

Atrial Fibrillation in a Patient with a Giant Left Atrial Appendage

ALEJANDRO VILLAMIL¹, PATRICIA AVELLANA¹, CLAUDIO HADID¹, HORACIO DI NUNZIO², DANIELA CORIA¹,
DARÍO DI TORO¹, NOEMÍ PRIETO¹

Received: 12/10/2006

Accepted: 13/12/2006

Address for reprints:

SUMMARY

Among sustained arrhythmias, atrial fibrillation is one of the most common causes of patient consultation. Its substrate comprises various mechanisms, including left atrial enlargement. In this report, we present the case of a 33 year-old woman with a history of palpitations, who was admitted to the emergency room due to atrial fibrillation with a rapid ventricular response. In the chest X-ray, the left border of the cardiac silhouette was deformed. Subsequently, both the transesophageal echocardiogram and the magnetic resonance images showed a giant aneurysmal left atrial appendage, probably due to a pericardial defect. Treatment consisted of oral anticoagulation and atenolol, with a favorable patient outcome.

REV ARGENT CARDIOL 2007;75:61-63.

Key words > Giant left atrium - Left atrial appendage aneurysm - Pericardial defects - Atrial fibrillation

Abbreviations >	LA	Left atrium	MR	Mitral regurgitation
	ECG	Electrocardiogram	LV	Left ventricle
	SVPC	Supraventricular premature contractions	RV	Right ventricle
	TEE	Transesophageal echocardiogram	LAA	Left atrial appendage
	AF	Atrial fibrillation	MRI	Magnetic resonance images
	HR	Heart rate	SVC	Superior vena cava
	HT	Hypertension		

BACKGROUND

Atrial fibrillation (AF) counts for 30% of all consultations at the emergency rooms (ER). No underlying structural cardiac condition can be demonstrated in near 20% of cases, and spontaneous reversion is achieved in 50% of patients. Electrical or pharmacological cardioversion seems to be a safe procedure when performed within 48 hours since the onset of the arrhythmia; nevertheless, some pathologic conditions which may increase the risk of embolism should be previously ruled out. We are presenting a case report of a woman aged 33 years with a history of recurrent palpitations and HT during pregnancy who was admitted at the ER for atrial fibrillation with rapid ventricular response.

CASE REPORT

A 33 year-old obese woman was admitted to the ER for palpitations and dizziness in May 2006. She had a history of HT during pregnancy and recurrent palpitations. ECG showed atrial fibrillation with rapid ventricular response and signs of left atrium enlargement; the chest X-Ray demonstrated a

convexity of the left heart border compatible with left atrium dilatation (Figure 1). The arrhythmia reverted spontaneously within the first hour after admission and the patient was referred to the Unit of Electrophysiology.

Transesophageal echocardiogram (TEE) revealed severe LA dilatation (area: 45 cm²) with a giant aneurysm of the left atrial appendage (27 cm²) which compressed the right ventricle (RV) outflow, generating a slight gradient and mild pulmonary hypertension. Neither thrombi nor spontaneous echocontrast were found. Left ventricle (LV) diameters were within normal limits, LV walls had mild eccentric hypertrophy, systolic function was preserved and wall motion was normal. Interatrial septum and heart valves were preserved (Figure 2).

Therapy with atenolol, 50 mg/day was initiated and a 24-hour Holter monitoring and an exercise stress test were performed under treatment. The former informed sinus bradycardia, occasional atrial premature contractions and atrial tachycardia lasting few seconds with a heart rate of 137 bpm. During exercise stress test the patient failed to achieve 85% of maximum-predicted heart rate. She did not complain of chest pain and no arrhythmias or ST deviations were recorded. Blood pressure response to exercise was normal; nevertheless, the patient presented disproportionate dyspnea (7 mets) without changes in pulmonary or cardiac auscultation.

¹ Unit of Cardiology, Hospital General de Agudos Francisco Santojanni

² Fundación Científica del Sur

Thyroid lab tests were consistent with hypothyroidism (TSH 14.9 UI/ml and T4 de 6.2 mg/dl).

A gadolinium-enhanced magnetic resonance imaging (MRI) was performed. Images showed severe and diffuse LA dilatation, interatrial septum distortion with severe herniation, and a giant indented aneurysm of the left atrial appendage protruding outwards, forwards and upwards, and with a distal extreme (pseudo-left atrial appendage). These findings are compatible with partial absence of left pericardium. Moderate mitral regurgitation and severe RA dilatation were also present. RV dimensions were normal. LV volumes, wall thickness and systolic function were within normal values; anterior wall was slightly rectified (Figures 3 and 4).

The patient received oral anticoagulation therapy, 50 mg of atenolol once a day and thyroid hormone replacement, with favorable outcomes.

DISCUSSION

Atrial fibrillation is one of the most frequent sustained arrhythmias leading to consultation. It is associated with several conditions which produce atrium dilatation, such as HT, valvular heart disease and, less frequently, left atrial appendage aneurysm. This disorder may be congenital or acquired. Congenital left atrial appendage aneurysm generally presents as an isolated pathology and is related to dysplasia of the muscoli pectinati in the left atrial appendage and of the bands of atrial muscle from which they arise. (1). On the contrary, acquired left atrial appendage aneurysms are associated with inflammatory or degenerative processes involving the endocardium. They are generally diagnosed between the age of 20 and 30 years. Symptoms include atrial arrhythmias, especially atrial fibrillation, and thromboembolism. (2) Some patients may remain asymptomatic or complain of nonspecific chest pain or dyspnea, or may present with cardiac tamponade and heart failure. LAA aneurysms may be intrapericardial or extrapericardial, due to partial absence of the pericardium. (3)

Agnesis of the pericardium is a rare anomaly difficult to diagnose. Complete agnesis of the pericardium accounts for only 9% of the cases, while partial agnesis of the left pericardium is more frequent (70%). The embryological origin is the premature atrophy of the common cardinal vein or duct of Cuvier, compromising the circulation to the left pleuropericardial membrane. (4) There is a male predominance (3:1), and is frequently associated with other anomalies. (5, 6)

Giant left atrium and giant left atrial appendage are rare causes of atrial fibrillation; nevertheless, they should be ruled out as they pose high risk in terms of morbidity and mortality. (1)

Several structural disorders of the atria have been related to atrial fibrillation, and most of these conditions have a well-established therapy. This case report is an exceptional condition and, as such, an evidence-based treatment is still lacking.

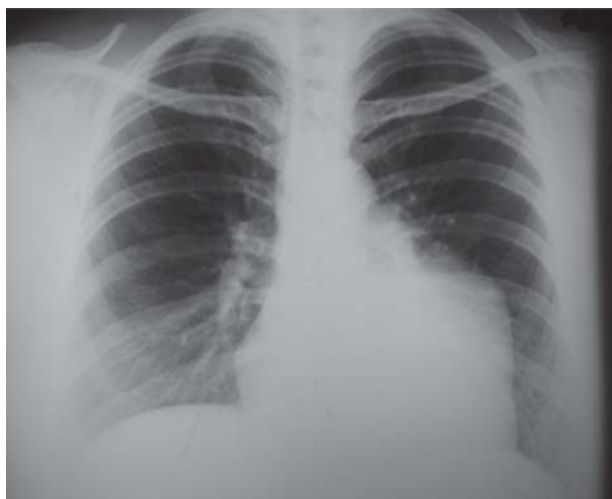


Fig. 1. Chest X-Ray. Convexity of the left heart border.

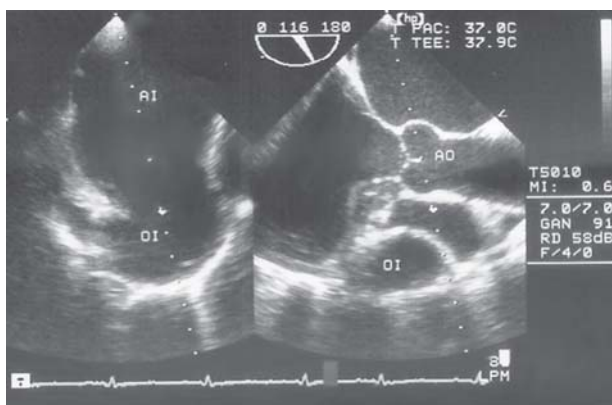


Fig. 2. TEE. Severe dilatation of the left atrium and left atrial appendage. LA: Left atrium. LAA: Left atrial appendage AO: Aorta.

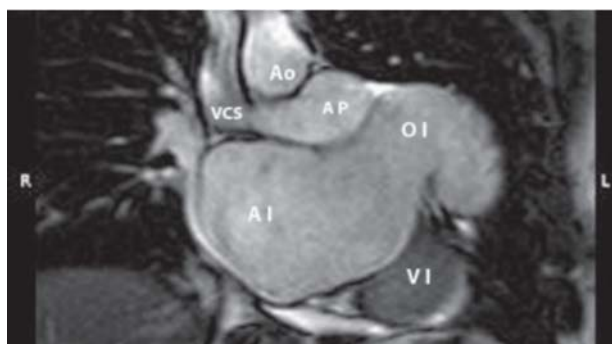


Fig. 3. Cineangiography: coronal images. Left atrium dilatation with aneurysmatic herniation of the left atrial appendage. LA: Left atrium. LAA: Left atrial appendage LV: Left ventricle SVC: Superior vena cava PA: Pulmonary artery. AO: Aorta.



Fig. 4. Gadolinium-enhanced 3D MRI, showing left atrial appendage dilatation and its relationship with left cardiac chambers. LAA: Left atrial appendage LA: Left atrium. LV: Left ventricle

In our opinion, the appropriate therapy will depend on the size of the aneurysm and on the presence of symptoms. Indications for surgery include sustained arrhythmias and thromboembolic events, leaving anticoagulation therapy for asymptomatic patients or in cases of smaller aneurysms. Surgery should be performed with the Cox III technique to prevent new episodes of atrial fibrillation.

This case report emphasizes the idea of looking for an underlying cardiac condition before trying to revert atrial fibrillation so as to minimize the risk of embolism. A simple chest X - Ray and an ECG suggestive of LA enlargement were enough to suspect an underlying heart disease. Clinical follow-up may help to find the timing for surgical repair.

RESUMEN

Fibrilación auricular en una paciente con megaorejuela auricular izquierda

La FA constituye una de las arritmias sostenidas más frecuentes que motivan la consulta.

El sustrato comprende diferentes mecanismos, entre los que se encuentra el agrandamiento auricular izquierdo. Presentamos el caso de una mujer de 33 años con antecedentes de palpitaciones, que ingresó en la guardia por FA de alta respuesta ventricular. En la radiografía de tórax se observó una deformación del borde izquierdo de la silueta cardíaca. Posteriormente, el ecocardiograma transesofágico y la resonancia magnética nuclear evidenciaron una megaorejuela aneurismática debida, probablemente, a un defecto pericárdico. La conducta fue anticoagulación oral y tratamiento con atenolol, con evolución favorable.

Palabras clave > Megaaurícula - Aneurisma de orejuela - Defectos pericárdicos - Fibrilación auricular

REFERENCES

1. Lekkerkerker JC, Jaarsma W, Cramer MJ. Congenital giant aneurysm of the left atrial appendage. *Heart* 2005;91:e21.
2. Mathur A, Zehr KJ, Sinak LJ, Rea RF. Left atrial appendage aneurysm. *Ann Thorac Surg* 2005;79:1392-3.
3. Pomerantzeff PM, Freyre HM, de Almeida Brandao CM, Pereira Barreto AC, Almeida de Oliveira S. Aneurysm of the left atrial appendage. *Ann Thorac Surg* 2002;73:1981-3.
4. Rubio Alcaide A, Herrero Platero C, Sanchez Calle JM, de Mora Martin M, Barakat S, Pinedo Rodriguez J, et al. The imaging diagnosis of pericardial agenesis. *Rev Esp Cardiol* 1999;52:211-4.
5. Finet G, Bozio A, Frieh JP, Cordier JF, Celard P. Herniation of the left atrial appendage through a congenital partial pericardial defect. *Eur Heart J* 1991;12:1148-9.
5. Gil S, Dias M, Baudino P, Anauch D, Barcudi R. Agnesia pericárdica. *Rev Fed Arg Cardiol* 2003;32:99-102.