

Left ventricular Dissecting Pseudoaneurysm with Extensive Intramural Course: Management Challenges

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Abstract

A 69-year-old female presented to the emergency department with chest pain and EKG changes consistent with anterior STEMI. Left heart catheterization revealed multi-vessel CAD. She was referred for a CABG. Transthoracic echocardiography (TTE) with contrast raised concerns for apical pseudoaneurysm (Image 1). Cardiac computed tomography (CT) confirmed the presence of a multi-lobular dissecting pseudoaneurysm and extensive pericardial thickening (Images 3 and 4). This was confirmed at surgery, and she underwent partial pericardiectomy. Repair of the defects was deemed too high risk and adhesion prevented the insertion of any grafts. She subsequently underwent percutaneous revascularization.

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Key Words

LV Pseudoaneurysm, Transesophageal Echocardiography, Cardiac CT, Interdisciplinary Management

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A 69-year-old female presented to the emergency department with chest pain and EKG changes consistent with anterior STEMI. Left heart catheterization revealed multi-vessel CAD. She was referred for a CABG. Transthoracic echocardiography (TTE) with contrast raised concerns for apical pseudoaneurysm (Image 1). Cardiac computed tomography (CT) confirmed the presence of a multi-lobular dissecting pseudoaneurysm and extensive pericardial thickening (Images 3 and 4). This was confirmed at surgery, and she underwent partial pericardiectomy. Repair of the defects was deemed too high risk and adhesion prevented the insertion of any grafts. She subsequently underwent percutaneous revascularization.

Text

A 69-year-old female presented to the emergency department with chest pain and was found to have EKG changes consistent with ST-segment myocardial infarction. Emergent coronary angiogram revealed multi-vessel coronary artery disease and she was referred for surgery. A transthoracic echocardiogram was performed prior to surgery and found that the apex and apical septum were akinetic to dyskinetic and raised concerns for apical pseudoaneurysm (Image 1). An echo with contrast was done to further delineate these findings and showed a multilobular apical pseudoaneurysm (Image 2). The patient was unable to tolerate

cardiac magnetic resonance imaging so cardiac computed tomography (CT) was performed as part of surgical planning. The cardiac CT revealed the presence of a large pseudoaneurysm encircling the anterior wall with inferior extension and two separate necks (Image 3 and 4). The patient was taken for surgery for coronary artery bypass grafting and pseudoaneurysm repair.

Opening of the pericardium found blood clots encased around the heart. The pericardium was fused in parts to the myocardium below. The more likely mechanistic process alluded to a chronic left ventricular (LV) aneurysm that had ruptured with resultant intramuscular hematoma. Cardiac imaging specialists were brought into the operating room to discuss the intraoperative findings. As the entire muscle, intramuscular hematoma, and pericardium were fused, the insertion of any grafts was not feasible and surgical repair was deemed too high risk. After a second surgical opinion, the surgery was aborted.

On echo, the presence of LV contrast outside the myocardium and a narrow-necked connection suggested LV pseudoaneurysm, but the images could not confirm this finding. Cardiac CT helped provide a clearer delineation of the pathology and extent of the defects. This highlights the importance of incorporating more advanced imaging modalities such as cardiac MRI and CT to identify lesions and create 3-dimensional models to aid in surgical repair. In addition, the use of a multi-disciplinary team approach with input from cardiac imaging, interventional cardiology, and cardiothoracic surgery can help evaluate the imaging findings and anticipate surgical challenges in a complicated case such as this. In future cases with similar presentations, we hope that one may look at our images as a reference to exclude a patient from undergoing an invasive surgery when the extent is beyond repair.

Figures



Image 1: Initial echocardiogram with apical dyskinesia and concern for pseudoaneurysm

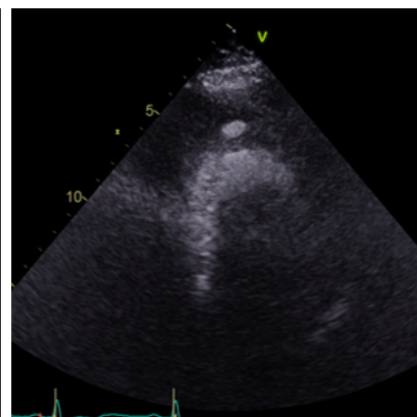


Image 2: Contrast echocardiogram confirming apical pseudoaneurysm

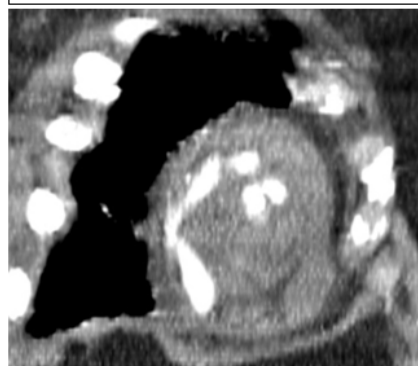


Image 3: Cardiac CT showing pseudoaneurysm encircling the anterior wall with inferior extension

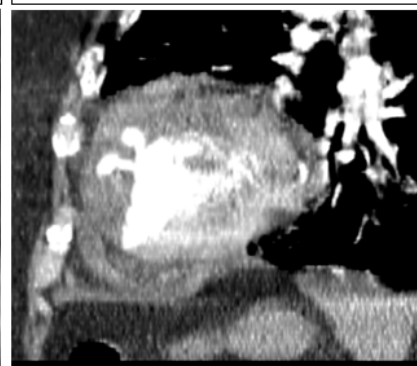
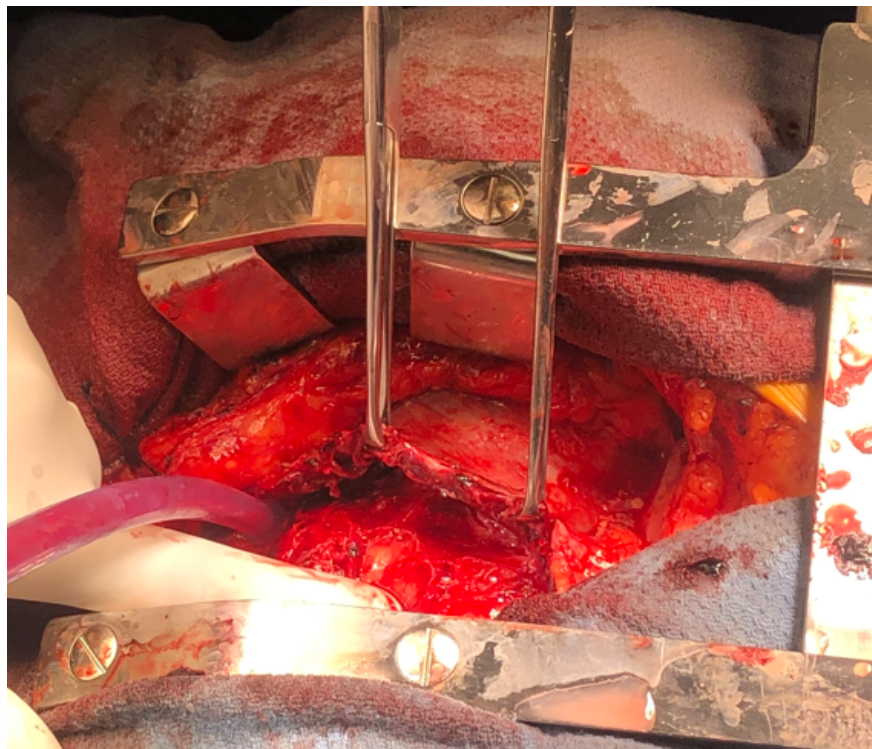


Image 4: Cardiac CT image showing pseudoaneurysm with two separate necks



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