

Silent Giant: Right Coronary Artery Ectasia with a Hidden Fistula to the Coronary Sinus in an Asymptomatic Patient

Inês Ferreira Neves,¹ André Ferreira,¹ Inês Almeida,¹ Tânia Branco Mano,¹ Lúdia de Sousa¹

Hospital de Santa Marta,¹ Lisboa – Portugal

A 62-year-old woman, asymptomatic and without significant medical history, was referred to a routine transthoracic echocardiogram (TTE). The TTE had no abnormal findings but showed, in subcostal view, three round images adjacent to the lateral wall of the right atrium. Color Doppler showed that these were apparently vascularized (Figure 1, panels A and B, supplemental videos 1 and 2). A transesophageal echocardiogram showed a giant right coronary artery (RCA), apparently originating from the RCA ostium, with turbulent flow inside (Figure 1, panel C, supplemental video 3). It was not possible to observe shunts or fistulae in this imaging modality. Given the suspicion of a fistula to the RCA, computed tomography coronary angiography was performed, showing an ectatic RCA with a normal origin, a diameter of 10,5 mm, and a tortuous trajectory, with fistulation to the coronary sinus in its final segment (Figure 1 panels D to F). Right heart catheterization demonstrated a non-significant left-to-right shunt (Qp:Qs ratio of 1.60). Cardiac magnetic resonance imaging (MRI) had no evidence of perfusion defects during hyperemia, thus excluding the coronary “steal phenomenon”. After a multidisciplinary team discussion, since the patient was asymptomatic and the fistula had no hemodynamic significance, no invasive treatment was performed at this time.

Coronary arteriovenous fistulas are rare, with an incidence of 0.002%.^{1,2} The majority of these are congenital² and asymptomatic at presentation.³ Coronary steal can lead to several complications, including ischemia.^{1,3} The treatment approach remains controversial. The presence of symptoms, significant left-right shunt, and large fistula are the most frequent indications for percutaneous or surgical approach.^{4,5}

Author Contributions

Conception and design of the research and Acquisition of data: Neves IF; Analysis and interpretation of the data: Neves

IF, Almeida I; Writing of the manuscript: Neves IF, Ferreira A, Mano TB; Critical revision of the manuscript for content: Neves IF, Almeida I, Mano TB, Sousa L.

Potential conflict of interest

No potential conflict of interest relevant to this article was reported.

Sources of funding

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Study association

This study is not associated with any thesis or dissertation work.

Ethics approval and consent to participate

This study was approved by the Ethics Committee of the Saúde da USLL José under the protocol number 1655/2025. All the procedures in this study were in accordance with the 1975 Helsinki Declaration, updated in 2013. Informed consent was obtained from all participants included in the study.

Use of Artificial Intelligence

The authors did not use any artificial intelligence tools in the development of this work.

Data Availability

The underlying content of the research text is contained within the manuscript.

Keywords

Congenital Heart Defects; Arteriovenous Fistula; Coronary Sinus; Coronary Vessels

Mailing Address: Inês Ferreira Neves •

Hospital de Santa Marta – R. de Santa Marta, 50. 1169-024, Lisboa – Portugal

E-mail: inessferreiraneves@gmail.com

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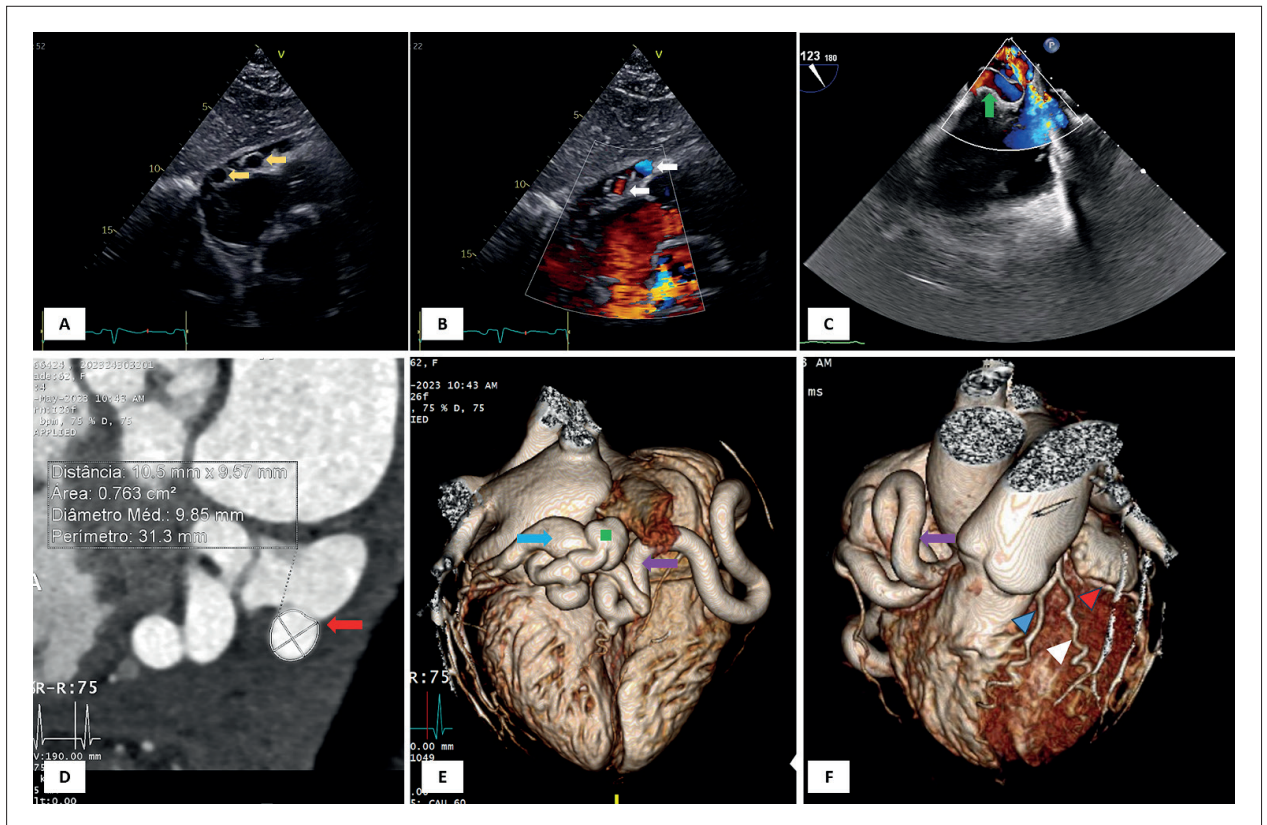
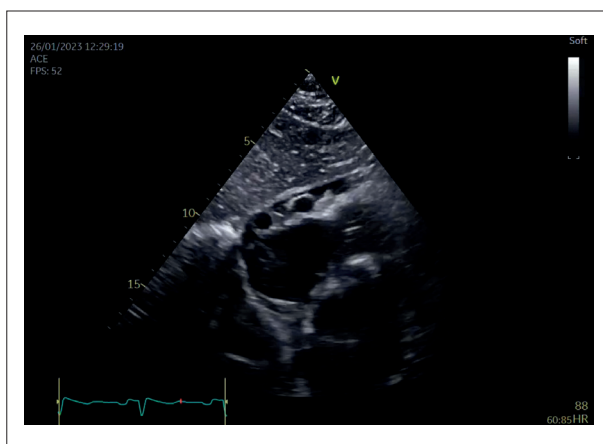
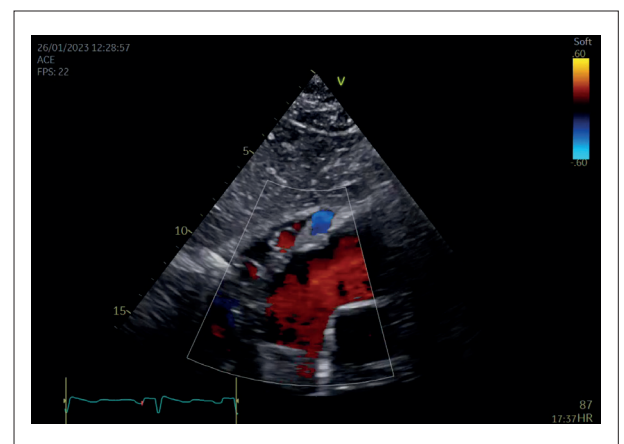


Figure 1 – Right Coronary Artery Ectasia and Fistula to the Coronary Sinus. Panel A: Transthoracic echocardiogram (TTE) in subcostal view, showing round pericardial structures (yellow arrows). Panel B: TTE with Doppler, showing vascularization of the structures (white arrows). Panel C: Transesophageal echocardiogram showing a giant right coronary artery (RCA) (green arrow) with turbulent flow inside. Panel D: Computed tomography coronary angiography (CTCA) showing an ectatic RCA with fistulation to the coronary sinus (CS) (red arrow). Panel E: CTCA Posterior view showing the CS (blue arrow), the ectatic RCA (purple arrow), and the location of the fistula (green square). Panel F: CTCA Anterior view showing the RCA (purple arrow), the anterior descending artery (Blue arrowhead), a marginal artery (white arrowhead), and the circumflex artery (red arrowhead).

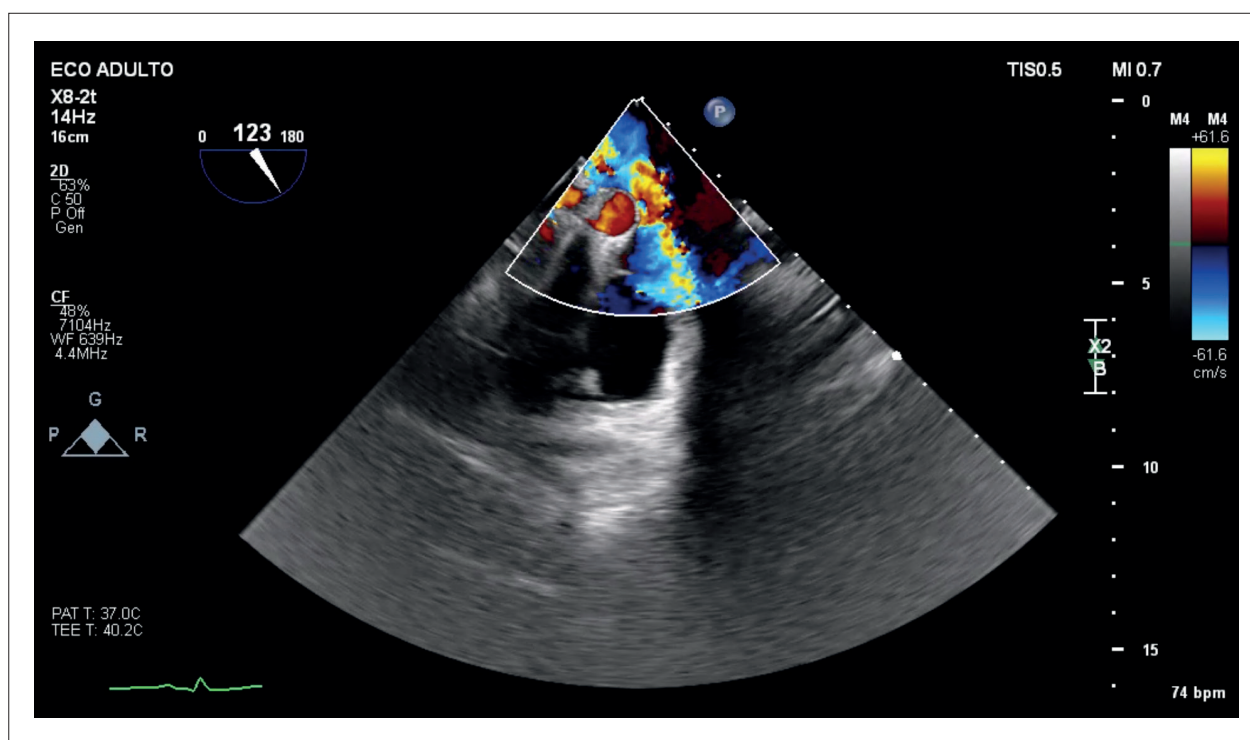


Video 1 – Transthoracic echocardiogram (TTE) in subcostal view, showing round pericardial structures. Em: http://abccardiol.org/supplementary-material/2025/12203/2024-0574_IM_Supplemental_Video_1.mp4



Video 2 – Transthoracic echocardiogram (TTE) with color Doppler, showing vascularization of the structures. Em: http://abccardiol.org/supplementary-material/2025/12203/2024-0574_IM_Supplemental_Video_2.mp4

Image



Video 3 – Transesophageal echocardiogram (TEE) showed a giant right coronary artery (RCA). Em: http://abccardiol.org/supplementary-material/2025/12203/2024-0574_IM_Supplemental_Video_3.mp4

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