Case study

Case Report: Dressler Syndrome and Left Ventricular Aneurysm in a 47-Year-Old Male with Diabetes

Abstract:

We present a case report of a 47-year-old male with a known history of recent diabetes who presented with symptoms suggestive of Dressler syndrome, along with the incidental finding of a left ventricular aneurysm. Dressler syndrome is a delayed immune-mediated response following myocardial injury, commonly observed post-myocardial infarction (MI) or cardiac surgery. This case highlights the importance of recognizing the atypical presentation of Dressler syndrome and its association with complications such as ventricular aneurysm, particularly in patients with pre-existing comorbidities.

Keywords:

Dressler syndrome, Post-cardiac injury syndrome, Pericarditis, Myocardial infarction, Left ventricular aneurysm, Cardiac complications, Inflammatory response

Introduction:

Dressler syndrome, also known as post-cardiac injury syndrome, is a rare but recognized complication following myocardial injury or cardiac surgery [1]. It is characterized by a delayed immune-mediated response involving the pericardium, pleura, and lungs. Left ventricular aneurysm, on the other hand, is a potentially serious complication of myocardial infarction, resulting from the thinning and bulging of the myocardial wall [2]. We present a case of Dressler syndrome with the incidental finding of a left ventricular aneurysm in a patient with diabetes.

Case Presentation:

A 47-year-old male with a history of a recent discovered type 2 diabetes mellitus presented to the emergency department complaining of progressively worsening dyspnea for the past three days. He was also suffering fromlight retrosternal pain which was pleuritic in nature, and aggravated by deep inspiration. He denied any associated symptoms such as fever, cough, or lower extremity edema.

On examination, the patient appeared uncomfortable but not in acute distress. Vital signs were within normal limits, including blood pressure which was 106/61 mmHg,

heart rate was at 101 bpm, and little dyspneic with respiratory rate 26 c/min. Cardiovascular examination revealed normal heart sounds with no murmurs or pericardial rub. Pulmonary examination foundBibasilar crackles lung sound. Laboratory investigations revealed elevated levels of C-reactive protein (CRP) at 79mg/l, Troponin levels at 0.02 ng/l (normal range inferior to 0.1ng/l), Fibrinogen at 6.02 g/lsuggestiveof an ongoing inflammatory process.

Later during the interrogation, the patient reportedepigastralgia 2 months prior for which he did not consult, further investigations were initiated.

Electrocardiogram (ECG) showed sinus rhythm with QS in anterior derivation V1 V2 V3with a remaining slight ST elevation (figure 1), consistent with anterior wall myocardial infarction. Transthoracic echocardiography (TTE) revealed an akinetic anterior wall segment with an associated left ventricular aneurysm (figure 2). The overall EF was 25%. There wasalsoa mildpericardial effusionand no myocardial breach was visualized.

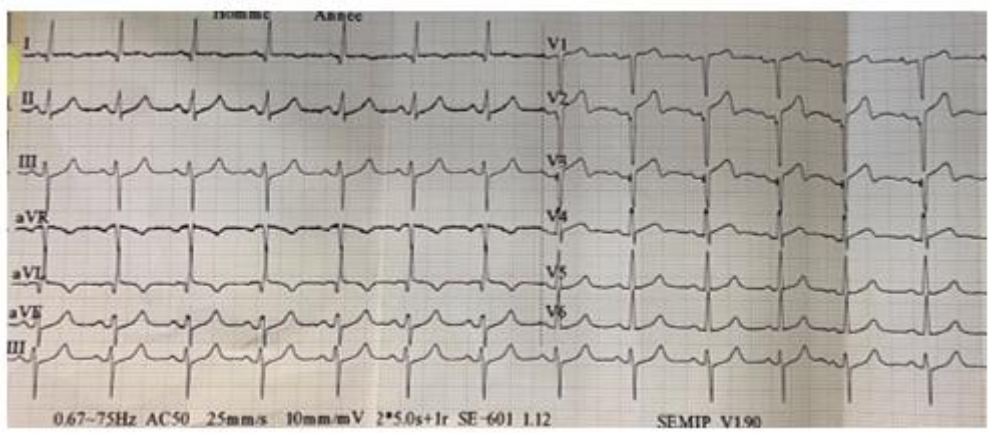

Figure 1 : ECG of the patient showing sinus rhythm with QS in anterior derivation V1 V2 V3 with a remaining slight ST elevation

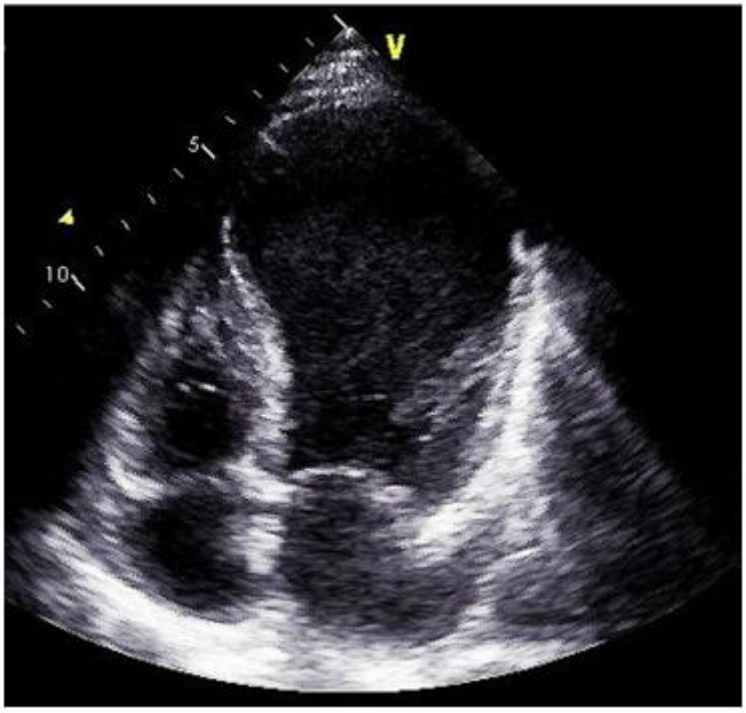

Figure 2: TTE of the patient showing left ventricular apical aneurysm

Coronary angiography (Figure 3) was done which revealed a middle occlusion of the LAD artery and a significantmiddle occlusion of the right coronary artery.

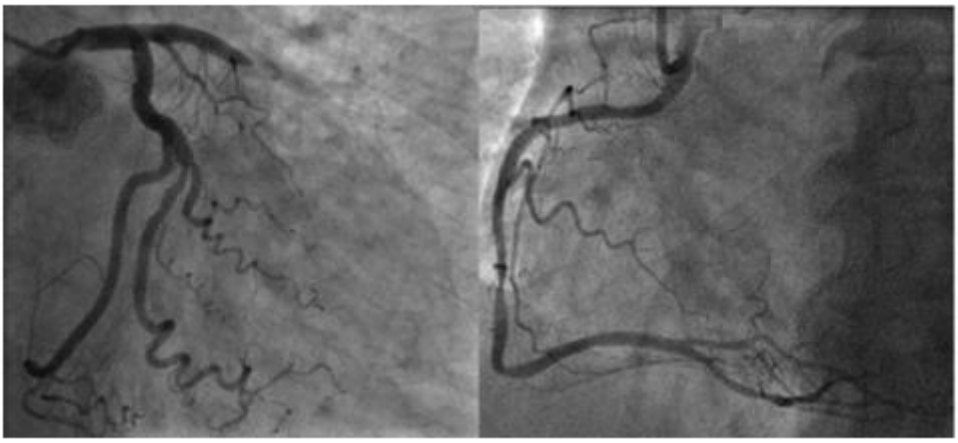

Figure 3: coronarography of the patient showing middle occlusion of the LAD artery and a significant middle occlusion of the right coronary artery

Based on the clinical presentation, elevated inflammatory markers, and echocardiographic findings, a diagnosis Myocardial infraction complicated of Dressler syndrome in association with a left ventricular aneurysm was made. The patient was started on nonsteroidal anti-inflammatory drugs (NSAIDs) (500mgx3/day) and colchicine for the management of Dressler syndrome (1mg/day). The patient also received the correct treatment for his acute heart failure based on diuretics (furosemide 80mg x3/ day) and potassium supplementation. Additionally, the patient was started on Acute coronary syndrome treatment based on double antiplatelet

therapy (we added clopidogrel 75 mg/day to Aspirin), angiotensin-converting enzyme inhibitors, beta-blockers,proton pump inhibitors (PPIs), and statins.

The patient's symptoms gradually improved over the course of several days, with a reduction in chest pain, dyspnea and normalization of inflammatory markers. Serial TTEs showed no significant changes in the left ventricular aneurysm size or function. The patient was discharged on a stable medical regimen with appropriate follow-up scheduled.

Discussion:

Dressler syndrome is a rare complication following myocardial injury or cardiac surgery, characterized by an immune-mediated inflammatory response involving the pericardium, pleura, and lungs. It typically presents weeks to months after the initial insult and is associated with elevated inflammatory markers such as C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) [1].

The incidence of Dressler syndrome has decreased over the years due to advancements in myocardial infarction management and a decrease in the number of open-heart surgeries. However, it remains an important consideration in patients with a history of myocardial infarction or cardiac surgery [2].

Diabetes mellitus is a well-known risk factor for cardiovascular disease, including myocardial infarction. Patients with diabetes are more prone to developing complications post-MI, including Dressler syndrome. Inflammation and endothelial dysfunction, common in diabetes, contribute to the pathogenesis of Dressler syndrome [3].

Left ventricular aneurysm is a serious complication of myocardial infarction, occurring in approximately 10-30% of cases. It results from thinning and bulging of the myocardial wall in the infarcted area. Patients with diabetes are more susceptible to developing left ventricular aneurysms due to impaired wound healing and increased collagen degradation [4].

The association between Dressler syndrome and left ventricular aneurysm has been reported in the literature. In a study by Trivedi et al., 11 out of 87 patients with Dressler syndrome were found to have an associated ventricular aneurysm. The presence of aneurysm was associated with a higher incidence of complications and mortality [5].

Diagnosis of Dressler syndrome is primarily clinical, supported by the presence of symptoms, elevated inflammatory markers, and characteristic electrocardiographic changes. Echocardiography plays a crucial role in identifying associated cardiac complications, such as ventricular aneurysms, as seen in our case [1, 6].

Management of Dressler syndrome involves a combination of nonsteroidal anti-inflammatory drugs (NSAIDs) and colchicine to suppress the inflammatory response. In cases with associated complications like ventricular aneurysm, optimal medical

therapy for heart failure, including angiotensin-converting enzyme inhibitors, beta-blockers, and statins, is essential [1, 7].

Our patient showed improvement in symptoms and reduction in inflammatory markers with the initiated treatment. Serial echocardiograms demonstrated no significant changes in the size or function of the left ventricular aneurysm. However, long-term follow-up is essential to monitor for any potential complications or progression of ventricular aneurysm [1].

The prognosis of Dressler syndrome is generally good with appropriate management. However, the presence of associated complications, such as ventricular aneurysms, may influence outcomes. Early recognition, prompt treatment, and regular follow-up are crucial to optimize patient care and improve long-term prognosis [5, 8].

Conclusion:

Dressler syndrome, although rare, should be considered in patients with a history of myocardial infarction or cardiac surgery who present with symptoms suggestive of an inflammatory response. This case emphasizes the importance of recognizing atypical presentations of Dressler syndrome, particularly in patients with comorbidities such as diabetes, and the need for comprehensive evaluation to identify associated complications like left ventricular aneurysm. Prompt diagnosis, appropriate management, and long-term follow-up are key to achieving favorable outcomes in these patients.

References:

1. Spodick DH. Acute pericarditis: Current concepts and practice. JAMA. 2003;289(9):1150-1153.
2. Imazio M, et al. Recent advances in the diagnosis and management of pericardial diseases. Chest. 2015;148(1):191-199.
3. Hsiao S-H, et al. Dressler's syndrome and cardiac tamponade following resection of intraventricular papillary muscle. J Cardiothorac Surg. 2012;7:62.
4. Kouraki K, et al. Leftventricularaneurysm in diabetesmellitus: a case report. BMC CardiovascDisord. 2002;2:6.
5. Trivedi K, et al. Dressler's syndrome: An often forgotten diagnosis. BMJ Case Rep. 2014;2014:bcr2013201746.
6. Klein AL, et al. Recognition and management of patients with myocardial infarction complicated by left ventricular free-wall rupture. Chest. 1998;113(3):564-570.
7. Imazio M, et al. A randomized trial of colchicine for acute pericarditis. N Engl J Med. 2013;369(16):1522-1528.
8. Imazio M, et al. Contemporary management of pericardial diseases. CurrOpinCardiol. 2012;27(3):308-317.