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Case Report

Pseudo-aneurysm of mitral aortic intervalvular fibrosa: Two case reports

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ARTICLE INFO

Article history:

Received 20 August 2012

Accepted 19 December 2012

Available online 26 December 2012

Keywords:

Pseudo-aneurysm

Mitral aortic intervalvular fibrosa

Mitral aortic fibrous body

Submitral aneurysm

ABSTRACT

The fibrous body between the mitral and aortic valve, known as mitral-aortic intervalvular fibrosa (MAIVF) is prone to infection and injury resulting in pseudo-aneurysm formation. Because of its relative rarity, we are far from making any conclusion regarding the natural history and appropriate therapeutic strategy for this condition. We report two cases of this condition with two different and rare etiologies with strikingly different natural courses, providing insight into the natural course and timing of surgery in this rare entity.

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1. Introduction

Pseudo-aneurysm of mitral-aortic intervalvular fibrosa (MAIVF) is an uncommon entity. We are far from making any conclusion regarding the natural history and appropriate therapeutic strategy for this condition. We are describing here two cases of this condition with two different and rare etiologies with strikingly different courses, providing insight into the natural course of this rare entity.

2. Case 1

A 34-year-old male was followed up as case of rheumatic heart disease (RHD) with severe mitral regurgitation (MR)

and was being treated medically for the same for last 16 years. Initially, he was asymptomatic but started having paroxysmal palpitations since 5 years. He gave history of penetrating injury on chest by a metal rod, following a fall from the 1st floor of his house 18 years ago. Transthoracic and transesophageal echocardiogram revealed enlarged left atrium (LA) and left ventricle (LV) with no evidence of rheumatic involvement of the mitral valve apparatus. There was a pulsatile echo-free space, between the anterior mitral leaflet (AML) and noncoronary cusp of aortic valve that communicated with both LV and LA and thus behaved like mitral regurgitation (MR) hemodynamically (Fig. 1a and b, Fig. 2 and video 1). Patient was advised regarding the surgical correction because of the attendant risk associated with progressive LV overload. However, patient denied

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<http://dx.doi.org/10.1016/j.ihj.2012.12.007>

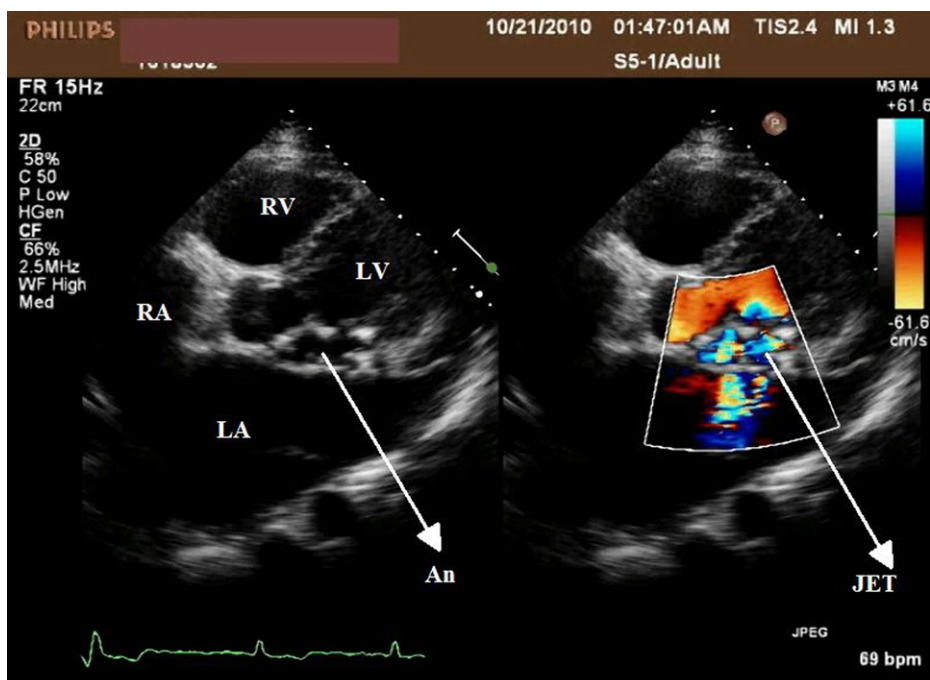


Fig. 1 – Transthoracic echocardiography with modified five chamber view showing pseudo-aneurysm between anterior mitral leaflet and noncoronary cusp of the aortic valve. On color doppler there is evidence of communication of pseudo-aneurysm with left atrium and left ventricle. Calcification of the wall of pseudo-aneurysm suggests chronicity of the condition. LV = Left ventricle, LA = Left atrium, RV = Right ventricle, RA = Right atrium.

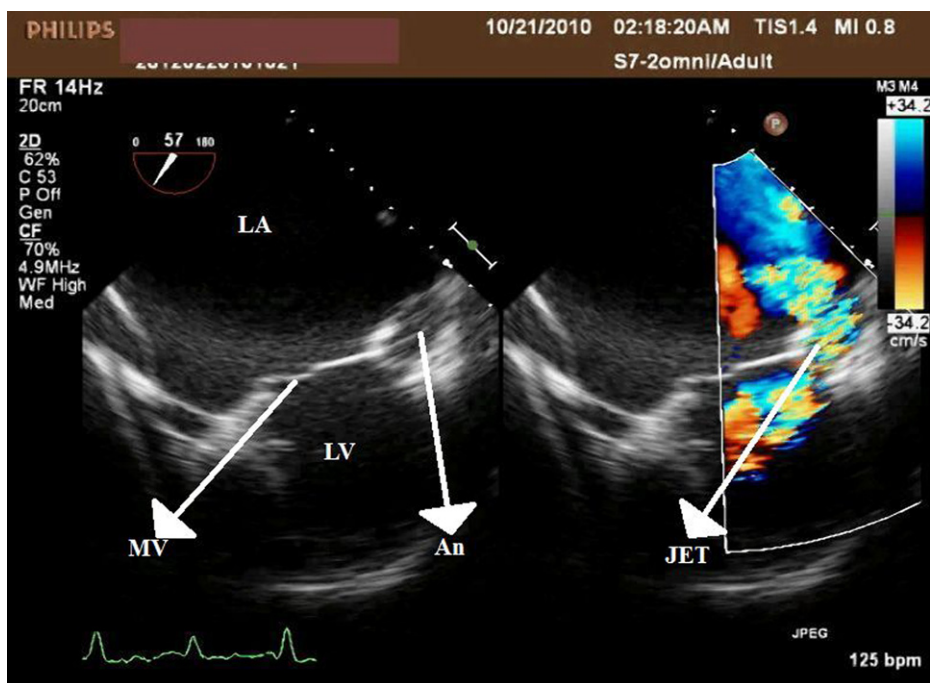


Fig. 2 – Transesophageal echocardiogram showing communication of pseudo-aneurysm with left atrium. LV = Left ventricle, LA = Left atrium, MV = Mitral valve, An = Aneurysm.

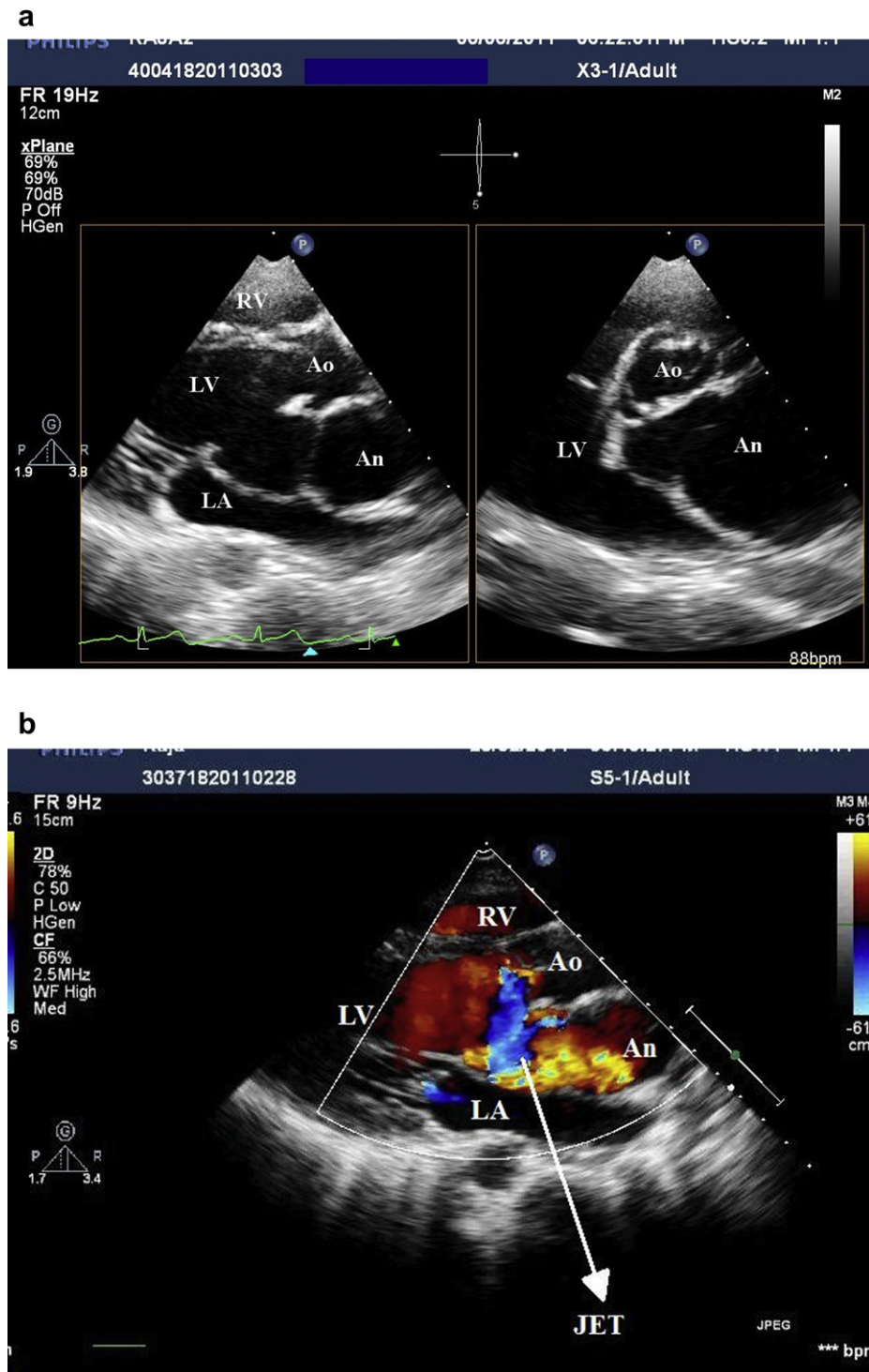


Fig. 3 – a Transthoracic echocardiography with parasternal long axis view and parasternal short axis view at aortic valve level showing large pseudo-aneurysm in the region of mitral-aortic intervalvular fibrosa. LV = Left ventricle, Ao = Aorta, An = Aneurysm, LA = Left atrium, RV = Right ventricle. b Color doppler imaging showing to and fro movement of blood between pseudo-aneurysm and left ventricle. There is no communication of pseudo-aneurysm with left atrium or aorta.

further investigations and surgery because of social reasons.

Supplementary video related to this article can be found at <http://dx.doi.org/10.1016/j.ihj.2012.12.007>.

3. Case 2

A 19-year-old male, referred as a case of aneurysm of sinus of valsalva, presented with short history of dyspnea on exertion

(NYHA class II) since 20 days. Patient had a history of tubercular pericardial effusion and bilateral pleural effusion with cardiac tamponade 4 months ago. He underwent pericardiocentesis and later left anterolateral thoracotomy for pericardial window with intercostal drainage. Patient was put on anti-tuberculous regimen, and he did well on treatment until the recent development of dyspnea. Transthoracic echocardiogram revealed enlarged LV with large, pulsatile echo free space between AML and aortic valve (Fig. 3a). On color doppler, during systole blood was entering from LV into the pseudo-aneurysm and was returning to left ventricular outflow tract during diastole with no communication with any other adjacent structure (Fig. 3b). Considering patient's symptoms and attendant risk of rupturing into pericardium, elective surgery was scheduled after 10 days. Unfortunately, patient had sudden cardiac death 3 days prior to the scheduled surgery while he was going back home after a hospital visit. Autopsy was refused by his family.

4. Discussion

The MAIVF is a fibrous region of the heart between the left half of noncoronary cusp and the adjacent left coronary cusp of the aortic valve and the AML. Because of the thin nature and fragility of the MAIVF, it is susceptible to dilatation following endocarditis, mitral and aortic valve surgeries or, chest trauma. Enlargement may lead to compression of adjacent structures including the LA, coronary arteries, and the pulmonary artery. Close proximity to the LA and aorta may result in fistulous communications with these structures. Anatomic confirmation by magnetic resonance imaging or computerized tomography will delineate the true extent of pseudo-aneurysm and its impact on adjacent structures. These imaging modalities provide useful information before surgery. Infective endocarditis (IE) and aortic valve surgery are the two most frequently associated causative factors.¹ Only a couple of cases of pseudo-aneurysm of the MAIVF resulting from chest trauma and infective pericarditis are described in the literature.^{2–4} The natural course of this entity in general, is

not clear as most patients undergo surgery as soon as the diagnosis is made. Development of complications like heart failure, compression of adjacent structure, fistulous communication, thromboembolism, continuing infection in IE mandates early surgery. Management of uncomplicated pseudo-aneurysm is not clear. Risk of rupture of pseudo-aneurysm is a big concern in follow up of these patients. Two cases described here have strikingly different etiology and natural course. The fatal outcome in case 2 can be explained by the large size and rapidity with which the pseudo-aneurysm developed. Though it is difficult to draw any conclusion regarding the management strategy in this group of patients, from the data available on this entity we recommend expedited surgery in patients who have symptoms, complications, have large size of pseudo-aneurysm, especially if it is attained in a short duration.

Conflicts of interest

All authors have none to declare.

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