

## Left Atrial Appendage Pseudo-Thrombus

### *Pseudotrombo em Apêndice Atrial Esquerdo*

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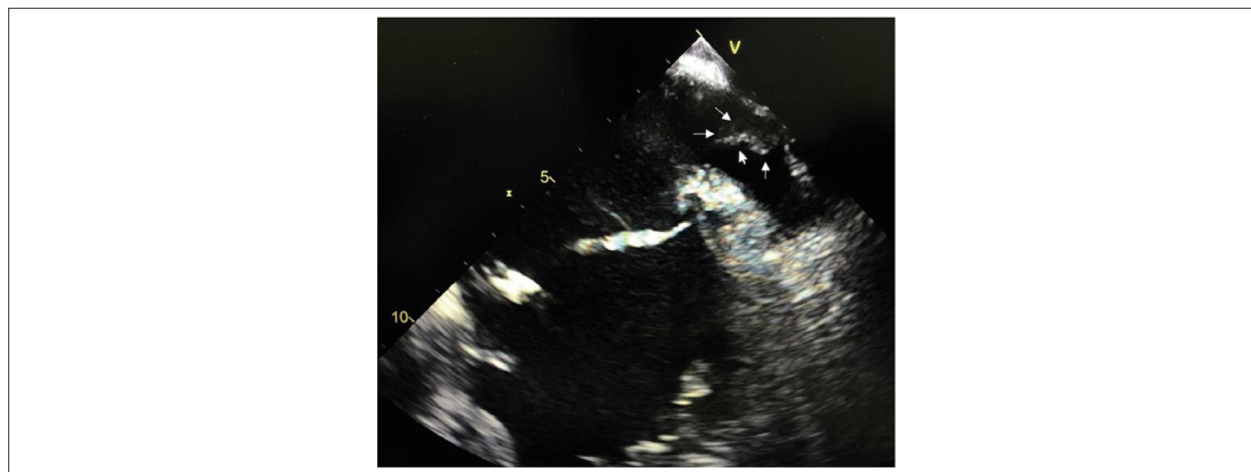
A 65-year-old man was admitted with a suspected cerebrovascular accident (CVA). Brain magnetic resonance imaging (MRI) revealed an intracranial hemorrhage (hemorrhagic CVA) in the thalamus region and findings suggestive of old cerebral infarctions. The patient had systemic arterial hypertension, dyslipidemia, carotid artery disease (complete occlusion of the right internal carotid artery and 50% occlusion of the left internal carotid artery), and severe obstructive coronary artery disease with a history of previous left ventricular (LV) anterior wall myocardial infarction (MI). He underwent surgical myocardial revascularization in 1998 (bypass of the right [RC], diagonal [DG], and circumflex [CX] coronary arteries in addition to left internal mammary artery bypass of the anterior descending artery), coronary RC angioplasty in 2004, and CX angioplasty in 2014.

After the MI, severe LV systolic dysfunction (ejection fraction of 24%) developed. The patient received an implantable cardioverter defibrillator (ICD; Intica 5 DR-T, Biotronik) 1 year prior to the current presentation. He had been clinically followed up on optimized heart failure (HF)

drug therapy and dual antiplatelet aggregation therapy (DAPT) with acetylsalicylic acid (ASA) and clopidogrel. ICD follow-up was performed every 6 months and continuously by remote telemetry (Biotronik Home Monitoring®).

During the current hospitalization, the patient underwent transesophageal echocardiography (TEE), which revealed echo density in the left atrial appendage (LAA) suggestive of a thrombus (Figure 1). ICD data collected since implantation showed no atrial fibrillation (AF) or rapid atrial rhythm. Dynamic TEE imaging (Video 1) showed a streaking image in the LAA suggestive of an artefact.

Therefore, considering the absence of AF, the imaging findings, and the important impact that a thrombus in the LAA would have on the patient's treatment (recent hemorrhagic CVA), the patient underwent computed tomography coronary angiography (CT-angio), which revealed no evidence of an LAA thrombus but showed a coronary artery bypass graft from the aorta to the diagonal branch of the left coronary artery in a segment closely related to the LAA that was considered the cause of the suspected artefact (Figure 2, Video 2).



**Figure 1** – Transesophageal echocardiogram in the mid-esophageal plane demonstrating an echo dense structure in the proximal segment of the left atrial appendage.

## Keywords

Atrial appendage; Computed tomography; Echocardiography.

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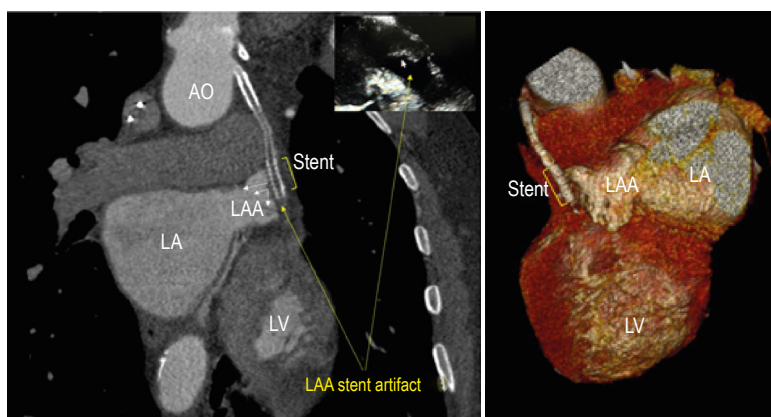
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## Relato de Caso

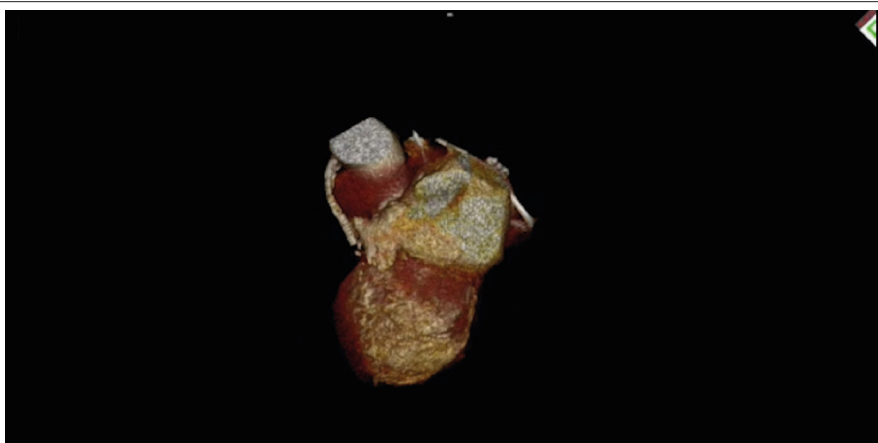


**Video 1** – Transesophageal echocardiogram's dynamic view in the mid-esophageal plane demonstrating (arrow) an echo dense structure in the proximal segment of the left atrial appendage.



AAE: apêndice atrial esquerdo; AE: átrio esquerdo; VE: ventrículo esquerdo.

**Figure 2** – Computed tomography angiogram (curved multiplanar reconstruction) showing stent thrombosis of an aortic bypass to the diagonal branch in close contact with the outer border of the left atrial appendage.



**Video 2** – Computed Tomographic Angiogram's dynamic view showing close contact of the aortic bypass to the diagonal branch with the outer border of the left atrial appendage.

## Discussion

TEE is considered the gold standard test to detect LAA thrombi.<sup>1,2</sup> With the incorporation of heart CT-angio into clinical practice, the diagnosis of a “false” thrombus, called pseudo-thrombus, in the LAA has become more frequent and is explained by contrast filling failure due to reduced flow velocity in the LAA trabeculae.<sup>3</sup> The recent use of specific CT-angio protocols to evaluate thrombi and late imaging capture has significantly improved its sensitivity and specificity, which reaches near 100% in some series,<sup>4,5</sup> thus becoming a less invasive option than TEE. It has been widely used in preoperative catheter ablation to treat AF or LAA percutaneous occlusions.

In this case, it is noteworthy that the diagnosis of pseudo-thrombus by TEE corresponded to an extracardiac metallic structure (stent) artefact closely related to the LAA but

only identified on the cardiac CT-angio and relevant in the patient’s treatment.

## Authors’ contributions

Research concept and design: Silva MA; data collection: Silva MA, Cazelli JG, Peixoto DEB, Rua RS, and Farinazzo RJM; data analysis and interpretation: Silva MA, Pazolini M, Cazelli JG, Peixoto DEB, Rua RS, and Farinazzo RJM; manuscript writing: Pazolini M and Cazelli JG; critical review of the manuscript: Pazolini M and Cazelli JG.

## Conflict of interest

The authors have declared that they have no conflict of interest.

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