

# Case Study of a Large, Rare Interatrial Septum Lipoma

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## Citation

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## Abstract

Cardiac lipomas are extremely rare tumors. They can occur in any chamber, but those that originate in the interatrial septum (IAS) are very rare. They usually remain asymptomatic and are detected incidentally, mostly during autopsies. In symptomatic patients, the diagnosis can easily be made by echocardiography or computed cardiography (CT). We report a case of a large interatrial septum lipoma with exertional dyspnea in which the patient underwent successful resection of the tumor.

## INTRODUCTION

A benign lipomatous tumor is the most common primary neoplasm of the heart and can be divided into two major groups, primarily on the basis of the degree of encapsulation of the lipoma and the lipomatous hypertrophy of the atrial septum. This case report presents focuses on a female with a large IAS mass that corresponds with a lipoma feature, who was referred to the surgical department.<sup>1,2</sup>

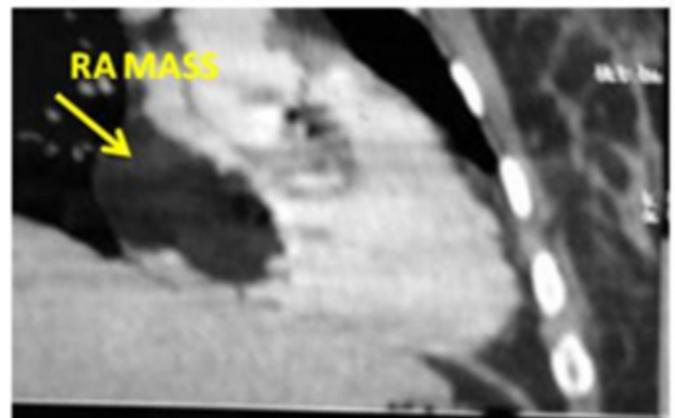
## CASE REPORT

In 2010, a 32-year-old female was admitted with dyspnea. Two months before she was referred to our cardiology department, she had been diagnosed with Class II exertional dyspnea, as classified by the New York Heart Association (NYHA) Class II. Her jugular vein pressure (JVP) was normal and the physical exam found no problems with her heart and lungs, but she had 1+ pitting edema in her lower limb. Her vital signs were normal. Her chest X-ray showed an increase in the cardiothoracic ratio. A chest computed tomography (CT) scan showed a hypodense mass with fat density in her IAS (Fig.1). Transthoracic echocardiography showed a large echogenic mass in her interatrial septum with a diameter of 8\*6.5 cm that filled the right atrium (RA) space and severely restricted the passage of blood trough the tricuspid valve. Transesophageal echocardiography and 3D echocardiography confirmed this data (Fig2, 3). The patient was referred to surgery and a resection of the encapsulated tumor was done completely, because the tumor adhered to the lateral RA wall. Approximately two-thirds of the RA was removed and repaired using a pericardial patch (Fig. 4). Histopathology of tumor showed mature fat cells suggestive of lipoma (Fig. 5).The patient had no problem in post-

surgery follow up.

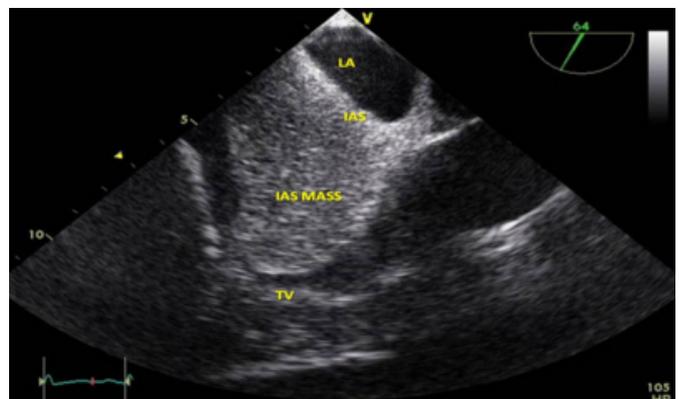
## Figure 1

Spiral chest ct-scan showed low density mass in right atrium



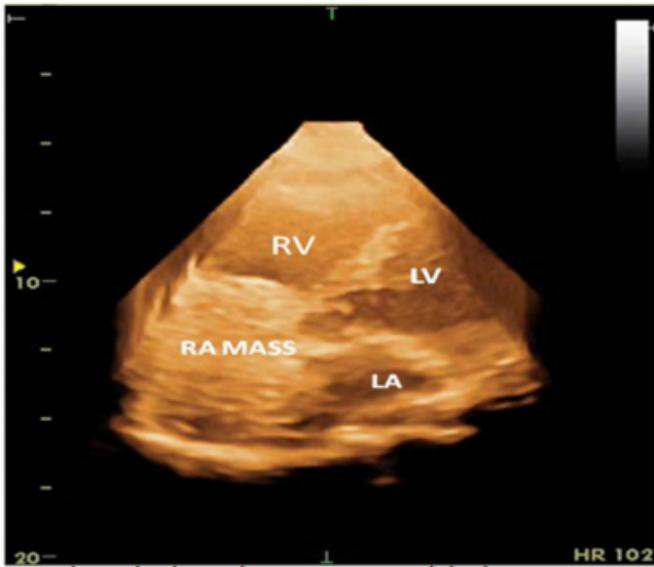
## Figure 2

3d tte showed a mass occupying the right atrium



**Figure 3**

Mid transesophageal echocardiogram presented the huge mass in interatrial septum



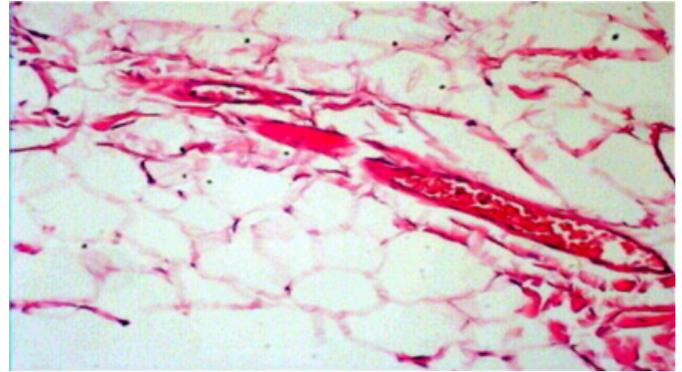
**Figure 4**

macroscopic view of the resected mass



**Figure 5**

microscopic view of lipoma with congestive vessels and mature fat cells(H&E staining x100)



## DISCUSSION

Primary tumors of the heart are rare with an incidence rate, in autopsy reports, between 0.0017% and 0.056%.

Approximately 75% of heart tumors are benign and 25% are malignant.<sup>1</sup> Cardiac lipoma is rare and found in fewer than 1 in 10000 autopsies. Lipomas generally account for only 0.5-3% of excised heart tumors.<sup>2,3</sup>

Higher estimates for heart tumors, up to 10%, are likely because the data includes information on lipomatous hypertrophy, which is a separate entity.<sup>4</sup>

The difference between our case and other common cases of lipoma lies in the origination site, because the IAS is an uncommon site for a tumor. Cardiac tumors usually occur on atrial and ventricular surfaces. The size of the tumor in this case study is another reason it is being reported upon in this paper. Lipomas are composed of localized collections of fat surrounded by a capsule. Fifty percent of lipomas arise subendocardially; the origins of the rest are divided between the myocardia and the epicardia. Most patients with these tumors are asymptomatic. The diagnosis is made at autopsy or the tumor is detected incidentally through chest radiography. The presence and the type of symptoms depends upon the size and the location of the tumor.<sup>5</sup>

Endocardial lipomas may obstruct the cardiac valves. Large epicardial lipomas may interfere with ventricular function, with resulting dyspnea and fatigue. Myocardial lipomas located near the conduction system may produce conduction defects and arrhythmias.<sup>6</sup> On chest radiography, cardiac lipomas typically cause enlargement of the cardiac silhouette and may change the cardiac contour.<sup>7</sup>

CT is ideally suited for use in the diagnosis of myocardial

lipomas, especially those that arise from the epicardium. The fatty composition of the tumor is readily identified by use of CT. In our case, low density mass was seen in the IAS with thoracic CT.<sup>8</sup> The echocardiographic appearance of cardiac lipomas varies with their location. Lipomas in the pericardial space have variable echogenicity but are often hypoechogenic, while intracavity lipomas are typically echogenic.<sup>7</sup> The histopathology of tumors may consist exclusively of mature fatty tissue cells (lipomas); they may also contain connective tissue cells (fibrolipoma) or muscle cells (myolipoma). In this case, pathologic data correspond with lipoma.<sup>8</sup>

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