Post-myocardial infarction giant left ventricular pseudoaneurysm presenting with severe heart failure

Rajesh Vijayvergiya, Alok Kumar, Sandeep S Rana, Harkant Singh, Goverdhan D Puri, Manphool Singhal

Abstract
Left ventricle (LV) pseudoaneurysm is a late mechanical complication of myocardial infarction. A giant LV pseudoaneurysm is a rare presentation. We report a case of giant LV pseudoaneurysm in a post-MI patient who presented with gross congestive heart failure. The patient had a successful surgical repair of the aneurysm and had a favorable 3-month outcome. The imaging modality and surgical treatment of the pseudoaneurysm are discussed.

INTRODUCTION
Left ventricle (LV) pseudoaneurysm is a contained cardiac rupture, which is sealed by layers of organized thrombus and hematoma. It is encircled by a thin layer of adherent pericardium without any myocardial layer, which makes it susceptible to rupture. The clinical presentation of pseudoaneurysm is variable. A timely diagnosis and early surgical treatment are key factors in the management. We hereby report an unusual case of giant LV pseudoaneurysm in a 42-year-old man following anterior wall myocardial infarction (MI). The role of various imaging modalities and the surgical treatment of pseudoaneurysm are discussed.

CASE REPORT
A 42-year-old male had an acute anterior wall MI in March 2012. During the inpatient admission at a local hospital, he had hemorrhagic pericardial effusion with tamponade, which was drained by pigtail catheter insertion. At 2 months follow-up, he was diagnosed as having a large LV pseudoaneurysm, for which he was referred to our center for further management.
On admission at our institute, the patient was in gross congestive heart failure with New York Heart Association functional class IV. His blood pressure was 100/70 mmHg, pulse rate 100/min, and systemic oxygen saturation at room air was 95%. His cardiac examination revealed a LV 3rd heart sound, and chest examination revealed basal crepitations in both the lung fields. An electrocardiogram revealed normal sinus rhythm and QS pattern in V1-V4 chest leads. An echocardiogram revealed basal crepitations in both the lung fields. An electrocardiogram revealed normal sinus rhythm and QS pattern in V1-V4 chest leads. The patient was weaned from cardiopulmonary bypass and had an uneventful postoperative recovery.

A postoperative CT scan of the chest revealed normal LV outline without any leakage (Figure 2B). An echocardiogram revealed a well-delineated LV apical wall with exclusion of pseudoaneurysm (Figure 1B). He was discharged on the 14th postoperative day. He remained asymptomatic at 3 mo of follow-up.

**DISCUSSION**

LV pseudoaneurysm is seen in patients having MI, cardiac infection, and following cardiac interventions or trauma[1]. MI is the most frequently observed etiology in LV pseudoaneurysm cases. It is a late mechanical complication of MI presenting within a few months of infarction, as happened in the index case. The clinical presentation may vary depending upon congestive heart failure, mitral regurgitation, ventricular tachy-arrhythmia, systemic thromboembolism and cardiac rupture[1,2]. In general, patients do not have specific symptoms pertaining to pseudoaneurysm[4], hence the diagnosis may be delayed. The index case was symptomatic since beginning with congestive heart failure; hence a diagnosis of giant LV pseudoaneurysm could be established. Blażejewski et al[4] have also reported a case of giant LV pseudoaneurysm presenting with severe heart failure. The index case possibly had impending cardiac...
rupture initially, when he presented with hemorrhagic pericardial effusion and tamponade. The leaking site could have been sealed by a thin layer of pericardium and organized thrombus, and later presented with giant LV pseudoaneurysm. Giant LV pseudoaneurysm has been reported to cause mitral regurgitation and compression of adjacent vascular structures [4-6]; however, there was no such complications in the index case. Both echocardiography and CT angiogram are good noninvasive imaging modalities for the diagnosis of pseudoaneurysm [1,3,6-8]. A CT scan can delineate the extent of pseudoaneurysm and also the involvement of adjacent cardiac and non-cardiac structures [8,9]. Surgery was indicated in the index case because of the symptomatic status, giant aneurysm size and an impending rupture. A conservative approach can be considered in asymptomatic cases, those with small aneurysms of less than 3 cm dimension, and those with a stable dimension during regular follow-up [6,9]. Surgery itself carries a high mortality [9]; nevertheless, we performed a successful PTFE patch repair of the aneurysm and the patient had an uneventful 3 mo of follow-up. As reported earlier by us [9], the surgical technique of aneurysm repair by PTFE patch augmentation has previously been effective with a favorable short term outcome.

In conclusion, giant LV pseudoaneurysm following MI can present with congestive heart failure. Echocardiography is a good imaging modality for the early diagnosis of pseudoaneurysm. Surgery is the definitive treatment of giant pseudoaneurysm, without which the prognosis is very poor.

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