

# Big thrombus “sitting” in an atrial septal aneurysm

Julián Vega Adaury MD<sup>1</sup> | Luigi Gabrielli MD <sup>1,2</sup> | Samuel Córdova MD<sup>1</sup> |  
Rodrigo Saavedra MD<sup>1</sup> | Paul McNab MD<sup>1</sup>

<sup>1</sup>Division of Cardiovascular Diseases, Faculty of Medicine, Pontificia Universidad Católica, Santiago, Chile

<sup>2</sup>Advanced Center for Chronic Diseases, Faculty of Medicine, Pontificia Universidad Católica de Chile, Santiago, Chile

## Correspondence

Julián Vega Adaury, Laboratorio Ecocardiografía, Hospital Clínico Red de Salud UC CHRISTUS, Santiago, Chile.  
Email: julianvega@gmail.com

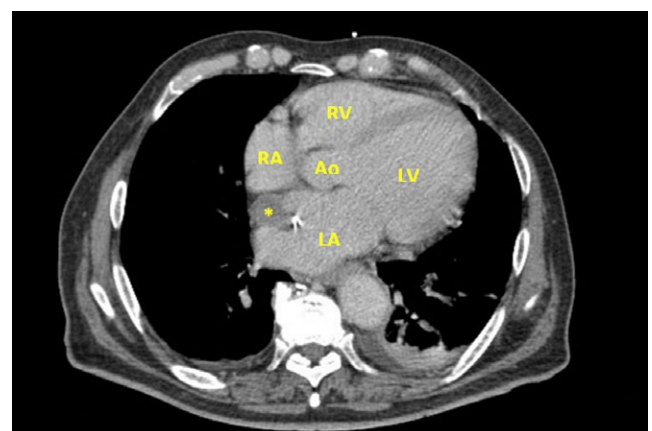
A 79 year-old-man presented three episodes of upper gastrointestinal bleeding and weight loss. Endoscopy revealed bleeding and extrinsic compression at the pyloric region. Computed tomography scan showed a pancreatic tumor, peritoneal carcinomatosis, vascular infiltration, and incidentally found a partially calcified hypodense lesion of 35 mm in the left atrium, suggesting a myxoma or a thrombus. Echocardiography revealed moderate left atrium enlargement, dilated left atrial appendage with spontaneous echo contrast, moderate dilatation and dysfunction of the left ventricle, ejection fraction was 39%, and an atrial septal aneurysm in which a piriform, mass of 35×33×25 mm, was “sitting,” suggesting an organized thrombus.

## KEYWORDS

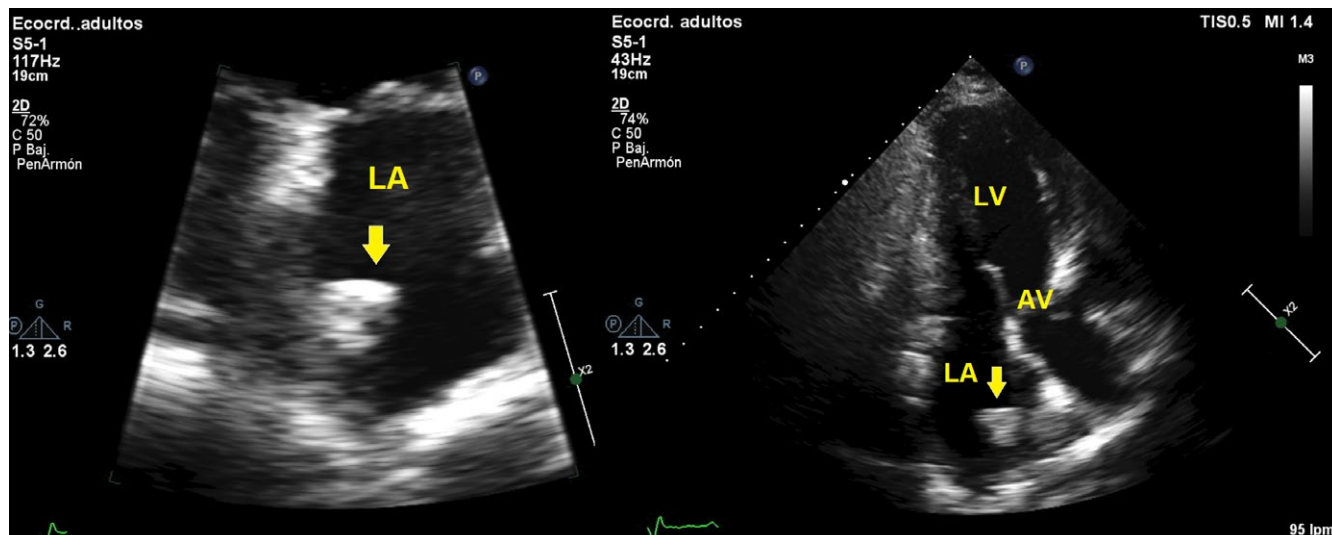
atrial septal aneurysm, left atrial mass, three-dimensional transesophageal echocardiography, thrombus

A 79-year-old man was admitted to our hospital for three episodes of upper gastrointestinal bleeding and unexplained 10 kg weight loss in 3 months. Upper gastrointestinal endoscopy revealed active bleeding and extrinsic compression at the pyloric region; injection therapy was successfully performed. Contrast computed tomography (CT) scan exposed a pancreatic tumor, peritoneal carcinomatosis, and secondary hepatic involvement, also portal and splenic vascular infiltration was noted. As an incidental finding, a partially calcified hypodense lesion of 35 mm was found in the left atrium (Figure 1). Suspecting a myxoma or thrombus, echocardiography (EPIC 7c Philips, Andover, MA, USA) transthoracic (TTE) and transesophageal (TEE) were performed. Which reveal a moderate left atrial enlargement, a dilated left atrial appendage, both with spontaneous echo contrast (SEC), a moderate dilatation and dysfunction of the left ventricle, ejection fraction by Simpson's bi-plane 39%, and an atrial septal aneurysm (ASA) with permanent bulging to the right atrium, consistent with type 1R of the Olivares-Reyes ASA classification system.<sup>1</sup> “Bubble study” was not performed, but low scale color Doppler did not suggest shunting. Arising from the fossa ovalis (FO) and “sitting” in the interatrial septum (IAS) was found a piriform, hyperechoic, mass of 35×33×25 mm, with some calcified spots in the surface (Figures 2–4; Movies S1 and S2). An organized thrombus was strongly suspected, because of the appearance of the mass along with the presence of SEC and atrial enlargement. A metastatic

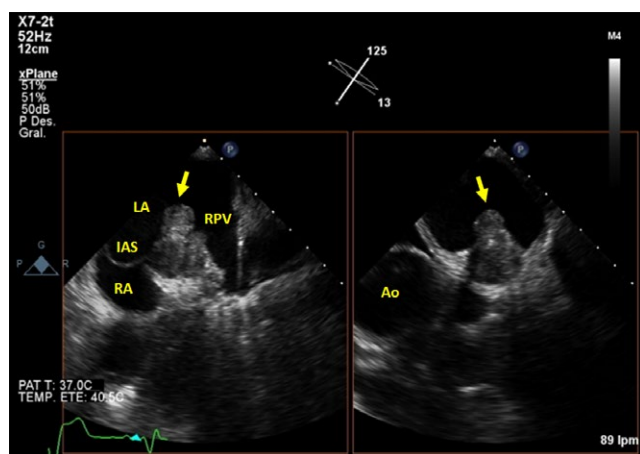
lesion was less likely considered, as the mass was located in the left side of the ASA along with the absence of pericardial effusion and/or myocardial wall infiltration; also CT did not show thoracic metastatic involvement. Anticoagulation was discouraged because of recurring gastrointestinal bleeding, and patient was enrolled in palliative care.



**FIGURE 1** Thorax contrast CT scan, five-chamber view of the heart, showing a partially calcified hypodense lesion of 35 mm in the left atrium (yellow asterisk). Ao=aorta; LA=left atrium; LV=left ventricle; RA=right atrium; RV=right ventricle

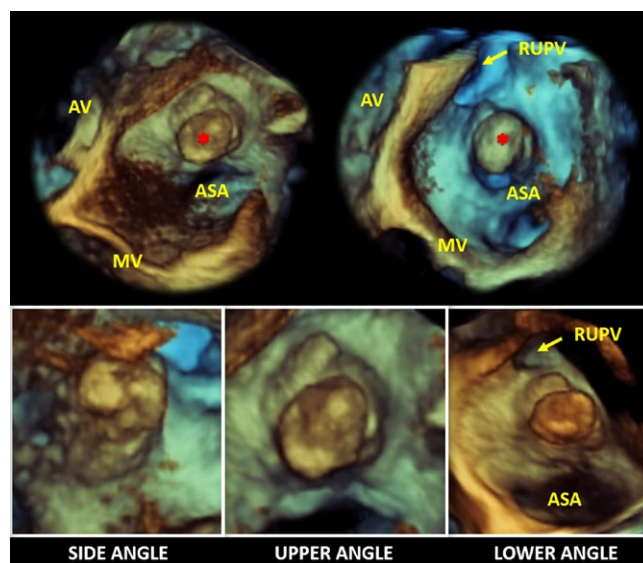


**FIGURE 2** Transthoracic echocardiography. Left panel: zoom from apical four-chamber view, depicting a hyperechoic mass in the left atrium toward the interatrial septum (IAS). Right panel: apical long-axis view, showing the mass toward the anterosuperior aspect of the IAS. AV=aortic valve; LA=left atrium; LV=left ventricle



**FIGURE 3** Transesophageal echocardiography. Mid-esophageal view at 125° with x-plane mode. ASA bulging toward the RA, and the mass (yellow arrow) "sitting" into the anterosuperior aspect of the IAS. Ao=aorta; IAS=interatrial septum; LA=left atrium; RA=right atrium; RPV=right upper pulmonary vein; ASA= atrial septal aneurysm

Left atrial thrombi are a common echocardiography finding, being encountered most frequently in mitral valve disease (mitral stenosis, rheumatic valve disease), mitral valve prosthesis, and atrial fibrillation. Conversely a thrombus located in an ASA is a very rare finding being encountered in less than 1% of the ASA patients,<sup>2</sup> and exceptionally being spotted in an TTE as in this case.<sup>3</sup> ASA is related with embolic stroke, due to associated patent foramen oval (paradoxical embolism), or with direct thrombus developing locally in the left side of the aneurysm.<sup>4</sup> Furthermore, it is well known that pancreatic cancer generates a prothrombotic and hypercoagulable state, situation which may have contributed in the development of the thrombus in this case.



**FIGURE 4** Composition of 3D images of the mass. Upper left panel, view from the left atrium toward the IAS, mass in the center of the image (red asterisk). Upper right panel, rotation of the image to depict the ASA. Lower panel, various angles of the mass, from left to right: side angle, upper angle, and lower angle. Red asterisk: IAS mass. AV=aortic valve; MV=mitral valve; RUPV=right upper pulmonary vein; ASA= atrial septal aneurysm; IAS=interatrial septum

## REFERENCES

- Olivares-Reyes A, Chan S, Lazar EJ, et al. Atrial septal aneurysm: a new classification in two hundred five adults. *J Am Soc Echocardiogr.* 1978;10:644–656.
- Mügge A, Daniel WG, Angermann C, et al. Atrial septal aneurysm in adult patients. A multicenter study using transthoracic and transesophageal echocardiography. *Circulation.* 1995;91:2785–2792.

3. Aryal MR, Pradhan R, Pandit A, et al. A 'teapot' atrial septal aneurysm with spontaneous thrombus in an asymptomatic patient. *Circulation*. 2013;128:e409–e410.
4. Schneider B, Hanrath P, Vogel P, et al. Improved morphologic characterization of atrial septal aneurysm by transesophageal echocardiography: relation to cerebrovascular events. *J Am Coll Cardiol*. 1990;16:1000–1009.

## SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

**Movie S1.** TEE. Mid-esophageal view at 125° with x-plane mode

**Movie S2.** TEE. Zoom mode 3D image of the mass (yellow arrow) from a left atrium perspective

**How to cite this article:** Adauy JV, Gabrielli L, Córdova S, Saavedra R, McNab P. Big thrombus “sitting” in an atrial septal aneurysm. *Echocardiography*. 2017;00:1–3.  
<https://doi.org/10.1111/echo.13574>