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Case Report

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# A Challenging Case of Spontaneous Left Atrial Dissection

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## 1. Introduction

Left Atrial Dissection (LAD) is defined as a false, blood-filled cavity or lumen expanding from the mitral annular area to the left atrial free wall or interatrial septum. The cavity is located between the endocardium and the epicardium of the left atrium, causing the obliteration of the left atrium and possibly hemodynamic instability, often requiring an immediate surgical operation [1-2]. LAD is a rare but potentially fatal complication of cardiac surgery (both mitral valve replacement and repair), aortic valve replacement, coronary artery bypass, left ventricular aneurysmectomy, pulmonary vein cannulation and cardiac mass excision [2,3]. Only a few case of LAD not related with cardiac surgery have been reported during myocardial infarction [4], percutaneous coronary intervention [5], radiofrequency ablation [6] and blunt cardiac trauma [7]. Rarely, spontaneous LAD has been described in patients with amyloid light-chain amyloidosis [8], severe mitral annular calcification [9] and infectious endocarditis [10].

## 2. Case Report

A 51 years old Caucasian patients, without any previous cardiac manipulation or trauma, was admitted to the emergency department with shortness of breath, cough, inspiratory chest pain and tachycardia. At admission, pulmonary edema was present; oxygen saturation and blood pressure were respectively 93% and 105/65 mmHg. Blood chemistry tests were normal. The ECG revealed sinus tachycardia, right bundle branch block in the absence of ischemic alterations. The transthoracic echocardiography showed a fixed mass in the Left Atrium (LA), normal biventricular function and aortic root dimension. The patient rapidly deteriorated, thus supportive therapy was initiated and orotracheal intubation performed. Aiming to better define the mass, a transesophageal echocardiography was carried out showing a large, fixed mass with multiple septa and a thin hyperechogenic wall, occupying almost completely LA and causing moderate mitral stenosis (mean gradient 8 mmHg). No color Doppler signal was found in the mass, suggesting the absence of vascularization (Figure 1, Panel B). Mitral valve appearance was normal. The patient then underwent a thoraco-abdominal CT scan, which revealed an isodense left atrial mass with net profiles and homogeneous structure (Figure 2). Neither cystic formations nor other lesions suspicious for neoplasm were found in other organs, making unlikely the diagnosis of hydatidosis.

The abovementioned findings were strongly suspicious for a diagnosis of LA tumor or multiloculated mass. As the patient experienced a progressive hemodynamic instability, he underwent an urgent cardiac surgery through midline sternotomy. Subsequently, a bilateral atriotomy was performed with evidence of a large

left atrial wall hematoma. which was aspirated. Afterwards, the reconstruction of both atrial septum and floor with a pericardium patch was performed. Unfortunately, the operation was complicated by massive bleeding and cardiac arrest. The post-operative course was complicated by extensive cerebral ischemic suffering, probably secondary to the intraoperative cardiac arrest or to thrombus migration. Due to this complication, the patient died 28 days after the surgery.

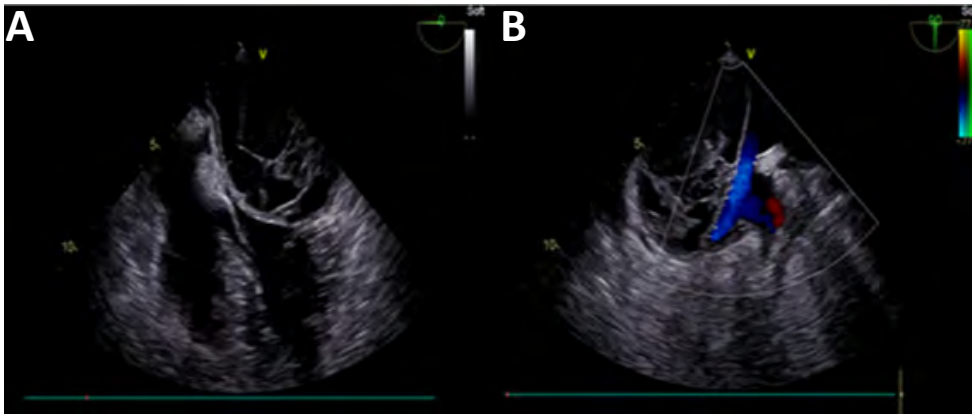


**Figure 1**: [Transesophageal images]. Panel A: mid-esophageal 4 chamber view showing multi-loculated mass, obstructing left ventricular inflow. Panel B: mid-esophageal left atrial appendage view showing the antero-lateral margin of the mass.

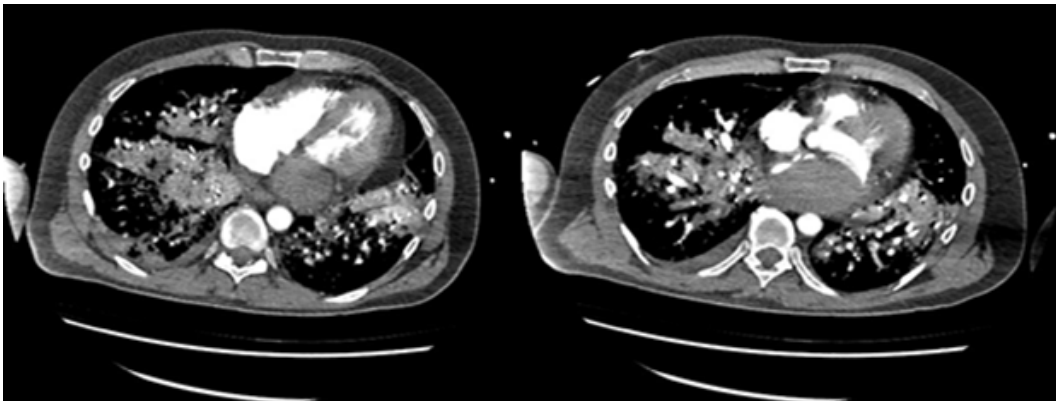

**Figure 2:** [CT images] The CT scan showed an isodense left atrial mass with net profiles and homogeneous structure (axial diameter 4.5 cm x 6.5 cm; cranio-caudal diameter 6.5 cm).

## 3. Discussion

LAD are rare and usually related to specific causative factors, including cardiac surgery, cardiac manipulation, myocardial infarction, or chest trauma. Spontaneous LAD is even more rare and usually occurs in the presence of underlying conditions such as mitral calcification, endocarditis or amyloidosis. To date, incidence, etiology and pathophysiology of LAD are still poorly understood and data on clinical course and management are scanty. In this report, to the best of our knowledge the first in literature, we present a case of spontaneous LAD occurred in the absence of predisposing known conditions. In fact, myocardial infarction was ruled out by ECG and echocardiographic findings, AL amyloidosis and hydatidosis were excluded by blood chemistry and CT, no abnormalities of the mitral valvular apparatus were detected. As pointed out, the hematoma due to LAD appeared as a left atrial intracavitary cystic mass with multiple septa; thus, LAD should be included in the differential diagnosis of cystic left atrial masses along with hydatidosis, cystic myxoma and neoplasms.

## 4. Conclusion

Spontaneous LAD is a very rare and challenging entity to diagnose even when the best imaging techniques are available, especially due to the haemodynamic instability often present. In most cases, only surgical exploration can clarify the nature of the atrial mass. No definitive indications exist to guide the management of this rare entity.

### References

1. Fukuhara S, Dimitrova KR, Geller CM, Hoffman DM, Ko W, Tranbaugh RF, et al. Left atrial dissection: etiology and treatment. Ann Thorac Surg. 2013; 95: 1557-62.
2. Gallego P, Oliver JM, González A, Domínguez FJ, Sanchez-Recalde A, Mesa JM, et al. Left atrial dissection: pathogenesis, clinical course, and transesophageal echocardiographic recognition. J Am Soc Echocardiogr. 2001; 14: 813-20.
3. Shinichi F, Geller CM. Left atrial dissection: an almost unknown entity. Interactive CardioVascular and Thoracic Surgery. 2015; 20(1): 96-100.

4. Kovacic JC, Horton MD, Campbell TJ, Wilson SH. Left atrial hematoma complicating inferior myocardial infarction, J Am Soc Echocardiogr. 2004; 17(11): 1201-3.
5. Cresce G, Peluso D, Panfili M, Favaro A, Cannarella A, Picichè M, et al. Left atrial wall hematoma as a consequence of percutaneous coronary angioplasty. Ann Thorac Surg, 2012; 93(3): e57-9.
6. Ramakrishna G, Cote AV, Chandrasekaran K, Malouf JF. Endocardial flap of left atrial dissection following radiofrequency ablation. Pacing Clin Electrophysiol. 2003; 26(8):1771-3.
7. Lavorgne A, Villani C, Fabiani D, Napoletano C. A rare case of left subacute atrial dissection: multimodality imaging approach. J Cardiovascular Echography. 2019; 29(1): 26-28.
8. Edibam C, Playford D, Texler M, Edwards M. Isolated left atrial amyloid-osis: acute premitral stenosis secondary to spontaneous intramural left atrial hemorrhagic dissection. J Am Soc Echocardiogr. 2006; 19: 938.
9. Gual-Capllonch F, Arce J, Serés L, Vallejo N, Ferrer E, Fernández C, et al. Left atrial intramural haematoma associated with mitral annular calcification, Eur J Echocardiogr. 2010; 11(5): E18.
10. Lorenzana MLC, Perez JML, Macias , Lopez JMG, Rodrigez JP. Left atrial dissection and infective endocarditis, Rev EspEM Cardiol 1998; 51(5): 402-3.