

Case Report

ASYMPTOMATIC INTERATRIAL LIPOMA

Gulfidan Cakmak, MD

Specialist of chest disease
Haseki Training and Research Hospital, Department of Chest Disease
Millet cd, Aksaray-Fatih-İstanbul
E-mail: gulfidan70@gmail.com

Tuba Selcuk, MD (corresponding author)

Specialist of radiology
Haseki Training and Research Hospital, Department of Radiology
Millet cd, Aksaray-Fatih-İstanbul
E-mail: drtubas@gmail.com

Mustafa Sari, MD

Specialist of cardiology
Haseki Training and Research Hospital, Department of Cardiology
Millet cd, Aksaray-Fatih-İstanbul
E-mail: mustafasari@yahoo.com

Yıldıray Savas

Specialist of radiology
Haseki Training and Research Hospital, Department of Radiology
Millet cd, Aksaray-Fatih-İstanbul

Corresponding author: Tuba Selcuk

Haseki Training and Research Hospital, Department of Radiology
Millet cd, Aksaray-Fatih-İstanbul
E-mail: drtubas@gmail.com Phone: 00905327843477
Address: Bahcelievler Mh. My City 31B6/D1 İstanbul

Abstract

Myxomas are the most common benign tumor of the heart whereas lipomas are rarely seen cardiac tumors. They are most commonly seen in left ventricle and right atrium. In this article we presented a case of interatrial lipoma detected in a 80 year-old male patient incidentally when consulted to the pulmonologist after some linear opacities are seen on routine chest radiography on his admission to the hospital for prostate operation. On his chest CT 36x23 mm well-demarcated marked hypodense mass was detected on interatrial septum. And on his MRI 2.95x 2.34 cm, encapsulated mass on interatrial septum with increased signal intensity on T1 and T2-weighted images which has signal loss on fat suppressed sequences. We wanted to stand out the specific imaging findings of this rarely seen benign tumor and point out its asymptomatic presentation although its rare interatrial localization. **Copyright © WJMMS, all rights reserved.**

Key words: Cardiac tumors, lipoma, cardiac lipoma

Introduction

Lipomas are one of the rare tumors of the heart. There is no gender and age predominance. They are generally encapsulated and composed of mature adipose tissue (brown fat), fibrous and muscle tissues. They are most commonly seen in left ventricle and right atrium usually without any symptoms. In this article we presented an incidentally detected case of interatrial lipoma with a rare localization and shared its specific imaging findings.

Case

80 year-old male patient consulted to hospital for prostate operation. When linear opacities were seen on his chest roentgenogram during preoperative evaluation he was consulted to chest clinic There was no smoking history or medical history of chronic disease and any abnormality on his physical examination. His blood pressure was 140/90 mm Hg, apical heart rate was 75 bpm and rhythmic. There was sinus rhythm on electrocardiography. On his chest CT there were emphysematous changes in both lungs and subsegmental atelectasis predominantly in the bases. Also a 36x23 mm well-demarcated, marked hypodense mass with a density of -97 Hounsfield Unit (HU) was detected on interatrial septum (**Figures 1 and 2**). On transthoracic echocardiography (TTE); dilatation of left atrium and right cardiac chambers, degenerative mitral and aortic valvular disease, mild-mid mitral regurgitation and pulmonary arterial hypertension with a pulmonary blood pressure (PBP) of 50 mm Hg was detected. Dilatation of right cardiac chambers, a mass on interatrial septum, atherosclerotic plaques in aorta and pulmonary arterial hypertension of 50 mm Hg was seen on transesophageal echocardiography (TEE). Cardiac magnetic resonance imaging (MRI) showed a 2.95x 2.34 cm, encapsulated mass on interatrial septum originating from endocardial surface of the heart and protruding into the atrial chamber. It had an increased signal intensity on T1 and T2-weighted images (**Figures 3 and 4**). The mass was diagnosed as cardiac lipoma due to its specific imaging features on CT and MRI. On dynamic images it's found out that the mass didn't cause any hemodynamically significant changes.

Discussion

Primary cardiac tumors are rare entities. 75% of them are benign and these include myxomas, rhabdomyomas, lipomas, fibromas and teratomas.^{1,2} Cardiac lipomas are very rare among these tumors.^{1,3,4} It was first reported by Albers in 1856.³ Since this first case until 2012 there are about 60 reported cases.³ Although their

dimensions usually vary between 1-1.5 cm, cases of 4-5 kg were also reported.³ In our case diameter of the lipoma was 3 cm. Lipomas are fatty, encapsulated tumors that frequently arise from the epicardial surface usually with a broad pedicle and grow into the pericardial space. Also they may arise from the endocardium as a pedunculated mass and may grow into any of the cardiac chambers. There are several cardiac lipomas reported originating from the interatrial septum but these tumors are usually large in size and weigh as much as 4.800 g.^{5,6} Both right atrial and ventricular localizations have been reported for cardiac lipomas.⁷⁻¹² They may show lipomatous degeneration like fat necrosis and calcification.⁴ And in our case the lipoma was arising from the interatrial septum which is a relatively rare localization as reported in the literature.⁵⁻⁷

Most of the lipomas are asymptomatic and are found out incidentally on autopsy specimens with an incidence of 0.001-0.03%.^{3,4,12} But according to its localization heart failure, supraventricular and ventricular arrhythmias, conductive disorders, systemic and pulmonary embolism may be seen.⁴

When these clinical entities seen presence of intracardiac masses must be excluded.³ In our case also there wasn't any symptoms related to the lipoma as compatible with the literature. Malignant transformation or metastases haven't been reported about cardiac lipomas. They are classified and named according to the invasion of the neighboring tissues with fat cells. For example it is named as myolipoma in myocardial invasion, fibrolipoma in connective tissue invasion, and lipoma if it is composed of pure fat tissue.⁴ Modern and conventional techniques are used for diagnosis. of cardiac masses. Chest CT, TTE and TEE are not alone diagnostic for the differentiation of masses with some exceptions.³ In last few years there have been an increase in the diagnosis of asymptomatic cardiac masses with TTE. But its sensitivity is low.³ TEE give more useful information about the localization of the tumor for surgery guidance.^{7,8} Chest CT can detect the shape, size, density and localization of the tumor with high specificity.^{3,4} The density of the lipomas measured on CT changes between -80 HU and -115 HU. Cardiac MRI is a noninvasive diagnostic tool with a high sensitivity with its specific signal intensities on different sequences.^{4,13,14} Tuna et al reported characteristic tissue differentiation of the cardiac MRI in a case of cardiac lipoma arising from the posterior wall of the right atrium.¹⁵ As mentioned above our case carry the diagnostic signal characteristics on CT and MRI.^{3,4,13,14}

Treatment of cardiac lipomas is surgery. But surgery decision is made due to its location and size. Surgical resection of the asymptomatic cases are advised to done electively and emergency resection in symptomatic cases is advised in the current literature.^{8,14,16} In our case because it is asymptomatic cardiovascular surgery didn't advise surgery and our patient didn't accept the surgery also.

References

- [1] Pêgo-Fernandes MP, Costa PLG, Fernandes F, Benvenuti LA, Oliveira SA. Right Atrial Lipoma. *Arq Bras Cardiol* 2003; 80: 97-99.
- [2] Kitzing B. Cardiac lipoma in a patient with a history of malignant tumours: a case report. *Cases Journal* 2008; 1:41.
- [3] Parmaksiz HT, Elonu O, Duman U, Seyfeli E. A case of symptomatic right atrial lipoma. *Arch Turk Soc Cardiol* 2012; 40: 361-363. (in Turkish).

- [4] Luiz da Silveira W, Nery MW, Soares ECG, Leite AF, Nazzetta H, Batista MAL, Pedrosa de Oliveira C, Gonçalves de Oliveira V. Lipoma of the Right Atrium. *Arq Bras Cardiol* 2001; (77): 365-8.
- [5] Lang-Lazdunski L, Oroudji M, Pansard Y, Vissuzaine C, Hvass U. Successful resection of giant intrapericardial lipoma. *Ann Thorac Surg* 1994; 58: 238-240.
- [6] Grande AM, Minzioni G, Pederzoli C, et al. Cardiac lipomas: description of 3 cases. *J Cardiovasc Surg* 1998; 39: 813-815.
- [7] Vildan Karpuz, Baris Ikitimur, Hakan Karpuz. A survey of heart tumors: clinical and echocardiographic approach. *Anadolu Kardiyol Derg* 2007; 7: 427-35(in Turkish).
- [8] Mullen JC, Schipper AS, Sett SS, Trusler GA. Right Atrial Lipoma. *Ann Thorac Surg* 1995; 59: 1239-41.
- [9] Attili AK, Gebker R, Cascade PN. Radiological reasoning: Right atrial mass. *Am J Roentgenol.* 2007; 188(6): 26-30.
- [10] C. Basso, Barbazza R, Thiene G. Lipomatous Hypertrophy of the Atrial Septum. *Circulation.* 1998;97: 1423.
- [11] Grimaldi A, Piraino D, Contri R, De Cobelli F, Alfieri O, La Canna F. Lipoma at the right atrioventricular groove. *Eur J Echocardiogr.* 2011Sep; 12(9): 711. doi: 10.1093/ejechocard/jer098. Epub 2011 Jul 14.
- [12] Ceresa F, Calarco G, Franz E, Patane F. Right atrial lipoma in patient with Cowden syndrome. *Interact CardioVasc Thorac Surg.* 2010; 11: 803–805.
- [13] Song Y, Hickey W, Nabi F, Chang SM. Case report: Thoracic oncologic Extensive cardiac lipoma with aneurysmal right ventricle. *Interact CardioVasc Thorac Surg* 2010; 11: 691–692.
- [14] Stoian I, Piser IT, Kulcsar I, Chioncel O, Carp A, Macarie C. Rare tumors of the heart - angiosarcoma, pericardial lipoma, leiomyosarcoma: Three case reports. *Journal of Medicine and Life* 2010; (3): 178-182.
- [15] Tuna JC, Julsrud PR, Click RL. Tissue characterization of unusual right atrial mass by resonance imaging. *Mayo Clin Proc.* 1991;66:498-501.
- [16] N. Madhu Sankar, T. Thiruchelvam, K. Thirunavukkaarasu, Ki Pang, W. Meldrum Hanna. Symptomatic Lipoma in the Right Atrial Free Wall. A Case Report. *Texas Heart Institute Journal* 1998; 25(2): 152-4.

Figures

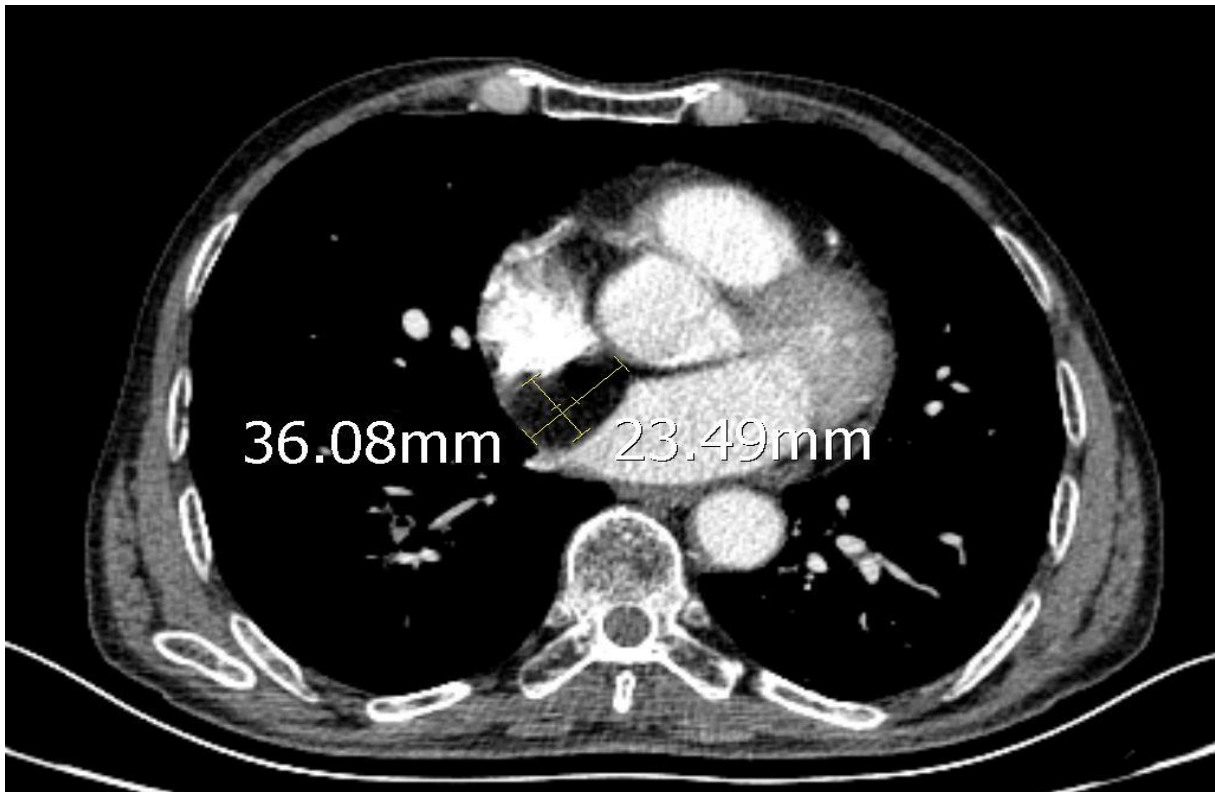


Figure 1: On contrast enhanced axial CT images there is a 36x23 mm well demarcated hypodense mass without any contrast enhancement located on interatrial septum is seen

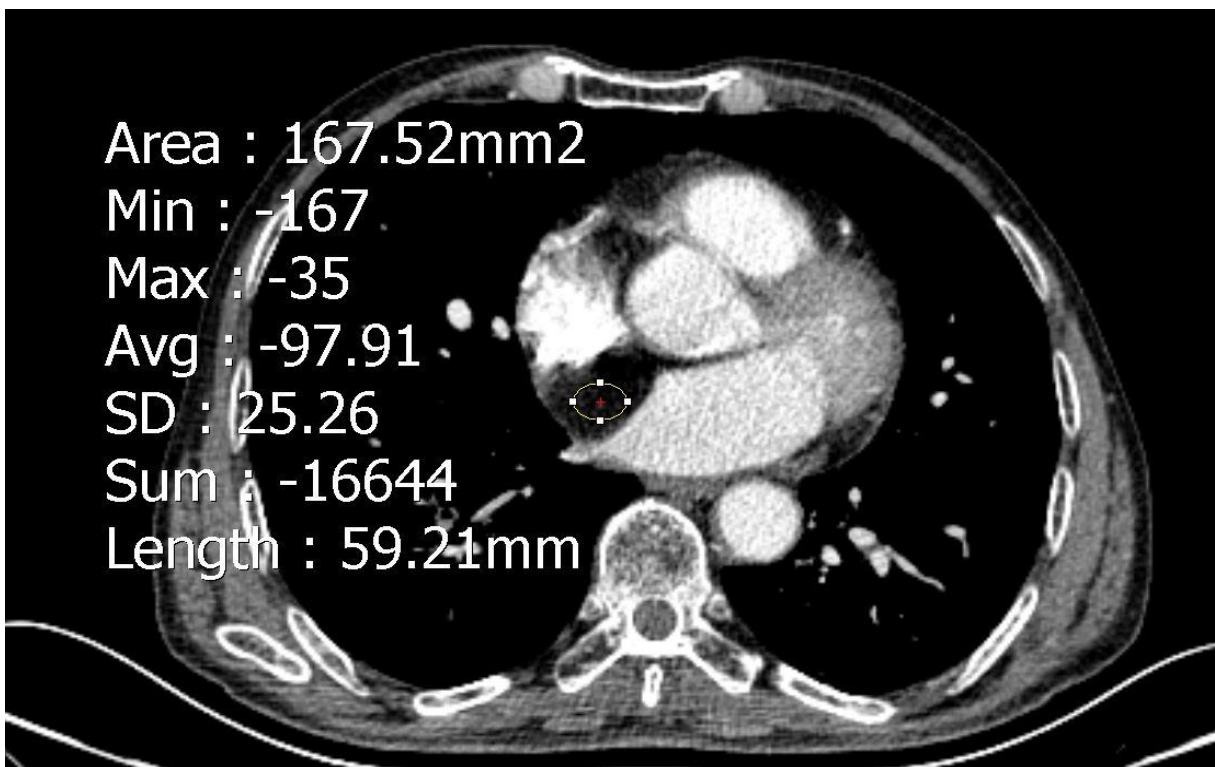


Figure 2: Note the marked hypodensity on the mass consistent with fat.

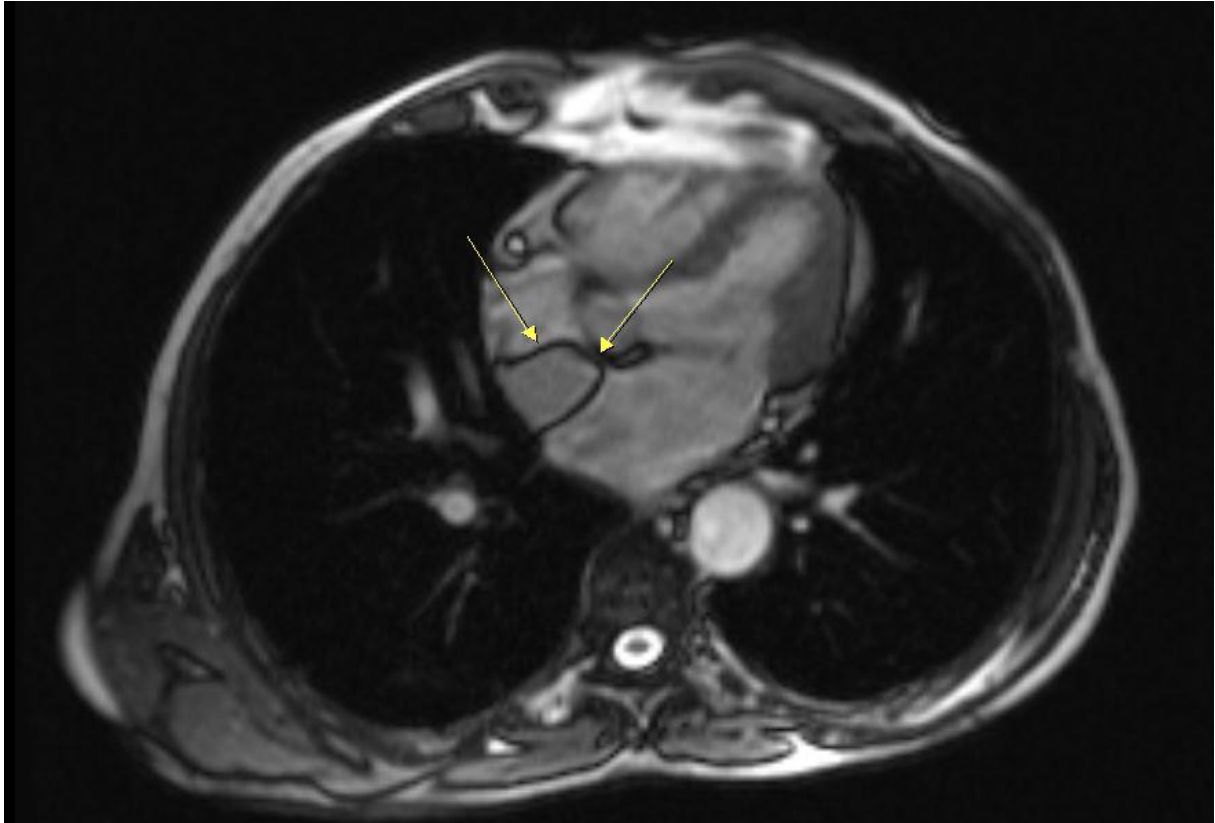


Figure 3: On axial T2-weighted MRI images of the same patient well demarcated hyperintense mass.

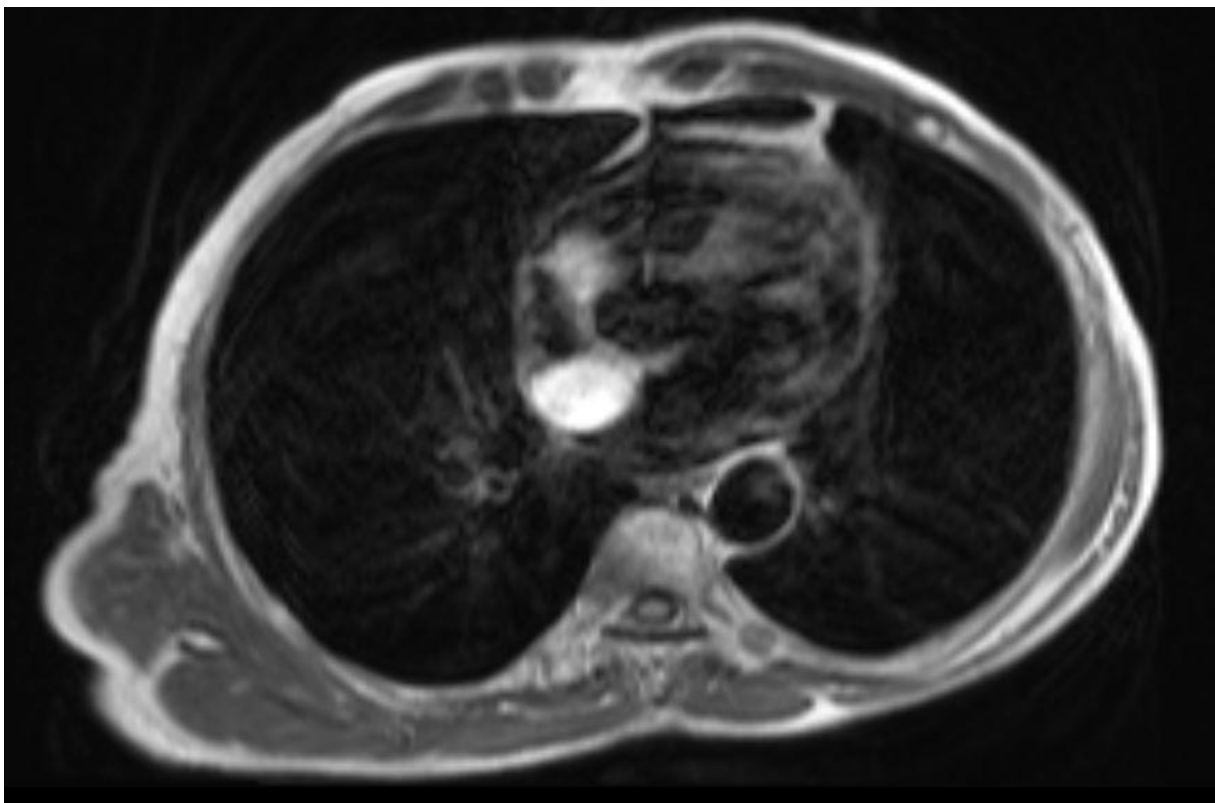


Figure 4: Axial T1-weighted images shows the hyperintensity of the mass with the same signal intensity of the subcutaneous fat tissue.