A case with a giant interatrial septal lipomatous hypertrophy, and thickened epicardial and visceral fat: Different faces of a common metabolic problem?

Gülsüm Kılıçkap
Department of Radiology, Yıldırım Beyazıt University, Yenimahalle Training and Research Hospital; Ankara-*Turkey*

Introduction

Interatrial septal lipomatous hypertrophy (ISLH) is a rare benign disorder characterized by fat deposition in the interatrial septum. It is an uncapsulated smooth mass that should be considered in the differential diagnosis of atrial masses. It is usually observed in the elderly and obese people, and it is more common in women than in men (1). Although arrhythmia and symptoms due to obstruction related to ISHL have been reported, it is usually asymptomatic and diagnosed incidentally. In many cases, diagnosis can be made by echocardiograpy alone if the mass has a typical appearance. Otherwise, multislice computed tomography (MSCT) or magnetic resonance imaging (MRI) may be required to determine the fat content.

Here, we report a case with a giant ISLH occupying the right atrial cavity along with a highly thickened epicardial and abdominal visceral fat tissue, suggesting that all of them may be a different presentations of a common metabolic problem.

Case Report

A 64-year-old male was sent to our Radiology Department for a MSCT pulmonary angiography (CTPA) to rule out possible pulmonary embolism. He was obese and had a history of chronic obstructive pulmonary disease and hypertension. He also had a metabolic syndrome due to hypertension, abdominal obesity, and hypertriglyceridemia. CTPA images (General Electric, brightspeed, 16 slices CT scanner) were obtained by administering a 75-mL bolus of intravenous iodine contrast at a rate of 4.5 mL/second. CTPA revealed no pulmonary embolism. However, an incidental fat-density mass (−90 HU on average) located in the interatrial septum extending to the right atrial cavity was seen (Fig. 1a, 1b). The mass was 5×4.5×4 cm in size and had a smooth contour. Characteristic dumbbell-shaped mass sparing the fossa ovalis was observed on CT and echocardiographic im-

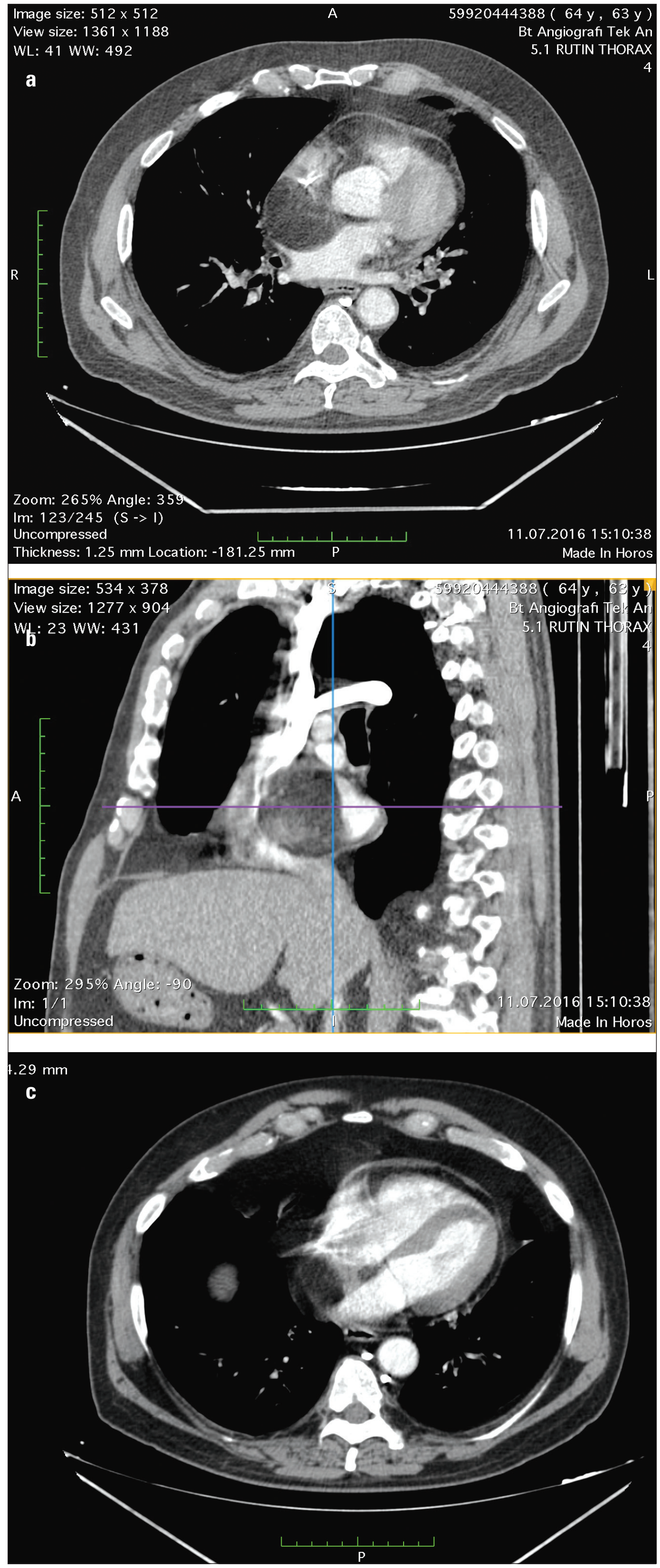

Figure 1. A giant interatrial septal lipomatous hypertrophy occupying the right atrial cavity (Fig. 1a and 1b) that has a characteristic dumbbell-shape appearance (Fig. 1c). Increased visceral fat thickness can also be observed in Figure 1b

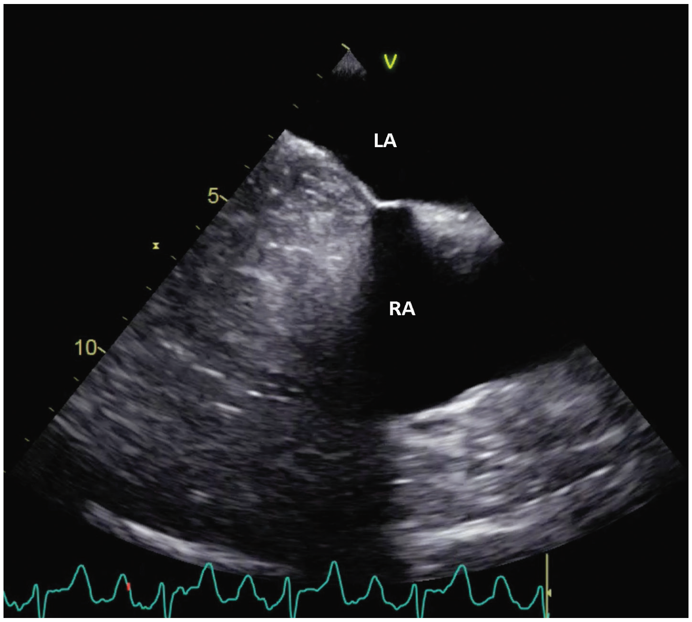

Figure 2. Transoesophageal echocardiographic image of the dumbbell-shaped mass sparing fossa ovalis

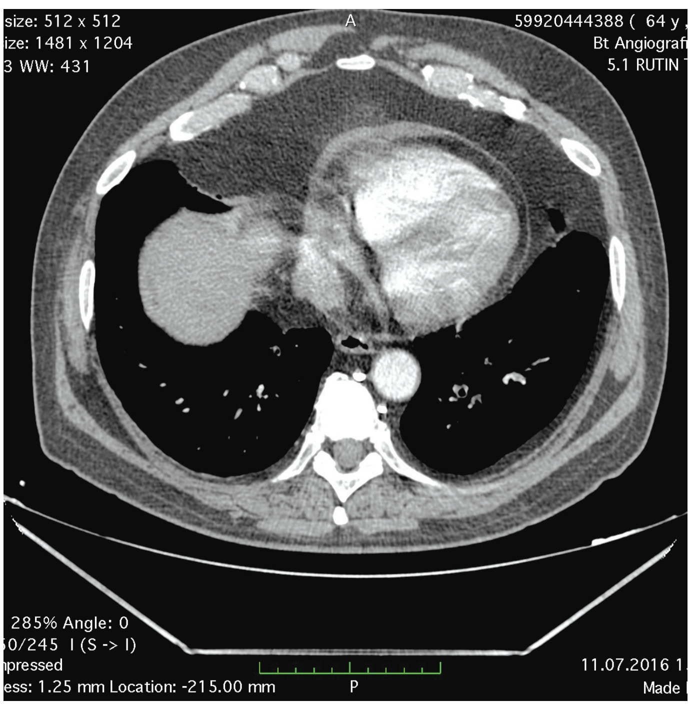

Figure 3. Increased epicardial fat thickness

ages (Fig. 1c, Fig. 2, and Video 1). Because of its typical appearance, the image was diagnosed as ISLH. It was not blocking the ostium of the superior and inferior vena cava and the right ventricular inflow. Consistent with this finding, no congestion or dilatation was observed in the superior and inferior vena cava. The epicardial and abdominal visceral fat tissues were also severely thickened (epicardial fat tissue thickness was 38 mm) (Fig. 1b and Fig. 3). In addition, chronic fibrotic and emphysematous changes and cicatricial bronchiectasis was observed in both pulmonary parenchyma.

Discussion

ISLH is characterized by lipid accumulation in the interatrial septum (2). As the fossa ovalis is spared, characteristic dumbbell-shaped appearance is observed in the images (3). Although different cut-off values have been proposed, the thickness of the interatrial septum is usually required to be >2 cm in ISLH (4). It was first described at postmortem examination by Prior in 1964 (5). The incidence is estimated to be 1%-8% (3). It should be considered in the differential diagnosis of atrial masses such as myxomas or lipomas. However, typical appearance is usually diagnostic.

We present a patient with obesity, metabolic syndrome, and a huge ISLH occupying the right atrial cavity. Although ISLH can be observed in daily practice, it is not common to see such a big ISLH. Moreover, in this case, ISLH was associated with a severely thickened epicardial and abdominal visceral fat tissue, suggesting a common metabolic problem might be involved in the development of all of these pathologies.

The exact etiopathogenesis is unknown. However, it has been proposed that mesenchymal cells that are entrapped in the interatrial septum during embryological development transformed to mature adipocytes in the presence of an appropriate stimulus (6). ISLH is usually observed in obese patients and is associated with the thickened epicardial tissue (1). Therefore, an appropriate stimulus might be a metabolic problem caused by lifestyle or genetic factors. Therefore, we think that this case is interesting not only for the size of ISLH occupying the right atrial cavity but also for a hypothesis-generating observation that requires scrutinized clinical research.

Conclusion

This patient had a huge ISLH and severely thickened epicardial and visceral fat tissue, and it might be suggested that ISLH is a part of a common metabolic problem.

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Video 1. Transoesophageal echocardiographic image of the ISLH.

Address for Correspondence: Dr. Gülsüm Kılıçkap,
Yıldırım Beyazıt Üniversitesi,
Yenimahalle Eğitim ve Araştırma Hastanesi,
Radyoloji Bölümü,
Batıkent, Ankara-*Türkiye*
Phone: +90 312 587 25 33
E-mail: gkilickap@yahoo.com.tr

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Percutaneous intervention of left main coronary artery chronic total occlusion: A case report

Metin Çoksevim, Murat Akçay[1], Korhan Soylu[1], Ömer Göktekin[2]
Clinic of Cardiology, Giresun Bulancak State Hospital; Giresun-*Turkey*
[1]Department of Cardiology, Faculty of Medicine, Ondokuz Mayıs University; Samsun-*Turkey*
[2]Clinic of Cardiology, Şişli Memorial Hospital; İstanbul-*Turkey*

Introduction

Chronic total occlusion of left main coronary artery (LMCA) is a rare finding in angiograms and is described as a total lack of antegrade blood flow to the coronary arteries with retrograde collateral circulation (1, 2). A majority of the myocardium is under ischemic load and is associated with high mortality ratio. Although CABG operation is the standard revascularization method, recent studies show that PCI can alternatively be safely performed for certain patients (3, 4).

Case Report

A 44-year-old male with complaints of dyspnea and chest pain was admitted to emergency department. No additional findings were observed in physical examination and laboratory parameters. His medical history showed that a stent was implanted in the Cx artery after he experienced myocardial infarction in 2012, and that implantable cardioverter defibrillator (ICD) was implanted in 2015 for primary prevention due to ischemic cardiomyopathy. He was receiving optimal medical treatment. Electrocardiography revealed sinus rhythm with a QS pattern in the V1-V3 leads. Echocardiography also showed dilated left ventricular diameters (end-diastolic diameter, 60 mm; end-systolic diameter, 44 mm) and ejection fraction of 38% with septum, anterior wall and apical hypokinesis. Along with the diagnosis of unstable angina pectoris, coronary angiography also revealed the CTO of LMCA with well-developed right-to-left collaterals and an absence of significant stenosis in RCA (Fig. 1a, 1b; Video 1). The SYNTAX score was calculated to be 29. Thallium SPECT and fluorodeoxyglucose PET viability scintigraphy showed viable tissue and ischemia >5% on anterior myocardial area. Therefore, the heart team decided to perform revascularization. Mortality as per the surgical risk scores was 2.9% in STS and 2.7% as per EuroSCORE-II. After the patient decided not to be treated with the surgery, the heart team selected PCI with the approval of the patient.

Coronary angiography was performed with bilateral femoral access using a 7F sheath. The retrograde and antegrade filling and CTO lesion length were determined. After premedication with ASA, ticagrelor, and unfractionated heparin, a 7F left Judkins catheter was placed in the LMCA ostium. Initially, the "Gaia second" wire successfully passed the LMCA lesion and was directed to the Cx artery with the support of a Corsair microcatheter. First, the Cx artery was predilatated with a 2.5×30-mm Sprinter Legend balloon (Medtronic Inc., Minnesota, USA). Then, the "Gaia second" wire was passed through the LAD lesion with the support of the Corsair microcatheter. However, due to the limitations of the microcatheter, the LAD lesion could only be passed using the anchoring balloon technique at the Cx artery. After passing the LAD lesion, the lesion was predilatated with a 2.5×30-mm Sprinter Legend balloon. Further, a 3.0×38-mm resolute integrity drug-eluting stent (Medtronic Inc., Minnesota, USA) was implanted in the Cx distal lesion and a 3.0×16-mm resolute integrity drug-eluting stent in the Cx proximal lesion. After the Cx proximal stent was crushed with a 2.75×15-mm balloon, a 3.0×38-mm resolute integrity stent was implanted in the LAD lesion. The LAD proximal was postdilated with a 4.0×12-mm Emerge NC balloon (Boston Scientific, USA), and the LAD-Cx final kissing balloon technique was performed. Finally, proximal optimization technique was performed with a 4.0-12 mm Emerge NC balloon in the LMCA lesion. In the final angiogram, the stents in the LMCA-LAD-Cx were visualized at the optimal