

Spontaneous implantation of a left atrial myxoma into the left ventricle (RCD code: VI-1A.1)

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Abstract

Myxomas are one of the most common cardiac tumors. In 70–80% of cases they are located in the left atrium, 10–20% in the right atrium and in less than 10% in ventricles. We report a case of a 60-year-old patient after myocardial infarction of the posterior-inferior-lateral wall and subsequent percutaneous coronary interventions, who presented with symptoms of unstable angina. Based on standard criteria including cardiac enzymes acute coronary syndrome was excluded. Transthoracic echocardiogram showed hypokinesis of the lateral wall, normal left ventricular ejection fraction of 56%, left ventricular hypertrophy, enlarged heart chambers and moderate mitral regurgitation. Additional two masses were visualized - one of 3.1 x 1.4 cm size growing from interatrial septum in the area of fossa ovalis in the left atrium, second of 1.2 x 0.4 cm connected to the chordae tendinae in the left ventricle. On transthoracic echocardiography a distal part of the left atrial structure spontaneously fell into the left ventricle hitting the tendinae. Successful surgical removal of both masses followed by pathological evaluation confirmed the diagnosis of myxomas. JRC D 2016; 2 (7): 1–1

Key words: rare disease, cardiac tumor, echocardiography, coronary artery disease, mitral regurgitation, mitral valve repair, coronary artery bypass graft, intra-aortic balloon pump

Introduction

Approximately 75% of cardiac tumors are histologically benign forms [1] and within this group almost half of them are myxomas [2]. A left atrial myxoma was first described in 1845 during an anatomopathological exam [3] and in 1959 it was first diagnosed by the echocardiography [4]. Nearly 70–80% of myxomas are located in the left atrium, 10–20% in the right atrium and less than 10% in both atria and in the two ventricles [5, 6–8]. Myxomas arise mainly from the atrial septum in the fossa ovalis area, but can also be located in the free wall [9, 10]. It is believed that myxoma is a benign tumor of the heart, derived from undifferentiated mesenchymal cells being a remnant of gestation [11, 12]. The only effective treatment – which requires a prompt decision due to a number of potentially life-threatening complications – is surgical removal of the tumor [13]. A case of an asymptomatic left atrial myxoma located on one of the chordae tendinae of the mitral valve in the left ventricle is reported below.

Case report

A 60-year-old patient with a history of inferior, posterior and lateral myocardial infarction (1994) treated with multivessel percutaneous coronary angioplasty (including left anterior descending, circumflex artery, obtuse marginal and right coronary artery with bare metal stent implantation) was admitted to the Department of Cardiology at the Medical University of Lublin with symptoms of unstable angina. Acute myocardial infarction was excluded based on the results of blood chemistry. Urgent coronary angiography confirmed patency of the previously implanted stent. No abnormalities were found on physical examination. Electrocardiogram (ECG) showed regular sinus rhythm, horizontal heart position, qR and negative T waves in leads I, aVL, V4–V6.

The results of basic laboratory tests (blood count, clinical chemistry, urinalysis) did not show any abnormalities. The plain chest X-ray was normal.

Transthoracic echocardiography (TTE) demonstrated hypokinesis of the lateral wall, left ventricular (LV) ejection fraction of 56%, left ventricular hypertrophy and enlargement of the heart chambers as well as moderate mitral regurgitation. An irregular mass measur-

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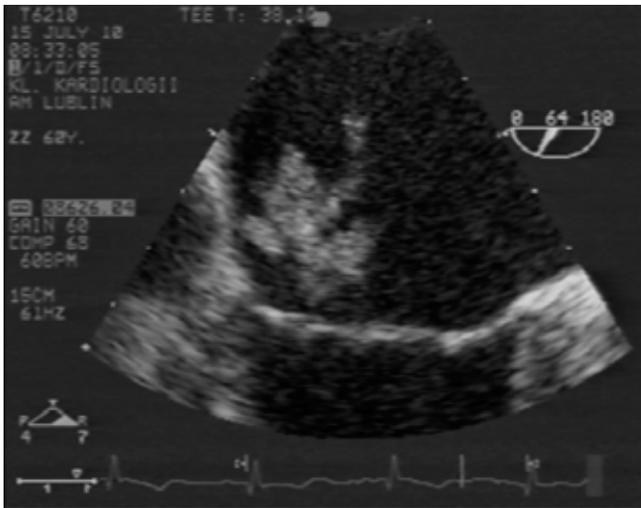


Figure 1. Transesophageal echocardiography. A polycyclic mass attached by a narrow pedicle to the interatrial septum in the fossa ovalis area

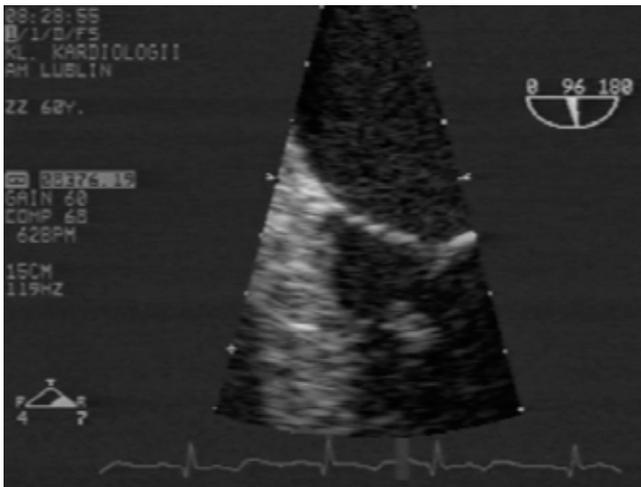


Figure 2. Transesophageal echocardiography. Pathological mass attached to the chordae tendineae in the left ventricle

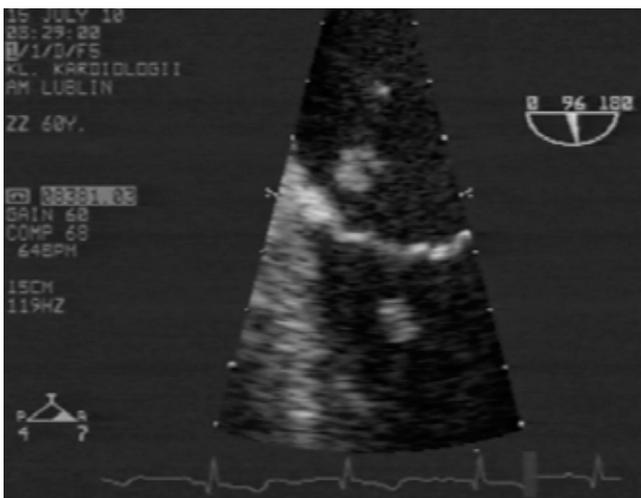


Figure 3. Transesophageal echocardiography. Suspected myxoma of the left atrium and tendinous chords

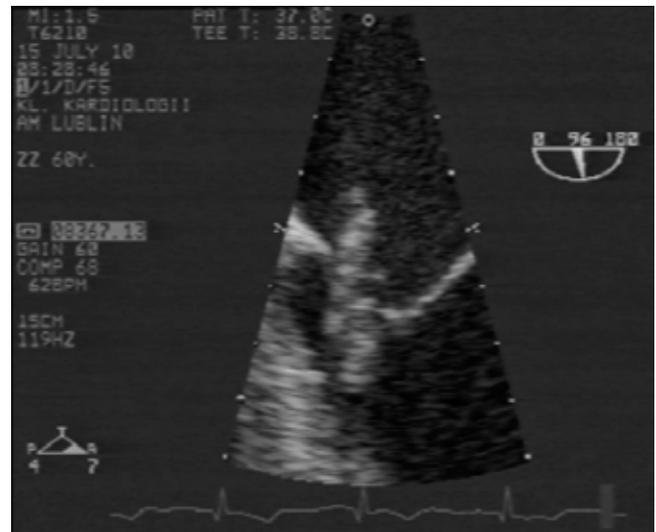


Figure 4. Transesophageal echocardiography. Left atrial tumor protruding into the left ventricle via mitral valve orifice

ing 3.1×1.4 cm arising from the interatrial septum within the fossa ovalis into the left atrium (LA), and another one bound to the chordae tendineae in the LV (1.2×0.4 cm) were visualized.

Transesophageal echocardiography (TEE) confirmed the presence of a polycyclic mass of 2.6×1.6 cm in diameter attached by a narrow pedicle to the interatrial septum in the fossa ovalis area (Figure 1). In diastole the distal portion of the mass protruded to the left ventricle through the mitral valve orifice, striking the chordae tendineae. On one of the chordae, a similar mass of 1.4×0.6 cm was present, suggesting local spreading of the tumor (Figure 2). These pictures were consistent with a diagnosis of myxoma (Figures 3,4).

The patient was qualified for surgery. After opening the LA, a gelatinous tumor originating from the fossa ovalis area with size of 2.5×1.5 cm and another one bound to the chordae tendineae in the left ventricle (1.0×0.4 cm) were removed. Pathomorphological assessment of the removed masses confirmed the diagnosis of myxoma.

In the intraoperative TEE after the removal of both tumors, large mitral regurgitation was diagnosed. Mitral valve repair was performed with a good echocardiographic result. Because of ventricular arrhythmias and ECG signs of ischemia, the patient required temporary intra-aortic balloon pump (IABP) therapy and subsequent implantation of a aortocoronary saphenous vein graft to the posterior descending artery (PDA) resulting in clinical stabilization and normalization of ECG changes.

Discussion

The surgical removal of LA myxoma was first described in 1955 [14]. TTE and TEE are most often first-line modalities documenting the presence of a myxoma [15,16]. Diagnostic imaging methods such as computed tomography, magnetic resonance imaging and scintigraphy are used to detect small tumors [17]. In the reported case, the symptoms did not occur, which could be

explained by the small size of the tumor, not identified earlier despite repeated TTEs. The clinical presentation of this benign tumor may be dramatic. Large myxomas can obstruct the atrio-ventricular orifice causing syncope or even sudden cardiac death [18]. Spontaneous fragmentation of the tumor is yet another possible complication regardless of its size. In the reported case, myxoma measuring 2.6×1.6 cm was attached by a narrow pedicle to the interatrial septum at the base of the mitral valve anterior leaflet. Its distal part protruded into the LV through the mitral valve striking the chordae tendineae where another tumor of $1.4 \text{ cm} \times 0.6 \text{ cm}$ was present. Laboratory tests, including hematology, C-reactive protein and D-dimer, were within normal limits. Extensive surgical removal of a myxoma, usually accompanied by atrial septum resection, is the treatment of choice. LA myxomas have been widely described in the literature, however their collective occurrence in different parts of the heart is rare. Based on the reported case, it seems highly possible that the myxoma striking the chordae tendineae of the mitral valve implanted itself on one of the chordae tendineae and began “a life of its own” (Figure 3,4). As an evidence for such a sequence of events, the following arguments may be quoted:

- motion dynamics of the left atrial tumor in TTE and TEE,
- the same histopathological nature of both tumors,
- the location where the second tumor arose, which is exactly where the distal part of the left atrial tumor was striking.

In our opinion, this example is the first described case of the co-existence of myxomas located around the foramen ovale of the LA and on one of the chordae tendineae within the LV.

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