

Case report

Left ventricular pseudo aneurysm and its recurrence following surgical repair



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ABSTRACT

Pseudo aneurysm (PA) of the left ventricle is a rare cardiac condition caused by rupture of the free wall of the myocardium contained by pericardial adhesions or epicardial wall. Early detection of pseudo aneurysm is important as it carries a high risk of rupture that can be fatal. A young male presented with symptomatic left ventricular pseudo-aneurysm 6 years back. He underwent aneurysm repair using Gore-Tex patch with good result. Four years later asymptomatic recurrence was picked up by echocardiography during follow-up. Further imaging was done by MDCT scan and one year later by cardiac MRI. The patient was advised for a redo surgery that he declined and preferred to be on medical follow up. The patient is doing well and asymptomatic 2 years after the diagnosis of recurrence was made.

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A 29-year-old male presented with history of catching left sided chest pain and shortness of breaths on exertion 6 years back. His electrocardiogram showed sinus rhythm with non-specific intra-ventricular conduction block and T wave inversion in inferior-lateral leads. Transthoracic echocardiogram demonstrated a large pseudo aneurysm at the apical region of the left ventricle (Fig. 1, online video 1). Left ventricular angiography showed a large pseudo aneurysm (Figs. 2 and 3) which expanded in systole and collapsed during diastole. (Online video 2, 3) The left ventricle had a dumbbell shaped appearance. Coronary angiography showed focal narrowing of the LAD after origin of the major diagonal branch. The patient underwent aneurysm repair using Gore-Tex patch (Fig. 4, online video 4) and LIMA to LAD graft. He remained symptom free after the surgery.

A follow up echocardiography after 4 years showed partial dehiscence of the Gore-Tex patch with recurrence of the pseudo-aneurysm at the anterolateral aspect of the apex of the left ventricle. (Fig. 5 online video 5). The anatomy of the pseudoaneurysm was further delineated by CT angiography (Fig. 6a, b). The size of the aneurysm was measuring 4.8 and the wall of the aneurysm was fibrosed. He was referred for redo surgery as the aneurysm was measuring more than 3 cm in diameter, but the patient was concerned about the risks of another open heart surgery and opted to continue on medical follow-up. After a year a follow-up cardiac Magnetic Resonance Imaging (MRI) was done which showed the aneurysm is not progressing and remained the same size as compared with the CT done one year earlier. Patient is on regular follow up and he presented with Transient Ischemic attack (TIA) during the follow up. Echo cardiogram including TEE does not show any documented thrombus in the aneurysm. Patient was started on Warfarin and he is on anticoagulation with Warfarin stroke prevention on follow up. Follow up echocardiography showed no expansion of

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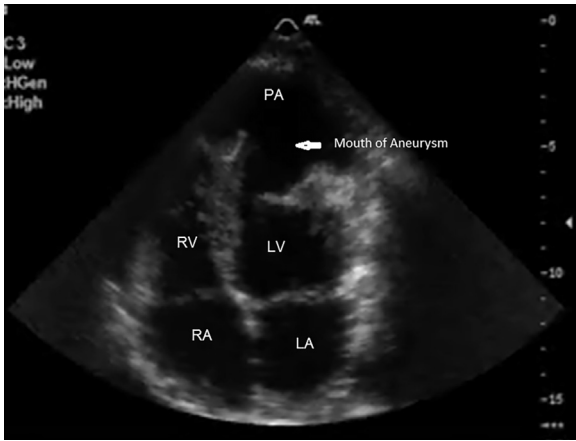


Fig. 1. Transthoracic echocardiogram of the apical four chamber view showing large pseudoaneurysm of the apex of the left ventricle. Myocardium showing abrupt cut off with myocardial discontinuity and the aneurysm is lined by a thin layer of tissue devoid of myocardium.

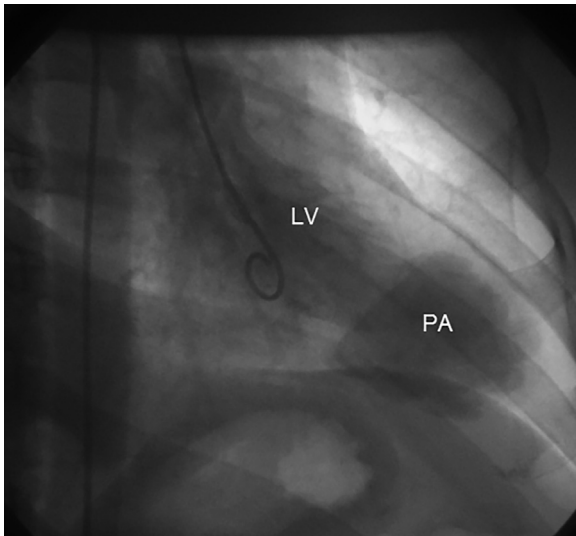


Fig. 2. Left ventriculography in the right anterior oblique view showing the aneurysmal bulge of left ventricle at the apex. The left ventricle has a dumbbell appearance with a narrow neck between the two cavities.

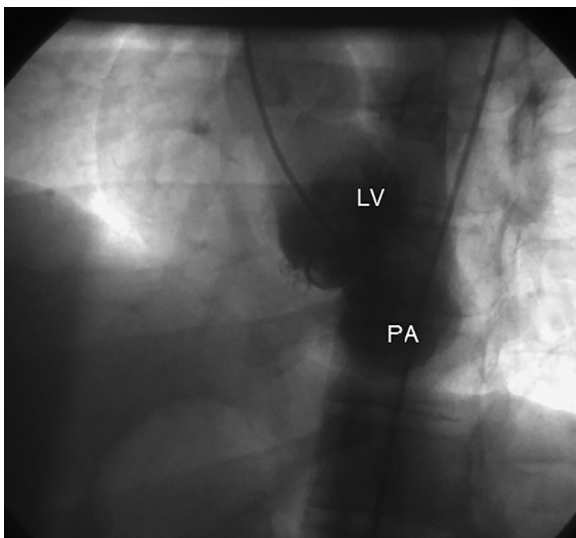


Fig. 3. Left ventriculography in the left anterior oblique view showing the aneurysmal bulge of left ventricle at the apex. The pseudoaneurysm expands in systole and collapses in diastole.

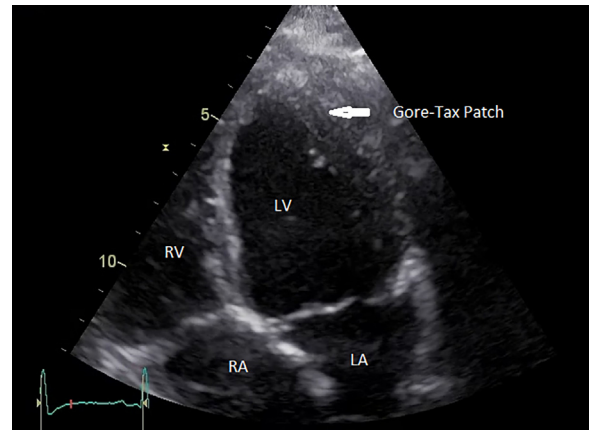


Fig. 4. Apical four chamber view of the left ventricle after repair of the aneurysm using Gore-Tex patch repair.

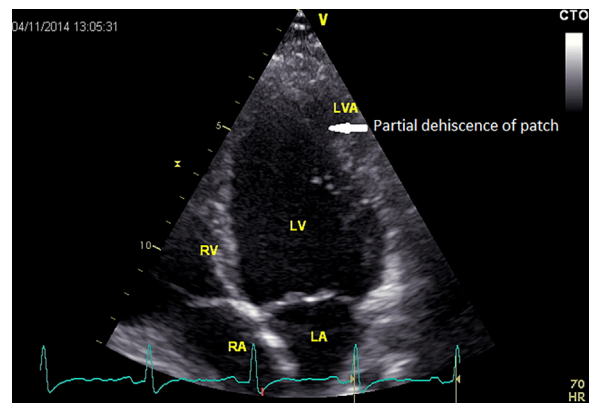


Fig. 5. Apical four chamber view of left ventricle showing recurrence of the aneurysm and partial dehiscence of the patch.

the aneurysm and overall left ventricular systolic function showed only mild impairment.

Discussion

Pseudoaneurysm (PA) of the left ventricle is a rare condition that usually occurs after acute myocardial infarction (AMI) or cardiac surgery. Rarely Pseudoaneurysm has been reported after trauma or infection. It is created by rupture of the wall of the left ventricle that is contained by pericardial adhesions or the epicardial wall. Myocardial infarction accounts for the majority (55%) of the causes of pseudoaneurysm. Other causes include cardiac surgery (33%), trauma (7%), infective endocarditis, and lymphoma (5%).¹

The diagnosis of the left ventricular pseudoaneurysm is often difficult as patients present with nonspecific symptoms. Two-dimensional echocardiography, computed tomography, magnetic resonance imaging and left ventriculography are the imaging methods that are used to diagnose the PA. The typical transthoracic echocardiographic findings of pseudoaneurysm include relatively narrow neck and sharp discontinuity in the endocardium. In the left ventriculography, pseudoaneurysm appears as a separate cavity that fills from the left ventricle during systole and empties back into the ventricle during diastole.

Pseudoaneurysms have a higher risk of rupture and surgery is recommended as the treatment of choice. Surgical treatment of acquired pseudoaneurysms depends on whether it is acute or chronic, its largest diameter (more than 3 cm or no) and whether it is symptomatic or not. Surgery is indicated for all acute, symptomatic or large size aneurysms.² While regular surveillance is

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