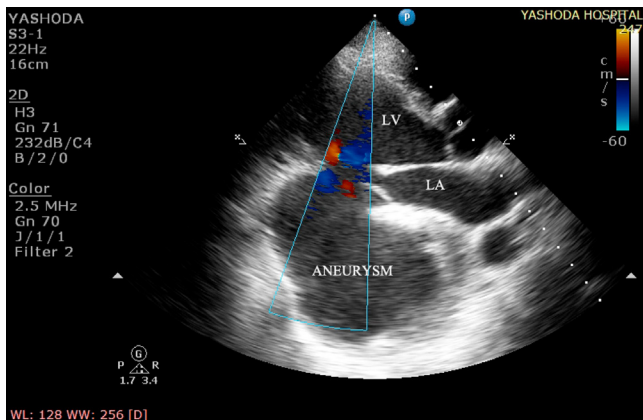


Fig. 5 – TTE showing blood flow across the neck of the aneurysm.

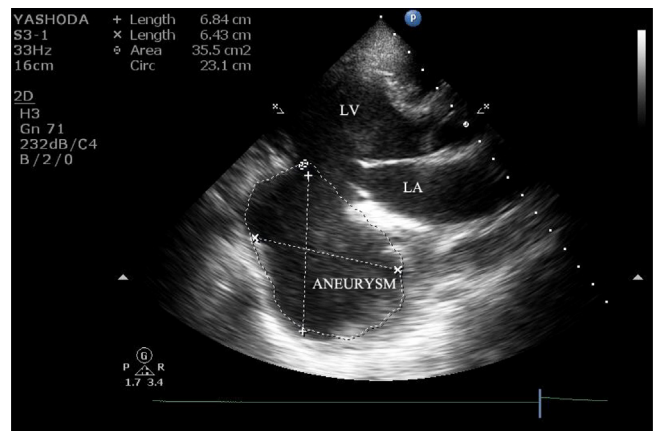


Fig. 8 – TTE showing the LA, LV and the measurements of the aneurysm having dimensions 6.84 and 6.43 cm and having an area of 35.5 cm².

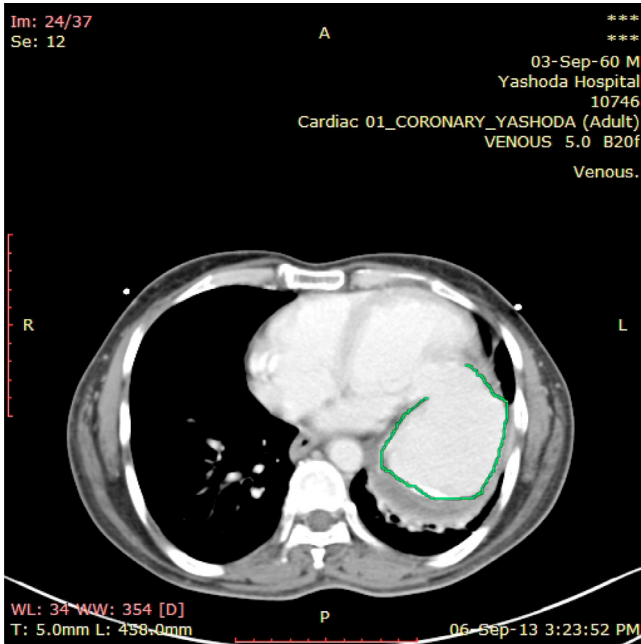


Fig. 9 – CT Angiogram marking the borders of the aneurysm.



Fig. 11 – CTA showing the dimensions of the aneurysms in coronal plane.

diography revealed a large aneurysm arising from the left ventricle originating from the posterolateral wall (measuring 6.84 × 6.43 cm) with a wide neck, as well as severe LV systolic dysfunction (Figs. 3–8). The globular profile of the cavity with the wide neck was close in proximity to the mitral valve

annulus (Fig. 5). To better define the aneurysm, cardiac CT was performed, which revealed large left ventricular aneurysm (6.5 × 7.5 × 5.4 cm) arising from posterolateral wall of the left ventricle. The fundus of the aneurysm was located directly posterolateral to the neck of aneurysm and measured 38 × 40 mm in AP and cranio-caudal dimensions (Figs. 9–14).



Fig. 10 – CTA showing the dimensions of the aneurysms in axial plane.

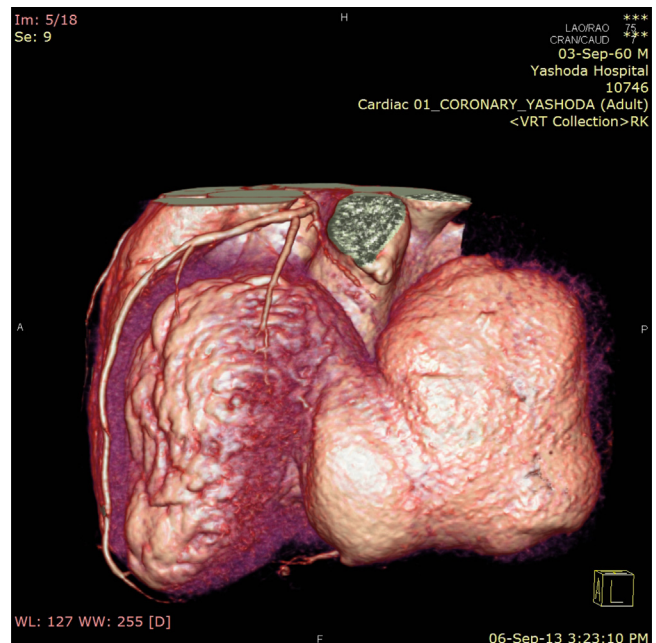


Fig. 12 – VRT images on CT angiogram showing big aneurysm attached to LV.

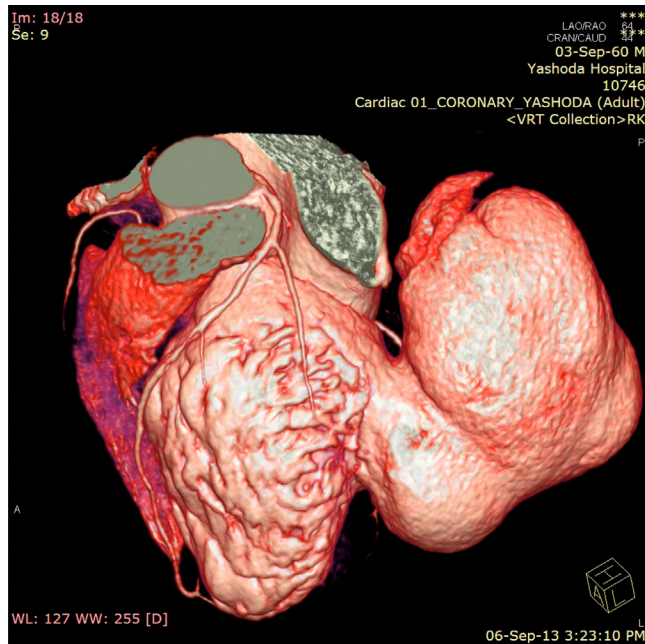


Fig. 13 – VRT images on CT angiogram showing big aneurysm attached to LV.

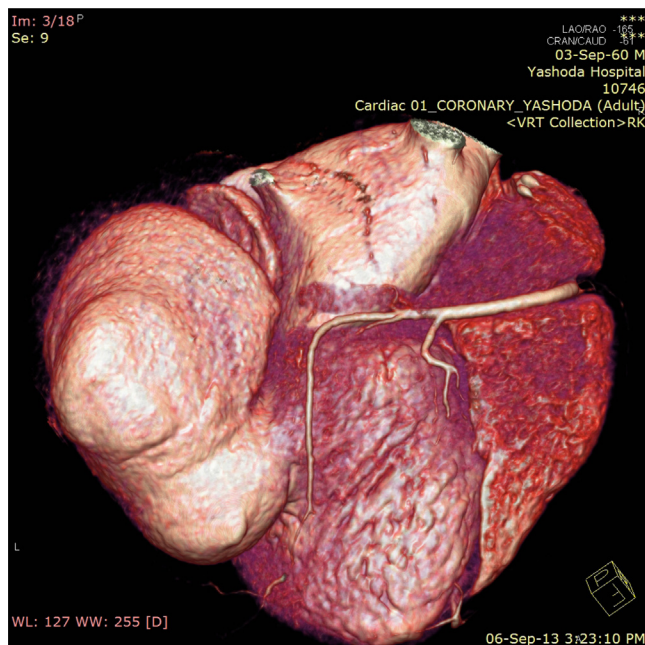


Fig. 14 – VRT images on CT angiogram showing big aneurysm attached to LV.

There was also crescent-shaped peripheral hypodensity, probably peripheral thrombus measuring 1.8 cm (Fig 9). The patient was offered surgical closure as well as trans catheter closure of the aneurysm but the patient refused due to financial concerns and lost follow-up also.

2.1. Case summary

The present case discussed shows the unusual location of giant LV aneurysm detected after 2 years of myocardial infarction incidentally on Echocardiography & confirmed on CT Angiogram. The patient was treated conservatively without much complications.

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