Asymptomatic interventricular septal dissection and giant coronary artery aneurysms simulating cardiac cysts: Multi-modality imaging

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We report an exceptionnel case of asymptomatic interventricular septal dissection and giant coronary artery aneurysms simulating cardiac cysts with a focus in the interst of Multi-modality Imaging.

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Keywords: Coronary aneurysm, Coronary fistula

Introduction

An asymptomatic 40-year-old patient with no cardiovascular risk factors presented to the echocardiography laboratory in order to explore deep negative T wave in leads V3 to V6, and DII, DIII, and VF. It was incidentally found that repolarization abnormalities were permanent, recalling a hypertrophic cardiomyopathy electrocardiogram (Fig. 1A).He had a history of a violent horse hoof kick with chest impact 30 years previously. We assume that, at that time, there was no major complication diagnosed given that the patient was discharged after only 1 day of hospitalization. The patient had not reported any symptoms since the incident.

Transthoracic echocardiography showed two rounded echo-free masses: 35 mm × 37 mm polylobed mass (M1) embedded in the interventricular septum, and a second one (M2) measuring 20 mm having an epicardial location adjacent to the anterolateral apical wall of the left ventricle (Fig. 1B). Both masses had circulating flow and were widely intercommunicating (Fig. 1C and D). Contrast echocardiography (SonoVue. Bracco Imaging, Evry. France) showed that the contrast agent appeared normally in the right then the left cavities (Fig. 2A), while the intraseptal cyst was opacified only after 15–20 seconds, but not simultaneously with the right or the left ventricular opacification (Fig. 2B). This finding rules out "a cyst ruptured into ventricle" hypothesis. Cardiac magnetic resonance imaging shows three

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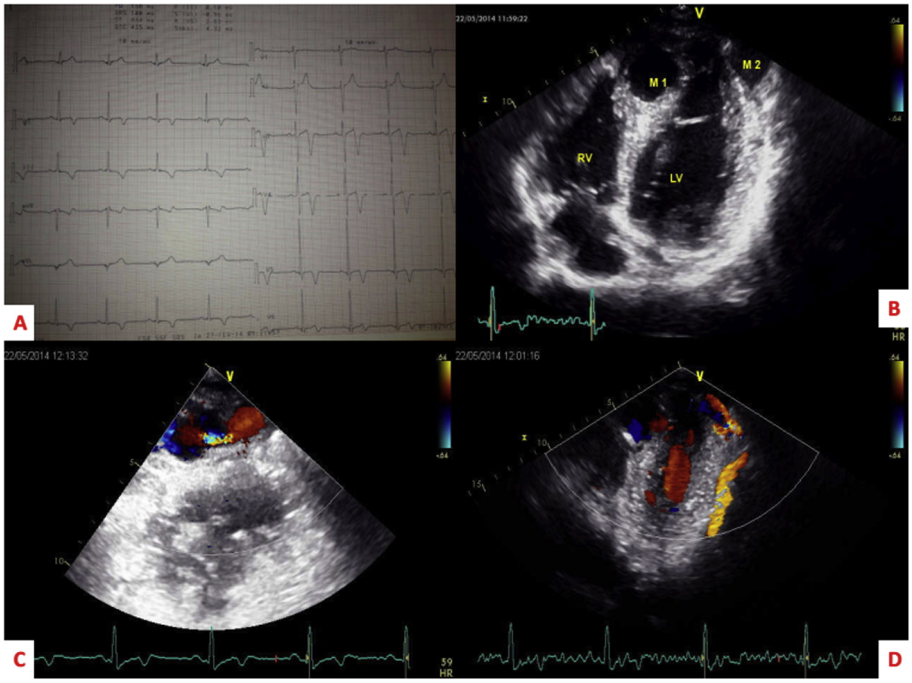

Figure 1. (A) Electrocardiography (ECG), deep negative T wave in leads V3 to V6, and DII, DIII, and AVF; (B) transthoracic echocardiography 4-chamber apical view. Septal cystic mass (M1) and epicardial cystic mass (M2); (C, D) transthoracic echocardiography modified apical view, color Doppler showing circulating flow and communication between cystic masses. LV = left ventricle; RV = right ventricle.

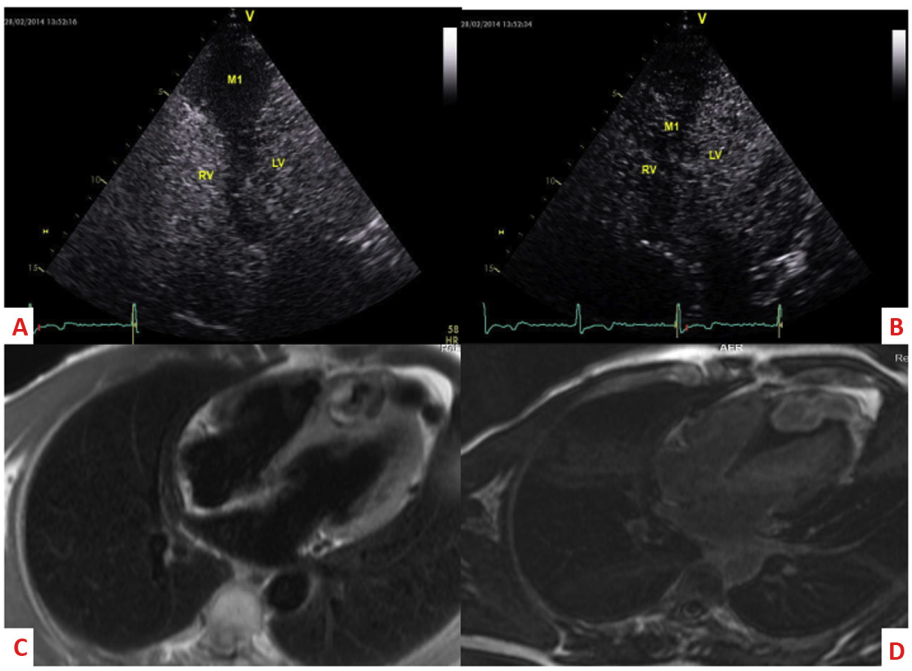

Figure 2. (A, B) 4-Chamber apical view contrast echocardiography. (A) Left and right ventricles opacification; (B) opacification of septal mass, 15 seconds after ventricles opacification; (C) 4-chamber view cardiac magnetic resonance imaging, black blood sequence; and (D) gadolinium delayed enhancement sequence. LV = left ventricle; M1 = septal cystic mass; RV = right ventricle.

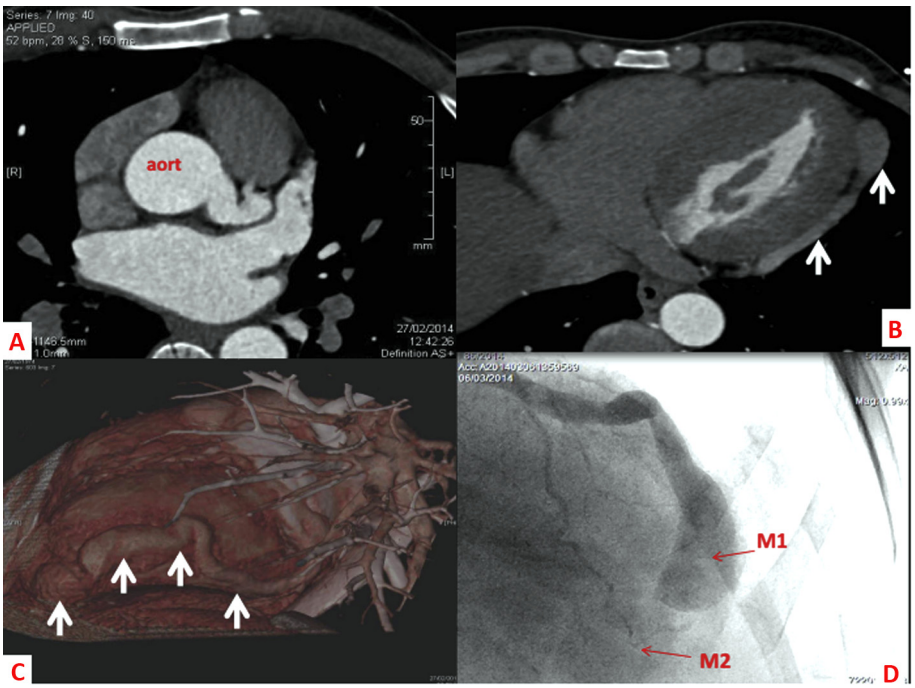

Figure 3. (A) Cardiac computed tomography (CT)-scan axial slice showing left main coronary ectasia; (B) cardiac CT-scan mutliplanar reconstruction (MPR) showing marginal coronary artery aneurysm (arrows); (C) cardiac CT-scan volume rendering technique (VRT) showing the tortuous course of the marginal coronary artery (arrows); and (D) cardiac catheterization, left anterior oblique view showing coronary aneurysm (red arrows). aort = aorta; M1 = septal cystic mass; M2 = epicardial cystic mass.

communicating cystic masses. On black blood sequence, the intraseptal mass presented a heterogeneous signal, while epicardial masses showed hypo signal T2 (Fig. 2C). The cystic masses had a late gadolinium enhancement (Fig. 2D). Cardiac computed tomography (Fig. 3A–C) and cardiac catheterization (Fig. 3D) showed ectasia of both main left coronary, circumflex artery and marginal coronary artery. The latter was tortuous with multiple giant aneurysms corresponding to the ''cystic masses''. There was no evidence of coronary-cameral fistula.

Our hypothesis is a post-traumatic interventricular septal dissection complicated by coronary fistula. The natural course over 30 years led to spontaneous closure of the fistula with ectasia of the marginal artery and aneurysm formation. Similar cases of ventricular septal dissection and coronary artery fistula have been reported. It may be a complication of chest trauma, like supposed in the present observation [1]. Septal dissection may also occur after heart surgery [2].

The prognosis of our patient depends on the two main complications of coronary aneurysm including aneurismal rupture and thrombosis. Risk of aneurismal rupture is certainly increased in our case because of the size of the aneurysm, which may justify surgical excision of the aneurysm, but the intervention was refused by the patient. Aneurismal thrombosis can be prevented conventionally by use of antiplatelet or anticoagulation. Due to the asymptomatic nature of the patient and the size of aneurysms, we preferred to start anticoagulation, with regular follow-up every 6 months.

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