



Successful Surgical Management of Left Ventricle Aneurysm Complicating Myocardial Infarction

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ABSTRACT

Left ventricular aneurysm (LVA) is a serious complication of acute myocardial infarction which reduces the chance of survival. We report a case of 64 year-old-man admitted for acute myocardial infarction, echocardiography showed a giant aneurysm of the left ventricle after myocardial infarction, he had cardiopulmonary bypass (CPB) under normothermia. The outcome was good, trans thoracic echocardiography (TTE) revealed improvement in left ventricular ejection fraction and reduction of ventricle volume. Through this case, we wanted to highlight the contribution of surgery in the management of certain complications of myocardial infarction, in particular the aneurysm of the left ventricle.

KEYWORDS: Left ventricular aneurysm ; Acute myocardial infarction ; Thrombus ; Magnetic resonance imaging.

Introduction

Left ventricular myocardial aneurysm is one of several complications post acute myocardial infarction [1]. The condition can be classified as a true aneurysm when aneurysm is formed in damaged wall of the myocardium and as a pseudoaneurysm when cardiac rupture is contained by adherent pericardium or scar tissue [2,3]. The main complications of left ventricular aneurysm is heart failure; ventricular arrhythmias; systemic embolization; cerebrovascular accident and ventricular rupture [3,4]. Surgical techniques currently used for correction of left ventricular aneurysm is based on reconstruction of left ventricle or a reduction of volume for restoring cardiac geometry [5,6]. We report a case of a successful surgical management of left ventricle aneurysm after myocardial infarction.

Case Report

A 64 year-old male patient with a past medical history of hypertension and smoking presented to the emergency room of the Mohamed V military teaching hospital of Rabat Morocco, with a two days history of chest pain. The clinical exam was normal, and the electrocardiogram objectified the presence of ST-segment elevation evolving anterior territory with necrosis signs in the same territory. Trans thoracic echocardiography showed a giant aneurysm of the left ventricle with the presence of a thrombus in the tip (Fig 1). The patient was admitted in the intensive care unit and anticoagulant and anti-ischemic treatments were started. The evolution was marked by recurrent left heart failure. Five months later, a cardiac magnetic resonance imaging (MRI)

detected a giant aneurysm of the left ventricle without visible thrombus (Fig 2). The patient underwent repair surgery of the left ventricle with geometric reduction and the closing by patch through a median sternotomy. The trans thoracic echocardiography realized on the eighth post operative day showed a significant reduction of the aneurysmal pocket (Fig 3). The patient continued to be followed up and regular physical examination and trans thoracic echocardiography every 3 months showed improvement and stabilization of left ventricular ejection fraction (LVEF).

Discussion

Left ventricular aneurysm (LVA) is a common complication of acute myocardial infarction (AMI). The incidence has declined due to the early management of myocardial infarction by angioplasty [2,3]. The aneurysm can involve the LV. True aneurysm by definition is full-thickness lesions of the LV wall; whereas pseudo aneurysm of this chamber are essentially contained ruptures of the free wall. However, the nomenclature and official definitions remain imprecise, because these morphologic characteristics of lesions might be less important than physiologic changes result [13]. Although the exact mechanism of aneurysm formation is unknown, a transmural infarction is required. The first reported angiography diagnosis of LV aneurysm was published in 1951[8]. In 1958, Cool and al [9] described the first successful repair in which they used a linear technique and CPB (Cardio pulmonary bypass). There are several potentially life-threatening complications such as arrhythmias[10]; cardiogenic shock; complete free wall

ruptures which account for almost 4% of patients deaths after AMI (33% within the first week [11]) ; complete septal ruptures (accounting for 1 to 5% of all infarct related deaths [12] due to formation of false aneurysm . The first verifiable attempt to correct a LVA surgically was performed in 1942 by beck [7]; that used parietal pericardium in the repair. Surgical techniques currently used for correction a left ventricular aneurysm are based on reconstruction of the left ventricle or a reduction of volume with the goal of restoring the normal cardiac geometry [5,6]. This case illustrates a successful surgical reduction with a ventricular remodeling technique.

Conclusion

Left ventricular myocardial aneurysm is a severe complication of acute myocardial infarction (AMI). In this case, LVA was detected on Trans thoracic echocardiography and confirmed by cardiac MRI. The surgery was performed with the use of cardiopulmonary bypass under normothermia with good outcome.

Consent:

A written informed consent was obtained from patient for the publication of this paper

Conflict of interest:

The authors declare that they have no competing interest

List of abbreviations :

LVA : Left ventricular aneurysm
TTE : Trans thoracic echocardiography
MRI : Magnetic resonance imaging
AMI : Acute myocardial infarction
CPB : Cardiopulmonary bypass

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Figure Legends :

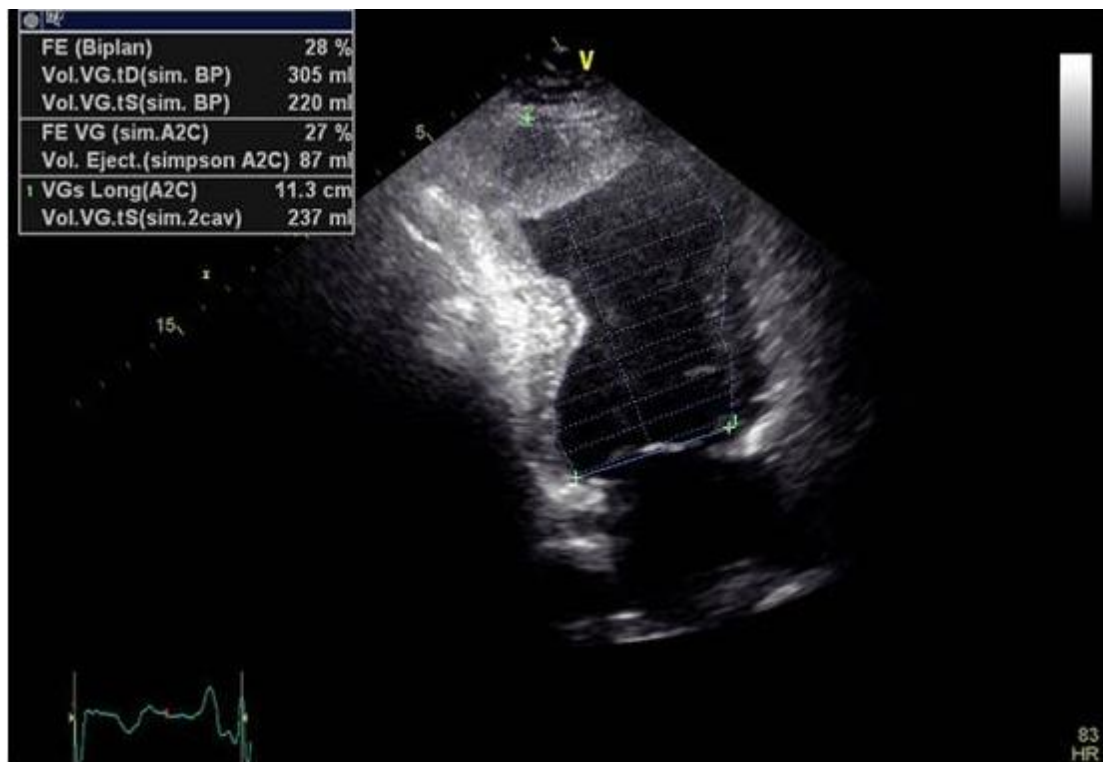


Figure 1: The incidence apical 2 Chambers showed a huge aneurysm of the left ventricle with apical thrombus.

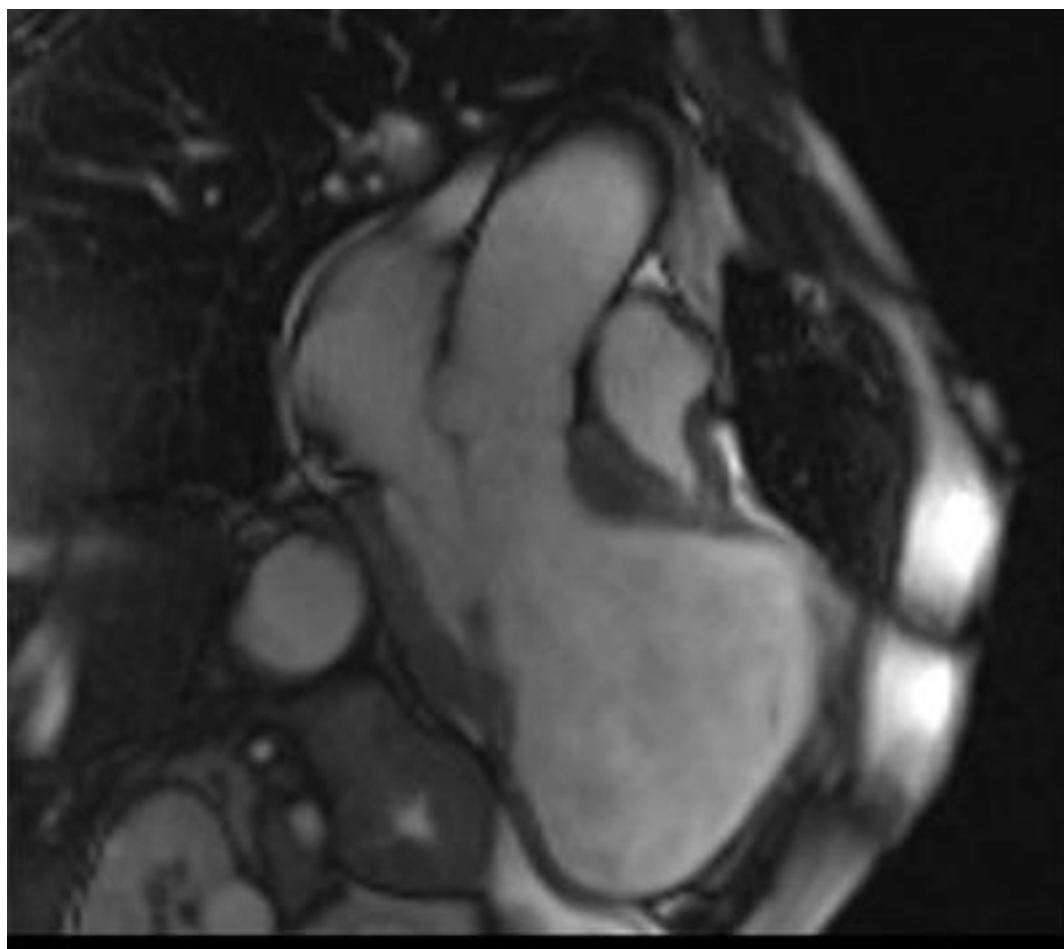


Figure 2: Cardiac Magnetic Resonance SSFP image 2 Chambers before the surgical correction of the aneurysm.

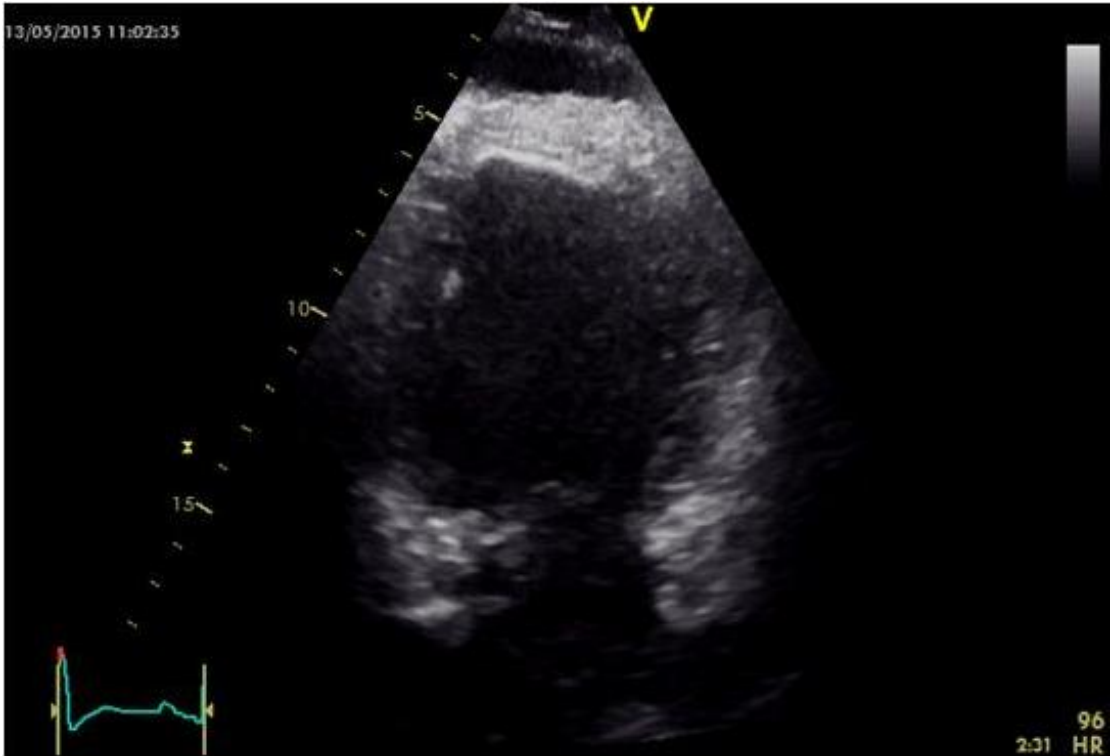


Figure 3: The incidence apical 2 Chambers showed a significant reduction of the aneurysm after surgery.