Lipomatous hypertrophy of the interatrial septum: The typical echographic aspect is worth being known

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Abstract: A 65-year-old man was scheduled for an on-pump coronary artery bypass graft procedure because of a three-vessels coronary artery disease. A right atrial mass appended to the interatrial septum was discovered during intraoperative transoesophageal echocardiography. Therefore, the right atrium was opened. Gross examination revealed a fatty lesion of the interatrial septum. A biopsy was performed before the atrium was closed. A histological diagnosis of lipomatous hypertrophy of the interatrial septum was made. Lipomatous hypertrophy of the interatrial septum is a mass of adipocytes infiltrating the interatrial septum. The aspect of "dumbbell" produced by the sparing of the Fossa O valis is typical. The lesion is benign and remains asymptomatic most of the time although it can be responsible for cardiac arrhythmias or circulatory obstruction. The typical echographic aspect should be known to avoid unnecessary surgical resection.

CASE REPORT

A 65-year-old man was scheduled for an on-pump coronary artery bypass graft surgery. The patient had started to complain about chest pain on exertion for a few weeks. A coronary angiogram revealed the presence of a three vessels coronary artery disease. The ventriculography showed a normal left ventricular systolic function.

A transoesophageal echocardiogram (TEE) was performed after the induction of anaesthesia and revealed a 5 cm × 3.5 cm mass at the posterior part of the interatrial septum (Fig. 1). The mass appeared slightly speckled but homogeneous and had well-defined borders. There was no extension outside the right atrium and the tricuspid blood flow was unaffected. Although all these characteristics suggest a benign condition, none of the anaesthetists and surgeons who saw the images were able to identify the lesion with some certainty.

It was therefore decided to open the right atrium for further evaluation. The lesion appeared to be fatty and to arise from the upper interatrial septum, bulging into the right atrium. A biopsy was performed and histological analysis confirmed the diagnosis of lipomatous tissue. The right atrium was closed and four coronary artery bypass grafts were performed. Separation from the cardiopulmonary bypass was uneventful. The patient was extubated six hours after the end of surgery. He was discharged from hospital on post-operative day 10.

DISCUSSION

This case reemphasizes the role of intraoperative TEE in adult cardiac surgery patients. This is in accordance with the guidelines over the use of perioperative TEE recently updated by the American Society of Anesthesiology (1). During coronary artery bypass graft surgery, TEE can help to detect new or unsuspected cardiac pathologies, to subsequently adjust both the anesthetic and surgical plans, and to assess the results of surgery. In this case, TEE allowed diagnosing an unsuspected lesion.

The differential diagnosis of cardiac mass has recently been reviewed elsewhere (2). In the presence of a cardiac mass, a few basic characteristics are helpful to distinguish between benign tumors, malignant tumors, tumorlike lesions and thrombi. Smooth and well-defines borders, absence of irregularities or myocardial infiltration, involvement of...
no more than one cardiac chamber and lack of calcification or area of necrosis are all suggestive of a benign lesion. In contrast, large lobular lesions with ill-defined borders and large area of necrosis or calcification as well as myocardial infiltration or extension to other cardiac chambers rather suggest malignity. Thrombi can be difficult to distinguish from tumors but their most common location is the left atrial appendage and they usually appear in patients having a prothrombotic condition such as atrial fibrillation, obstruction to flow, hypercoagulable state (3).

In our patient, the four-chambers view revealed the presence of a right atrial mass that we were unable to identify. The most commonly seen atrial tumor is the myxoma. However, 75% of the myxomas occur in the left atrium. Moreover, myxomas usually arise from the interatrial septum near the fossa ovalis and are frequently anchored via a stalk-like pedicle. These characteristics made the diagnosis of myxoma unlikely in our patient. The other benign cardiac tumors that can occur throughout the heart are lipomas. They are usually subendocardial and appear fixed and slightly echodense.

However, in our patient, careful examination of the four-chambers view and moving the imaging plane to 149° showed that the lower part of the interatrial septum was enlarged too, although to a lesser extend (Fig. 1). The process spared the fossa ovalis. This resulted in a dumbbell-shaped interatrial septum. Such an echographic aspect is typical of a condition called lipomatous hypertrophy of the interatrial septum that we should have recognized to avoid an unnecessary opening of the right atrium.

Lipomatous hypertrophy has been described for the first time in 1964 (4). It corresponds to an infiltration of the interatrial septum by proliferating mature adipocytes. Macroscopically, it appears as a well-circumscribed but non-encapsulated adipose tissue. Typically, the lesion predominates in the upper part of the interatrial septum and spares the fossa ovalis as it was the case in our patient. This explains the characteristic “dumbbell” shape usually reported (5).

Lipomatous hypertrophy of the interatrial septum is a benign condition. Its etiology remains unclear. Risk factors include advanced age, female gender and obesity. There are no definitively established diagnosis criteria but the diagnosis is usually considered when the thickness of the interatrial septum exceeds 2 cm. The incidence of the lipomatous hypertrophy of the interatrial septum was initially thought to be low (1% of the population). However, the condition is increasingly recognized as a consequence of a steadily increasing access to imaging techniques such as computed tomography, magnetic resonance imaging and echocardiography. It is most of the time asymptomatic and discovered incidentally on an examination performed for another purpose. Rarely, the hypertrophic septum can cause arrhythmia or obstruction to flow. Surgery has to be considered only in these exceptional symptomatic cases (6).

To summarize, we report a case of incidentally discovered lipomatous hypertrophy of the interatrial septum during a routine TEE examination. This condition typically appears as an enlarged and dumbbell-shaped interatrial septum. Since it is benign and should not be treated except for rare symptomatic cases, its aspect is worth being known by anyone practicing TEE to avoid unnecessary and potentially hazardous exams and treatment.


Fig. 1. — Upper panel : 4-cham bers view showing a mass appended to the upper interatrial septum and bulging into the right atrium. Lower panel : Moving the image plane to 149° reveals that the lower atrial septum is enlarged too and that the fossa ovalis is spared.
References


