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Symptomatic atrial fibrillation as the first symptom of a giant left atrial appendage aneurysm

Sirs: The presentation of patients with new onset of atrial fibrillation is very different. Some are suffering from severe symptoms, others are asymptomatic. As atrial fibrillation is age related the proportion of those being under 60 years old is quite small. Among those patients, many are diagnosed as having 'lone atrial fibrillation' without any known cause and without requiring drug therapy. This was different in the presented case of a 42-year-old male patient.

Case report

A 42-year-old man had a new onset of atrial fibrillation 24 hours ago. He complained of dyspnea on exertion. For a few months he had been feeling pressure in his breast when lying on his back. A Holter monitoring-ECG revealed paroxysmal atrial fibrillation with heart rates between 140–160 bpm. A drug therapy with high dose metoprolol 100 mg twice daily (MetoHEXAL®) was started; a few days later di-

goxin 0.25 mg once daily (Lanicor®) was added. In the patient's history, perimyocarditis was reported in 1998. At this time atrial fibrillation was documented for a short time period. During follow-up since then, a para-cardiac structure (Fig. 1) was described and named as a localized pericardial effusion.

On actual presentation at his cardiologist the patient was highly symptomatic with tachyarrhythmia due to atrial fibrillation. On physical examination rales over both lungs were present. The ECG showed a heart rate between 120 and 140 per minute without ventricular arrhythmias. On echocardiography a large localized pericardial effusion was visible in an unusual location and the patient was referred for further examination.

An MRI investigation of the heart was performed with a 1.5 Tesla MRI scanner (Siemens Sonata,

Received: 28 April 2006
Accepted: 23 June 2006
Published online: 16 August 2006

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Fig. 1 Chest X-ray before surgery

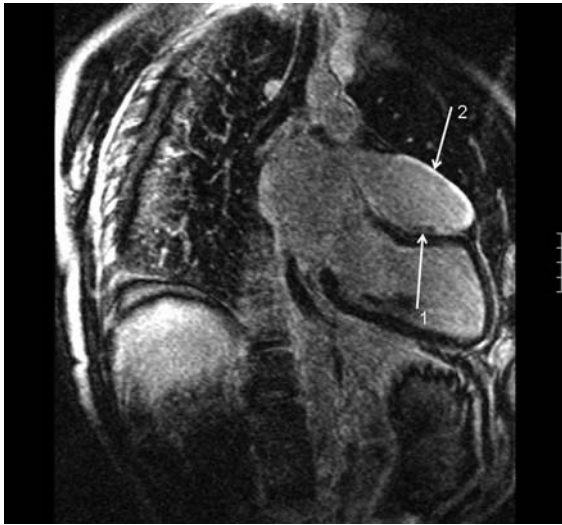


Fig. 2 MRI image using breath hold 3D-Turbo-FLASH inversion recovery sequence showing thrombi (arrow 1) and late enhancement in a 2 chamber view (arrow 2)

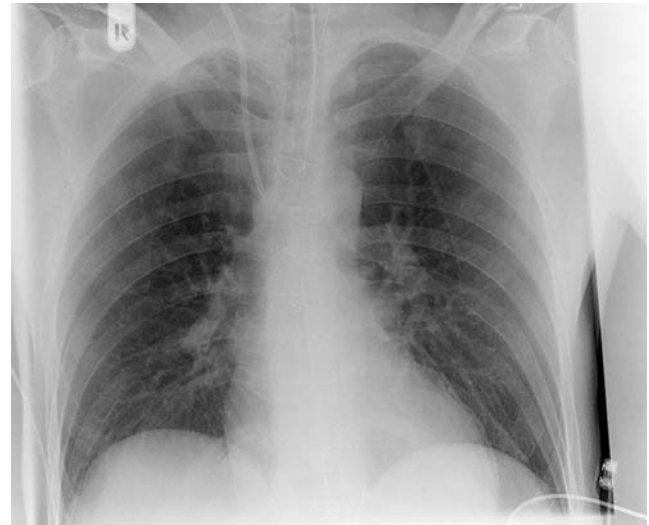


Fig. 3 Chest X-ray after surgery

Erlangen, Germany), patient position supine, using breath hold steady-state free precession (TrueFISP) cine-sequences (TE 1.58 ms, TR 41.08 ms, flip angle 77°, slice thickness 6 mm), single turbo-spin echo sequences (TSE) T1-weighted (TE 6.7 ms, TR 700 ms, slice thickness 6 mm) and T2-weighted (TE 83 ms, TR 600 ms, slice thickness 7 mm). Prospective ECG triggering was used for all sequences. Contrast agent (0.1 mmol Gd-DTPA/kg bodyweight, Magnevist®, Schering, Germany) was injected at 4 ml/s and followed by saline flush (20 ml NaCl 0.9%, 4 ml/s). During contrast, first-pass image acquisition was done by use of an 3D-Turbo-FLASH inversion recovery sequence (TE 1.24 ms, TR 440 ms, TI 300 ms, TD 350 ms, slice thickness 5 mm, 14 slices per slab, matrix 256) covering the entire left atrium and left ventricle in 2-chamber and 4-chamber view orientation. To identify areas with delayed enhancement, imaging was repeated using the same sequences during the following 10–15 minutes.

The cine sequences showed a large left atrial appendage (93×47×69 mm) with compression of the left ventricular basal and midventricular anterior wall (Fig. 2). In the delayed enhancement images a complete enhancement of the wall of the left atrial appendage was present and was named as fibrosis of the wall. In addition, a parietal thin layer of thrombotic material in the left atrial appendage (Fig. 2) was visible. Cardiac diameters were slightly enlarged. There was mild mitral regurgitation, minor circular pericardial effusion, and pleural effusion on the right more than on the left side.

Therapy

A TEE controlled electric cardioversion to sinus rhythm was performed and coronary artery disease was ruled out by coronary angiography. Surgery was performed with resection of both atrial appendages and a Maze procedure (The surgical procedure consists of creating a number of incisions in the atrium that disrupt the re-entrant circuits. Once the incisions are made, they are sewn together again). After surgery a stable sinus rhythm was present. The chest X-ray showed a normal configuration of the heart (Fig. 3). Histology confirmed an aneurysm of the left atrial appendage with focal signs of chronic epicarditis/periocarditis and consecutive fibrosis. The postoperative course was uneventful. An oral anti-coagulation with coumarin was started for another 3 months.

Conclusion

This case demonstrates the diagnostic value of cardiac MRI in a young patient with new onset of atrial fibrillation. A giant left atrial appendage was diagnosed, having been named as a pericardial effusion on previous echo examinations. After contrast administration, a thin layer of thrombi at the bottom of the left atrial appendage and, on late enhancement images, a fibrosis of the complete wall of the left atrial appendage was visible.

The giant left atrial appendage is assigned to the congenital heart defects. Only case reports exist in

the literature. In 1996 Gold et al. [4] counted 48 cases reported in the literature with the youngest patient reported at an age of 1 year [18].

The clinical findings are usually a new onset of atrial fibrillation, supraventricular extrasystolia, or stroke. Some patients are asymptomatic [9, 11, 12] (a 1- and a 2-year old child and a 42-year-old woman, found by chest radiography for other causes, operation because of prognostic value); Symptomatic patients have symptoms of a) compression/pressure [3, 7, 10] (severe

mitral regurgitation, cardiac dysfunction caused by compression from the enlarged left atrium, chest pain caused by compression of the LAD), b) thrombi/emboli/strokes [1, 5, 8, 13], c) arrhythmias [2, 4, 6, 14, 15].

Most of the reported cases are published before cardiac MRI became a routine method and consequently there are only a few cases reported with MRI examinations [1, 2, 7]. Based on this case, it could be recommended to perform cardiac MRI in any patient with an unclear pericardial effusion.

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