Case report

An infective endocarditis revealed by an acute myocardial infarction : a case report

Abstract

Acute myocardial infarction caused by septic embolism is usually fatal. A 43year-old male patient who presented within 4 hours of severe chest pain was admitted to the emergency department. An electrocardiogram showed marked anterolateral ST-elevation in the precordial leads V2–V6, and lateral leads DI and aVL . His body temperature was 38.3ºC. Blood cultures were taken before parenteral antibiotic treatment . Staphylococcus aureus were identified . Coronary angiographic examination was performed and revealed a septic embolus was shown in distal left circumflex artery . Trans-thoracic echocardiography showed; mobile vegetation on the mitral valve . After six weeks of antibiotherapy, he was completely healed and discharged from hospital. Six months later, he was rehospitalized and died because of complications of recurrent infective endocarditis.

Keywords :

Infective endocarditis , Acute myocardial infarction.

Introduction :

Infective endocarditis (IE) is a bacterial or fungal infection of the heart valves or endocardial surface (1) . IE can present with a myriad of clinical syndromes, which make initial clinical diagnosis elusive (2).
IE frequently forms vegetation on heart valves and can lead to systemic embolism. Dislodged vegetation rarely results in coronary artery embolism (CAE) and subsequent Acute Myocardial Infarction(AMI) (3).
We describe a rare case of native mitral valve IE presenting with AMI , that was caused by coronary artery embolism (CAE) , which is a rare complication of IE.

Case report :

A 43-year-old man with no known coronary artery disease risk factors , presented to our emergency department complaining of sudden cardiac chest pain in left precordium, which started 4 hours before presentation , associated with with shortness of breath. A physical examination showed a temperature of 38.3°C, with blood pressure of 113/67 mmHg and heart rate of 112 beats per minute with oxygen saturation of 97% on room air, respiratory rate of 23 breaths/minute, . Cardiovascular examination showed a Levine grade II/VI systolic heart murmur at the apex of the heart.
An electrocardiogram (ECG) and measurement of myocardial enzymes, including high-sensitivity cardiac troponin T and creatinine kinase-MB, were performed on arrived . The ECG (Figure 1) showed sinus tachycardia with acute ST elevations at D1-aVL andV2-V6 derivations . The high-sensitivity cardiac troponin T level was 70.3 ng/mL .In view of the clinical presentation and ECG findings, the patient was referred for emergency percutaneous coronary intervention.
Urgent coronary angiography was performed and it showed normal blood flow in the left main artery(LAD) and right coronary artery (CAD). The distal left circumflex artery (LCx) had an abrupt occlusion, which resulted in thrombolysis in myocardial infarction flow grade 2 flow. Aspiration of thrombus was conducted and the embolus moved to the proximal LCx. Antiplatelet and anticoagulant agents were used after coronary angiography.
Transthoracic echocardiography (TTE) (Figure 2)performed afterwards showed anteroseptal hypokinesia with mildly impaired left ventricle systolic function and severe, anteriorly directed mitral regurgitation and formation of vegetation noted on the atrial surface of the anterior mitral leaflet and

roof of the left atrium .Multiple blood cultures showed Staphylococcus aureus . Investigation showed White cell counts and C-reactive protein levels were elevated to 17.07 × 109 cells/L and above 250 mg/L, respectively. His procalcitonin levels were 3.38 ng/mL , anaemia with haemoglobin of 8.6 g/dL . IE was definitely diagnosed and empirical intravenous antibiotic therapy for infective endocarditis was initiated , based on 2g of ceftriaxone daily .

His condition became stable 1 month later. His infection was controlled and symptoms, such as fever, chest pain, and shortness of breath, were alleviated. Transthoracic echocardiography was repeated and showed regression of vegetation of 8 × 7 mm in the posterior leaflet of the mitral valve, severe mitral regurgitation .

We continued the conventional antibiotic treatment for six weeks in the first hospitalization and he was discharged fully recovered, and no microorganism was produced in his surveillance blood cultures. Therefore; surgical intervention was not performed. After six months, he was rehospitalized because of recurrence of IE, but he died because of septic complications and did not respond to medical treatment.

Discussion:

Coronary embolism has been reported in 4%–13% of patients presenting with acute ST-segment elevation, of which, 8% is due to infective endocarditis (4).Most coronary embolization occurs in the LAD. Possibly its take off and downward course is more favourable than the perpendicular take offs of the RCA and LCX. Again, in IE the risk of involving SCE from the mitral anterior leaflet exists mostly in the LAD artery, LCX and RCA, respectively(5).

In the course of IE, the highest incidence of embolic complications is seen with mitral valve disease (6).

We report a coronary septic embolism which was fatal when complicated with acute myocardial infarction . In his coronarography , atherosclerotic plaques were not detected. The appearance in the LAD of the embolus was typical for septic embolus.

Septic coronary embolism was a relatively common finding in earlier autopsy studies of IE. AMI is seldom diagnosed during life and is usually fatal (7,8)

A serious complication of IE is an embolic event caused by migration of cardiac vegetation. Dislodged vegetation can cause embolism in systemic blood vessels, leading to ischemic events. Major predictors of embolism in IE are intravenous drug use, Staphylococcus aureus infection, mitral valve vegetation, and vegetation size >10 mm (9)

IE should be treated aggressively to prevent future embolic events. In addition to antibiotics, early valve surgery is recommended for patients with IE and valvular dysfunction or recurrent embolic events (10).

Conclusion

This report describes the process of diagnosis and treatment of a case of AMI due to CAE, which is a rare complication of IE, thus providing a reference for clinical management. Aspiration of coronary embolus during coronary angiography followed by surgical intervention of diseased heart valves is a plausible strategy for managing CAE in IE.

References :

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List of abbreviations:

IE: infective endacarditis
CAE : coronary artery embolism
AMI :Acute Myocardial Infarction
ECG : electrocardiogram
LCx :left circumflex artery
TTE : transthoracic echocardiography
LAD :left main artery
CAD: CAD

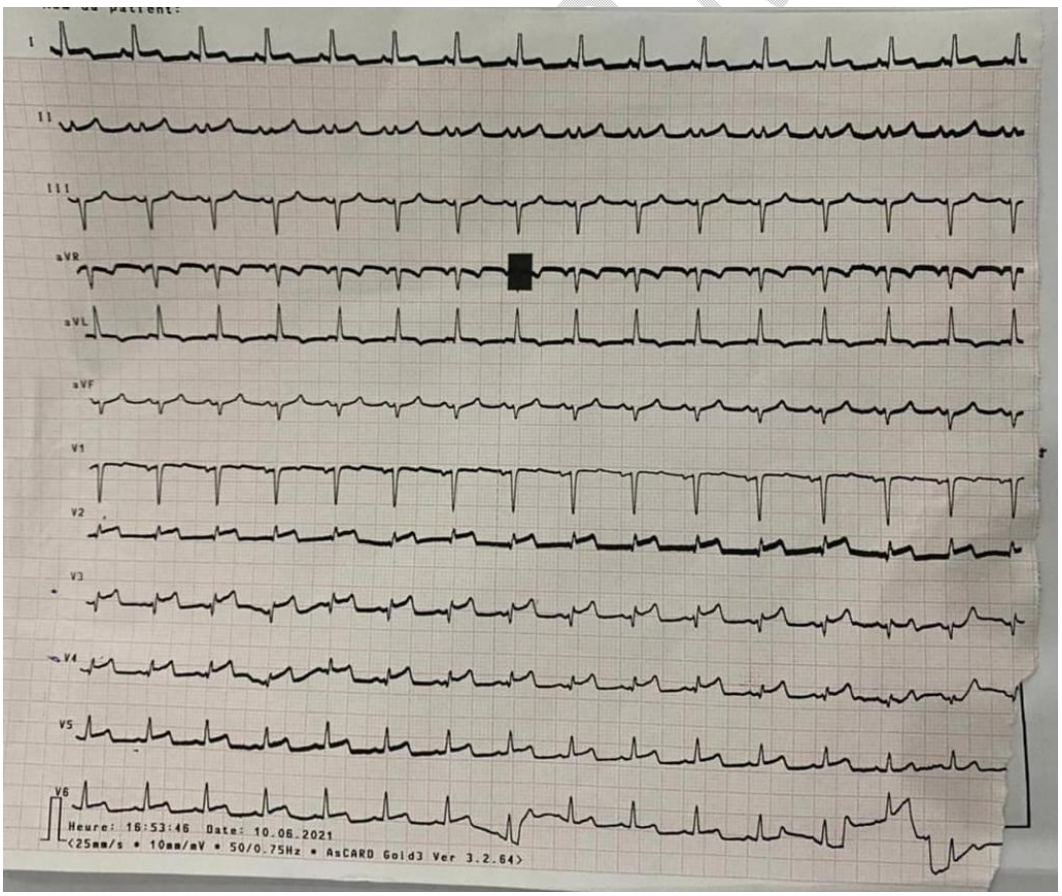

Figure 1: ECG with acute ST elevations at D1-aVL andV2-V6 derivations

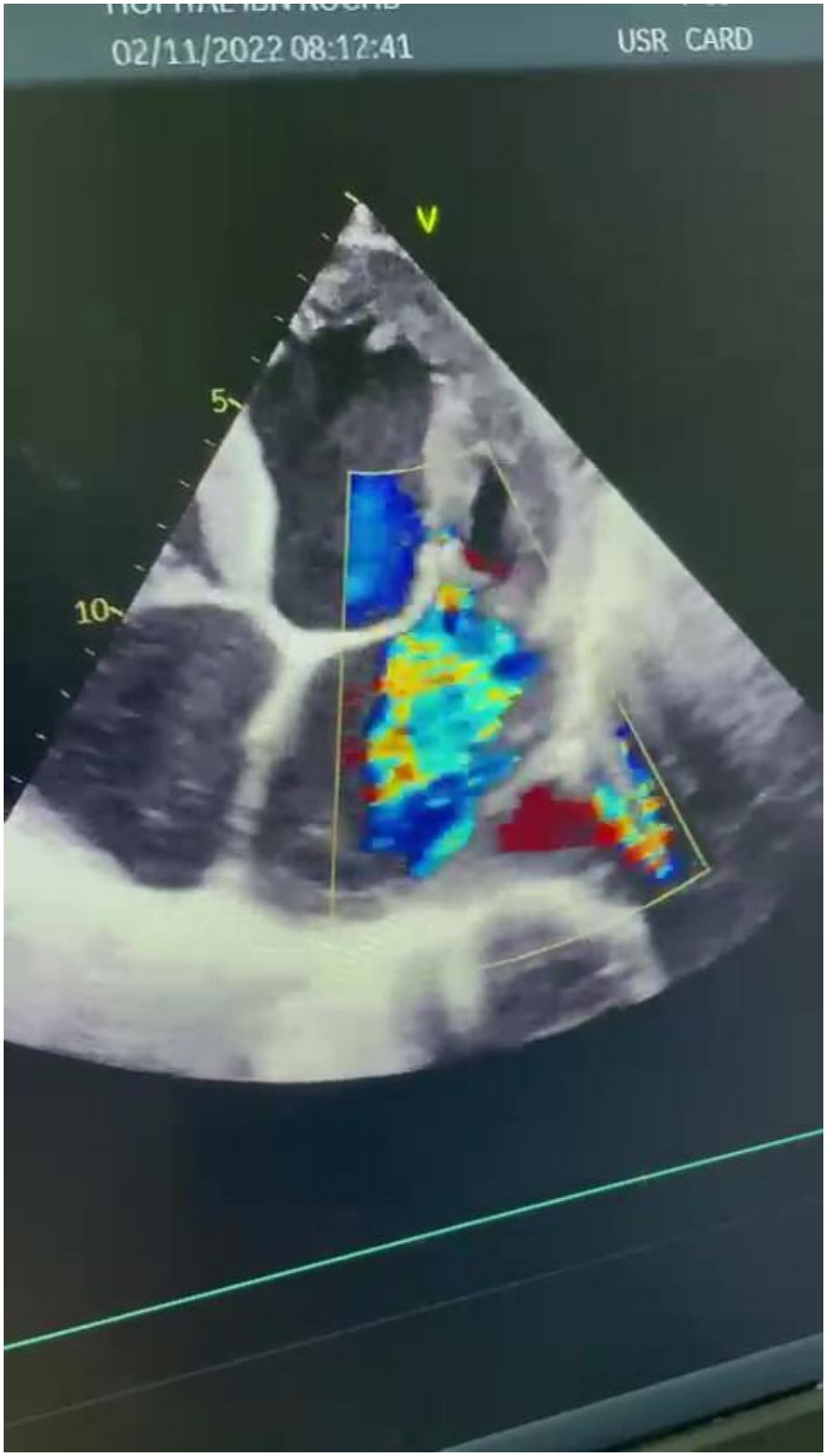

Figure 2: TTE showed mitral regurgitation and vegetation on the atrial surface .