

MAGNETIC RESONANCE IMAGING FINDINGS IN CARDIAC LIPOMA

A. Schiettecatte¹, D. Verdries¹, J. de Mey¹, M. De Maeseneer¹, M. Dujardin²

Cardiac lipomas are exceedingly rare benign tumors of the heart. They are usually asymptomatic. Occasionally, they are found on MRI as an incidental finding. We report a case of a 68-year-old woman who presented with shortness of breath. Transoesophageal echocardiography depicted a cardiac mass lesion. The diagnosis of an intracardiac lipoma was confirmed by characterization of this mass with MRI imaging. No surgery was required since the lesion did not exert a hemodynamic effect.

Key-words: Heart, neoplasms – Lipoma and lipomatosis.

Case report

A 68-year-old woman was admitted to the hospital because of shortness of breath. She did not experience chest pain or pain in the left arm. Clinical history was positive for diabetes. Physical examination revealed moderate dyspnea at rest. Cardiac auscultation was unremarkable. Subsequent transoesophageal echocardiography revealed a large mass of over 30 mm located in the roof of the right atrium. Chest X-rays showed cardiomegaly (Fig. 1).

Cardiac MRI was performed for better characterization of the mass. Cardiac MRI demonstrated the presence of a solitary, well-defined, immobile mass with a length of 55 mm. It arose from the roof of the right atrium and extended along the posterior wall of the right atrium towards the interatrial septum. The atrial septum was not thickened. Both on T1- and T2-weighted MRI black blood turbo spin echo sequences (BB TSE FS) the mass appeared hyperintense (Fig. 2A-B). On T1 BB TSE FS the mass exhibited signal drop-out (Fig. 2C). No enhancement was seen after administration of gadolinium in the arterial or venous phase (Fig. 3A-B-C). Based on MRI findings, the diagnosis of an intracardiac lipoma was made. No hemodynamic effects were present that could have been related to the mass. At 4 month follow-up findings were stable.

Discussion

Metastases are by far the most common cardiac neoplasms. Primary cardiac neoplasms are rare and usually benign. Myxomas are the most common benign cardiac



Fig. 1. — Chest X-ray shows non-specific cardiomegaly

tumors and account for 25-50% of all primary cardiac tumors (1). Cardiac lipomas are extremely rare benign tumors. Only 10% of all primary cardiac tumors represent lipomas (2). They are usually asymptomatic, but can become symptomatic when size or valvular location interferes with cardiac pump function. Lipomas may also lead to conduction defects resulting in arrhythmias (3). Most cardiac lipomas are subendocardial or subpericardial. Subendocardial lipomas are often small and sessile, whereas subpericardial lipomas are larger and may result in angina-like chest pain related to external cardiac compression.

Diagnostic imaging includes transoesophageal echocardiography (TEE).

TEE may show an echogenic, well-demarcated mass (4). TEE is however strongly dependent on operator experience and on optimal acoustic windowing and may be limited because of suboptimal visualization of a possible extracardiac extension.

Usually cardiac lipomas have a nonspecific echogenic appearance on ultrasound.

MRI is a noninvasive and operator independent technique. It allows a three-dimensional assessment of the heart and evaluates more accurately changes in cardiac function. The tumor signal intensity is similar to that of fat on all sequences (1). MRI can help determine intramyocardial tumoral extent and its relation to the coronary arteries (4).

The most common locations of cardiac lipoma are the right atrium, left ventricle, and interatrial septum. Usually a cardiac lipoma is a solitary lesion, although multiple cardiac lipomas have been described in association with tuberous sclerosis (5).

From: 1. Department of Radiology, UZ Brussel, Brussels, Belgium, 2. UZ Brussel and University of Hull in Association with Hull York Medical School, Hull, UK.

Address for correspondence: Dr A. Schiettecatte, Department of Radiology, UZ Brussel, Vrije Universiteit Brussel (VUB), Laarbeeklaan 101, B-1090 Brussels, Belgium.
E-mail: ann.schiettecatte@uzbrussel.be

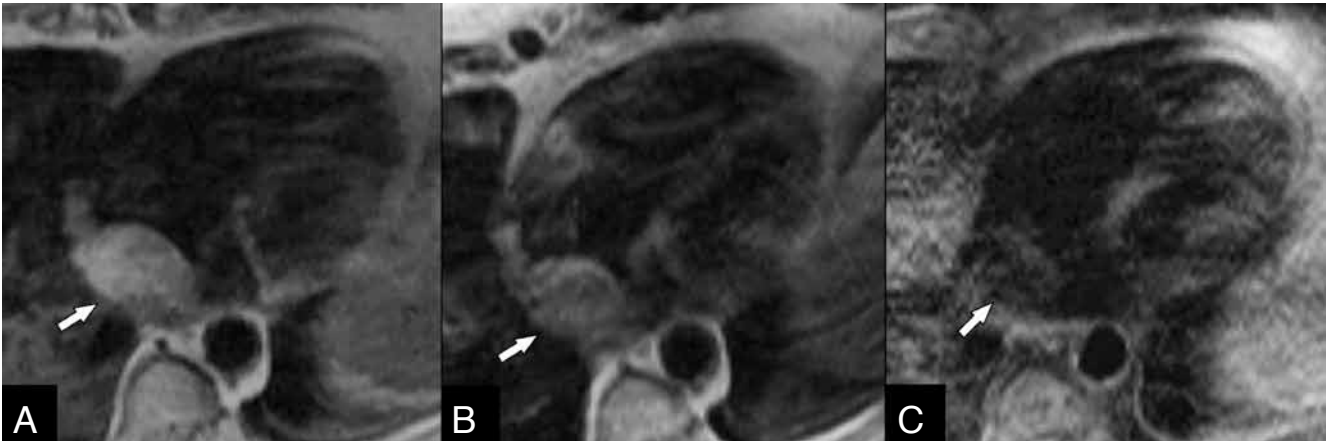


Fig. 2. — Both axial T1 (A) and T2 (B) weighted BB TSE images demonstrate a large hyperintense mass located in the roof of the right atrium extending towards the interatrial septum. Axial T1-weighted BB TSE FS image (C) shows a homogenous signal drop of the entire mass.

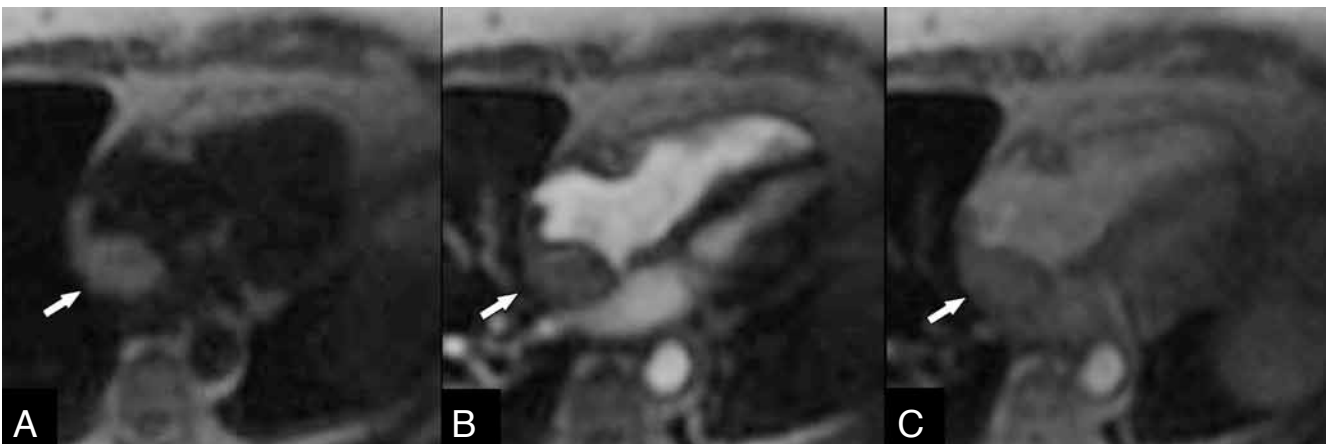


Fig. 3. — Unenhanced (A) static image from the dynamic T1 Turboflash series is shown, as well as a static Gadolinium-DTPA enhanced image from the same dynamic series in arterial (B) and venous phase (C). No signal elevation is present in the mass.

Cardiac lipomas should be differentiated from lipomatous hypertrophy of the interatrial septum (LHIS). LHIS is a more common benign condition characterized by fatty accumulation in the interatrial septum. It has a prevalence of 1-8%. It occurs almost exclusively in elderly, obese patients and it can be differentiated from lipoma because LHIS is unencapsulated and strictly confined to the interatrial septum (4). Also, LHIS tends to be greater than 2 cm and typically spares the fossa ovalis (6).

Since most primary cardiac tumors can be treated with surgical intervention, imaging has an important role in lesion characterization (6).

Cardiac lipomas are generally incidental findings and usually require no treatment or surgery. If they were to become symptomatic, surgical resection is recommended. Since most primary cardiac tumors

are treated with surgical intervention, imaging has an important role in lesion characterization. Cardiac MRI is well suited for diagnosis and evaluation of cardiac masses, since it allows precise localization of the tumor and demonstrates its relationship to the cardiac chambers. It also outlines involvement of myocardium, pericardium and cardiac valves. MRI can determine the intramyocardial tumoral extent as well as a possible extracardial component. Both the relation to coronary arteries and the presence of hemodynamical effects can be assessed in a noninvasive manner.

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