

Thrombi in Both Atria Detected by Cardiovascular Tomography in a Patient with Atrial Fibrillation

Trombos en ambas aurículas en paciente con fibrilación auricular detectados por tomografía cardiovascular

MARIANO L. FALCONI^{1,MTSAC}, PRISCILA S. QUINTANA^{1,MTSAC}, DIEGO PÉREZ DE ARENAZA^{1,MTSAC}.

An 84-year-old female patient with a history of hypertension, diabetes, stroke and atrial fibrillation under anticoagulant treatment with acenocoumarol presented with severe aortic stenosis (peak gradient 74 mmHg, mean gradient 44 mmHg, area 0.6 cm²) and mildly depressed global left ventricular function. A cardiovascular tomography was performed to schedule a transcatheter aortic valve implantation (TAVI).

The study showed filling defects in early and late phases contrast-enhanced images in the roof of the right atrium near the atrial appendage and in the left atrial appendage, consistent with thrombi (Figures 1 and 2).

Thrombosis of the left atrial appendage is frequent in atrial fibrillation, and its prevalence (up to 8% with anticoagulant therapy and 5-27% without) depends largely on the studied population. However, thrombosis of the right atrial appendage is rare (estimated at 0.6-0.75%), and its incidence is lower due to its anatomy (more open and with less potential for blood stasis – “remora phenomenon” – than the left one) and to a search performed less systematically as well as difficulties in evaluating its structure. (1) However, autopsy studies suggest that the prevalence of thrombosis in both atria is similar. (2)

Cardiovascular tomography is an excellent tool to evaluate atrial thrombosis, which is observed as a defined structure with clear borders generating filling defects both in early and late phases after the contrast agent is administered (it distinguishes from the remora phenomenon in which defects in early phases are corrected in late phases). It has very high sensitivity and specificity for the detection of thrombi in the left atrium. (3) However, in some cases, it is difficult to achieve an adequate contrast in the right chambers, mainly the right atrial appendage, by using imaging to evaluate “left structures” (coronary arteries, pulmonary veins, valves); thus, right atrial thrombosis may be undetected. The low signal in Hounsfield units on non-contrast-enhanced tomography or the Hounsfield units ratio between thrombus and the aorta using dual-source equipment (4) may be helpful in identifying atrial thrombosis by cardiovascular tomography.

Conflicts of interest

None declared (See authors' conflicts of interest forms on the website).

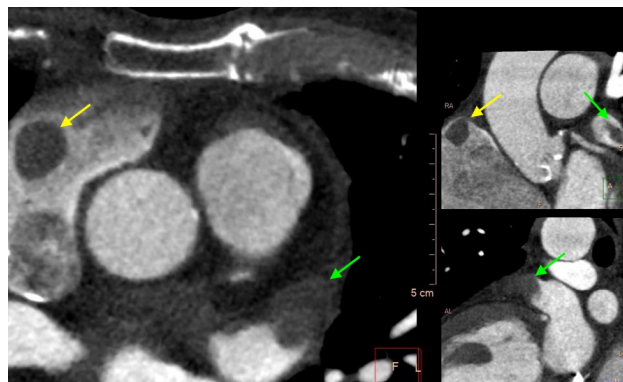


Fig. 1. Early phase contrast-enhanced images. Filling defects consistent with mass in the roof of the right atrium (yellow arrow) and distal body of left atrial appendage (green arrow).

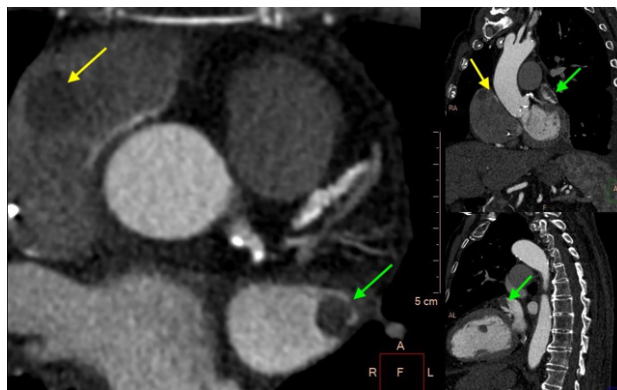


Fig. 2. Late phase contrast-enhanced images. Defect persistence in both atria

Rev Argent Cardiol 2023;91:330-331. <http://dx.doi.org/10.7775/rac.v91.i4.20661>



<https://creativecommons.org/licenses/by-nc-sa/4.0/>
©ARevista Argentina de Cardiología

¹ Cardiovascular Imaging Section, Cardiology Service, Hospital Italiano de Buenos Aires.

REFERENCES

1. García-Fernández MÁ, Cresti A. Right Atrial Appendage Thrombus: “Can Be Found if You Look for It.” *JACC Case Rep.* 2023;5:101702. <https://doi.org/10.1016/j.jaccas.2022.101702>
2. Richardson AC, Omar M, Velarde G, Missov E, Percy R, Sattiraju S. Right Atrial Appendage Thrombus in Atrial Fibrillation: A Case Report and Review of the Literature. *J Investig Med High Impact Case Rep.* 2021;9:23247096211010050. <https://doi.org/10.1177/23247096211010048>
3. Pathan F, Hecht H, Narula J, Marwick TH. Roles of Transesophageal Echocardiography and Cardiac Computed Tomography for Evaluation of Left Atrial Thrombus and Associated Pathology: A Review and Critical Analysis. *JACC Cardiovasc Imaging.* 2018;11:616-27. <https://doi.org/10.1016/j.jcmg.2017.12.019>
4. Li W, Liu M, Yu F, Zhu W, Yu X, Guo X, Yang Q. Detection of left atrial appendage thrombus by dual-energy computed tomography-derived imaging biomarkers in patients with atrial fibrillation. *Front Cardiovasc Med.* 2022;9:809688. <https://doi.org/10.3389/fcvm.2022.809688>