

Case 4 / 2014 – 15-year-old Patient with Atrial Septal Aneurysm, Right Bundle Branch Block and Paroxysmal Atrial Fibrillation

Edmar Atik

Clínica privada do Dr Edmar Atik, São Paulo, SP - Brazil

Clinical data: It was reported, one month earlier, that after physical exertion for three hours and at ambient temperature of 42°C, symptoms of malaise and tachycardia with precordial palpitations arose. At the moment, fibrilo-flutter atrial with 160 bpm heart rate was diagnosed, which was reverted after administering endovenous amiodarone. Initial diagnostic investigation revealed presence of atrial septal defect (ASD) with 16mm diameter and surgical correction was indicated. Overall, the patient was asymptomatic, in full physical and mental activity. No relevant morbid history was reported.

Physical examination: Eupneic, acyanotic, normal pulse. Weight: 45 Kg, Height: 158 cm, BP: 100/65 mmHg, HR: 82 bpm, saturation O₂ = 96%. Aorta was not palpable at suprasternal notch.

In the precordium, *ictus cordis* was not palpable and there were mild systolic impulses on the left sternal border. Heart sounds were normophonetic and mild systolic murmur was auscultated, + of intensity, rough, on the upper left sternal border, without thrill. Liver was not palpable.

Complementary tests

Electrocardiogram: (Figure 1) showed sinus rhythm and Full Right Bundle Branch Block (CRBBB) and Left Bundle Branch Anterior Superior Hemiblock (LAHB). QRS complex duration was of 0.13' with rsr' morphology in V1 and RS in V6, with negative T wave in V1 and V2. AP: +30°, AQRS: -30°, AT: 0°.

Chest radiography: Shows normal heart region and vascular markings (Figure 1).

Imaging tests: (Figure 2) Bi-Doppler Echocardiogram showed heart chambers with normal size and function. It was visualized in multiple projections, in the middle of interatrial septum, an aneurysm with convexity directed to the right, with a 20 mm distance in length between borders, without

interatrial communication. Transesophageal echocardiogram confirmed this imaging, such as the magnetic nuclear resonance. There were no myocardial abnormality and/or signs of fibrosis.

Clinical diagnosis: Interatrial septal aneurysm with full right bundle branch block, left bundle branch anterior superior block in asymptomatic patient with previous atrial fibrillation.

Clinical reasoning: Clinical elements were compatible with the diagnosis initially established of ASD reporting a mild systolic murmur on the upper left sternal border, along with CRBBB. Chest radiography, however, discarded this possibility and especially the diagnostic imaging tests. It is worth noting that, in the presence of ASD, both CRBBB and persistent or paroxysmal atrial fibrillation usually occur in adulthood and in defects with great repercussion, and LAHB is rarely found in this context. Interatrial septal aneurysm is commonly found in asymptomatic patients and causes no symptoms, except the possibility of progressive thrombosis and systemic embolism in adulthood. With this analysis, heart murmur found was reported as functional and other findings, characterized as congenital and with genetic predisposition or acquired for episodes of paroxysmal atrial fibrillation, which began recently.

Differential diagnosis: Anatomical and electrical findings without clinical repercussion in this patient are not supported to characterize them as belonging to an associated syndrome or a characteristic clinical profile because in clinical practice we usually find them in isolated episodes. However, atrial aneurysm is being recently found and reported in association with CRBBB and atrial fibrillation in approximately 30% of cases. LAHB, on the other hand, is not described in this association.

Conduct: Since the findings caused no repercussion, including evolutionary problems in the short and medium term, the recommendation was for regular follow-up without limitation of usual activities. Regarding the recent atrial fibrillation, there was guidance on the use of adrenergic beta-blocker.

Comments: In children and young patients, findings in this case must be seen as precursors of evolutionary problems that may arise after a few decades of life. They are primarily represented by systemic embolisms as a result of atrial thrombosis, arrhythmias such as atrial reentry tachycardia and paroxysmal atrial fibrillation, primarily in the presence of large atrial septal aneurysms. Therefore, there is no need for concern at earlier ages. More accurate diagnostic aspects may characterize this association as mutually dependent changes. Moreover, CRBBB in childhood and teenagehood could be a relevant indicator to motivate the search for abnormalities in atrial septum as it occurs in ASD, POF or aneurysm, changes found in approximately 80% of these cases¹. In this context, it is unknown the association of LAHB, found in this patient. It is considered for correcting atrial aneurysm, generally percutaneous, when the patient is symptomatic in adulthood.

Keywords

Atrial Septal Aneurysm, Atrial; Bundle-branch Block; Atrial Fibrillation.

Mailing Address: Edmar Atik •

Rua Dona Adma Jafet, 74, conj.73, Bela Vista. Postal Code 01308-050, São Paulo, SP - Brazil

E-mail: eatik@cardiol.br, conatik@incor.usp.br

Manuscript received July 23, 2013; revised manuscript July 23, 2013; accepted July 30, 2013.

DOI: 10.5935/abc.20140076

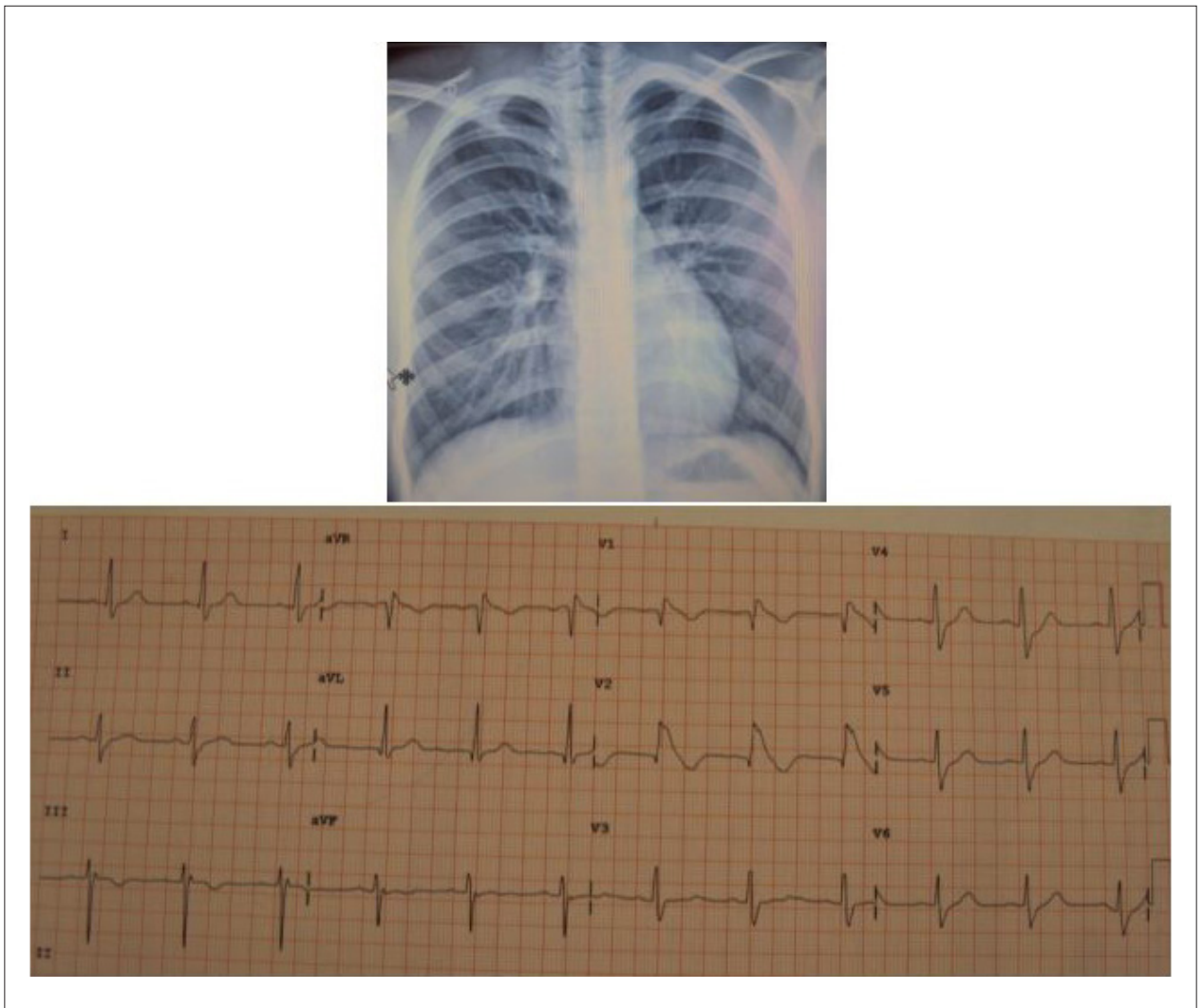


Figure 1 – Electrocardiogram in sinus rhythm enhances CRBBB and LAHB and chest radiography shows elements of normality.

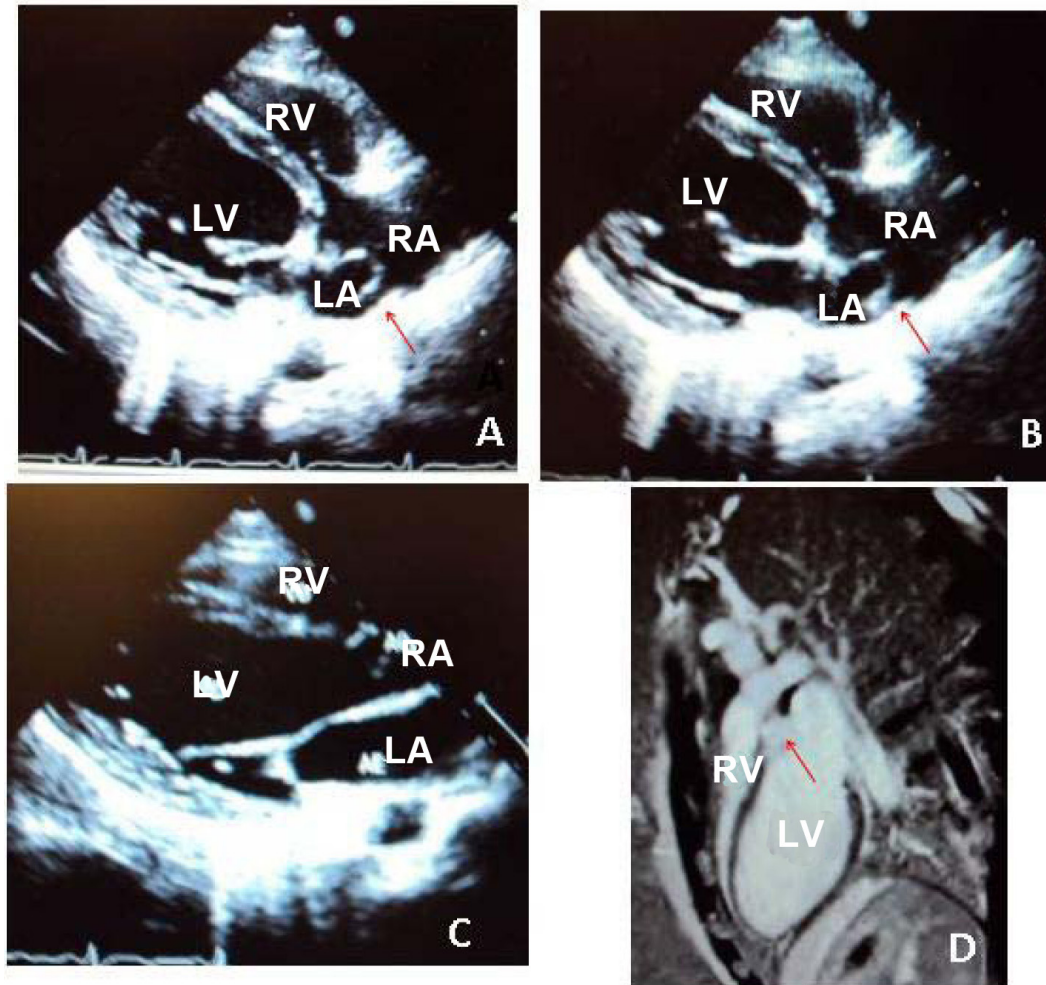


Figure 2 – Transesophageal echocardiogram enhances atrial septal aneurysm (arrow) in the middle of septum with convexity to the right, with normal heart chambers in A and B. In longitudinal cross-sectional view, in C, heart chambers are normal, and you can also view the atrial septal aneurysm (arrow) with normal right ventricle in RNM in D.

Reference

1. Bakalli A, Koçinaj D, Georgievska-Ismail L, Bekteshi T, Pllana E, Sejdiu B. Right bundle branch block as a marker for interatrial septal abnormalities. *Cardiol Young*. 2012;22(1):18-25.