

Idiopathic Multiple Coronary Artery Aneurysms

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Case presentation

A 54-year-old patient with no previous medical history was evaluated in the cardiology clinic for chest pain with atypical characteristics. Due to a pretest probability of ischemic heart disease of 20%, a coronary computed tomography scan was performed, which showed a coronary aneurysm (10 × 11 mm) from the origin of the right coronary artery (RCA) to the mid-segment (Figure 1A, white arrow; Figure 2C). In the RCA mid-segment, there was partial circumferential thrombosis with 50% lumen stenosis (Figure 1B and C; Figure 2C, white asterisks). The rest of the RCA showed no coronary artery obstruction. A 9 × 9 mm aneurysm was also observed in the left main coronary artery extending to the bifurcation and proximal portion of the left anterior descending coronary artery, without significant lesions (Figure 1A and D, white arrows; Figure 2A). A 5 × 6 mm aneurysm was also observed in the proximal left circumflex artery, without significant coronary lesions (Figure 1A, white arrow; Figure 2B). The study was completed with a regadenoson stress cardiac magnetic resonance that was negative for inducible ischemia. Serologies and autoantibodies were also requested, and they were negative. The decision was made to initiate medical treatment with acetylsalicylic acid and atorvastatin. During the 6-month follow-up, the patient did not present coronary outcomes and remained asymptomatic.

A coronary artery aneurysm (CAA) is typically defined as a focal dilation of a coronary artery that exceeds 1.5 times the diameter of an adjacent normal segment, whereas coronary ectasia refers to a diffuse dilation involving at least 50% of the artery's length. Giant coronary aneurysms, although rare, are classified as those measuring more than 20 mm in diameter. This distinction is clinically significant, as ectasia represents a more extensive and generalized involvement of the artery, whereas aneurysms are focal and may carry a different prognosis and management approach.

Considering the definitions provided above, we classified our case as multiple CAAs because the dilations observed were focal rather than diffuse, which

differentiates them from coronary ectasia. We have explicitly compared our case with the coronary ectasia classification proposed by Kawsara et al.¹ In particular, type I coronary ectasia, which affects multiple arteries and may present focal superimposed dilations, could have a similar radiological phenotype. However, in our case, the imaging findings demonstrated well-demarcated aneurysms rather than extensive arterial involvement. This distinction supports our classification of the lesions as aneurysms rather than ectasia. CAAs are uncommon, yet clinically significant findings, often associated with atherosclerosis, Kawasaki disease, or other inflammatory conditions. Their management is complex and depends on factors such as aneurysm size, location, and the presence of complications like thrombosis or rupture.¹ The treatment of CAAs can range from conservative medical management to invasive interventions. Medical therapy typically includes antiplatelet agents, anticoagulation, and statins to reduce thrombotic risk and control underlying atherosclerosis. For patients with large or symptomatic aneurysms or those with a high risk of rupture, surgical or percutaneous interventions may be necessary. These approaches include aneurysm resection, coronary artery bypass grafting, or stenting.¹

Multiple CAAs have been reported in the literature, including cases affecting more than one coronary artery.² However, our case presents some particular features that make it unique. The aneurysms were discovered incidentally during the evaluation of atypical chest pain, rather than being diagnosed due to acute complications or symptomatic presentation. Additionally, there was involvement of all three major coronary arteries, which remains a rare finding. Another distinctive aspect of our case is that the patient was successfully managed with a conservative medical approach, without requiring interventional or surgical treatment. These aspects highlight the importance of considering conservative management in stable patients with multiple CAAs, emphasizing the need for individualized decision-making in such rare presentations.

In conclusion, the novelty of our case lies in being the first reported case of idiopathic CAAs present in the three main coronary arteries and the presence of 50% partial asymptomatic circumferential thrombosis of the RCA aneurysm, which was successfully managed with medical therapy.

Author Contributions

Conception and design of the research, writing of the manuscript and critical revision of the manuscript for intellectual content: Vera A, Álvarez V.

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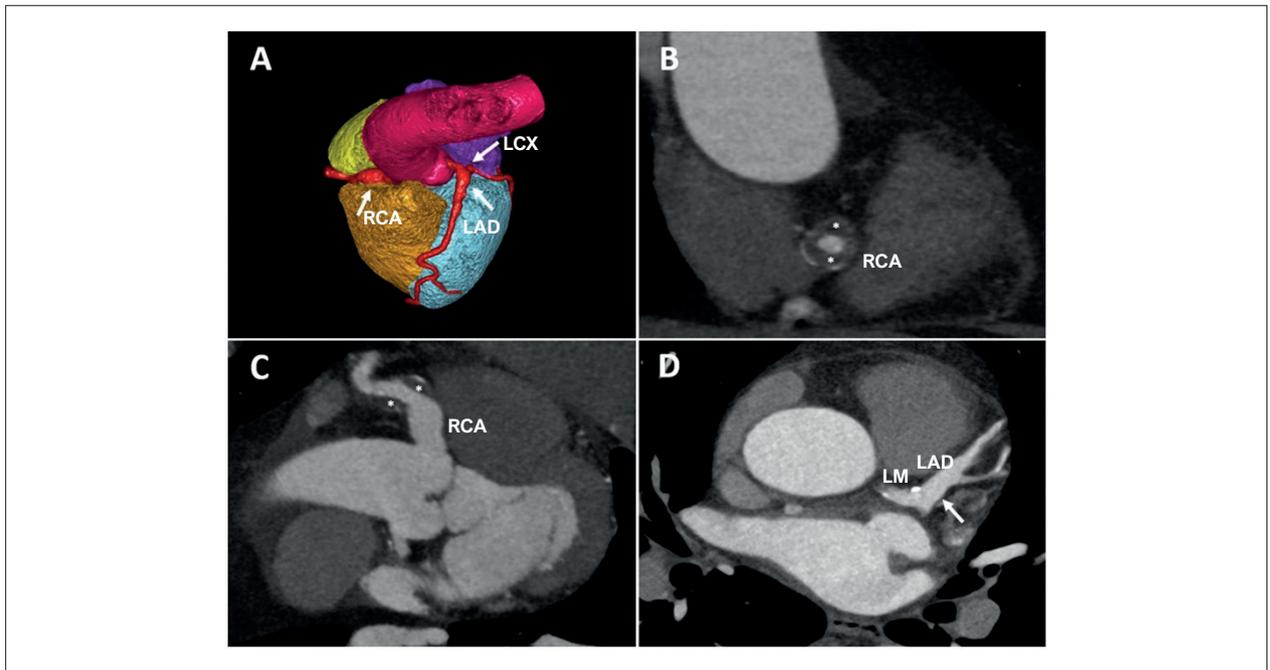


Figure 1 – (A) Three-dimensional volume rendering. (B) RCA mid-segment. Partial circumferential thrombosis with 50% lumen stenosis. (C) RCA mid-segment. Partial thrombosis with 50% lumen stenosis. (D) LAD aneurysm. LAD: left anterior descending artery; LCX: left circumflex artery; LM: left main coronary artery; RCA: right coronary artery.

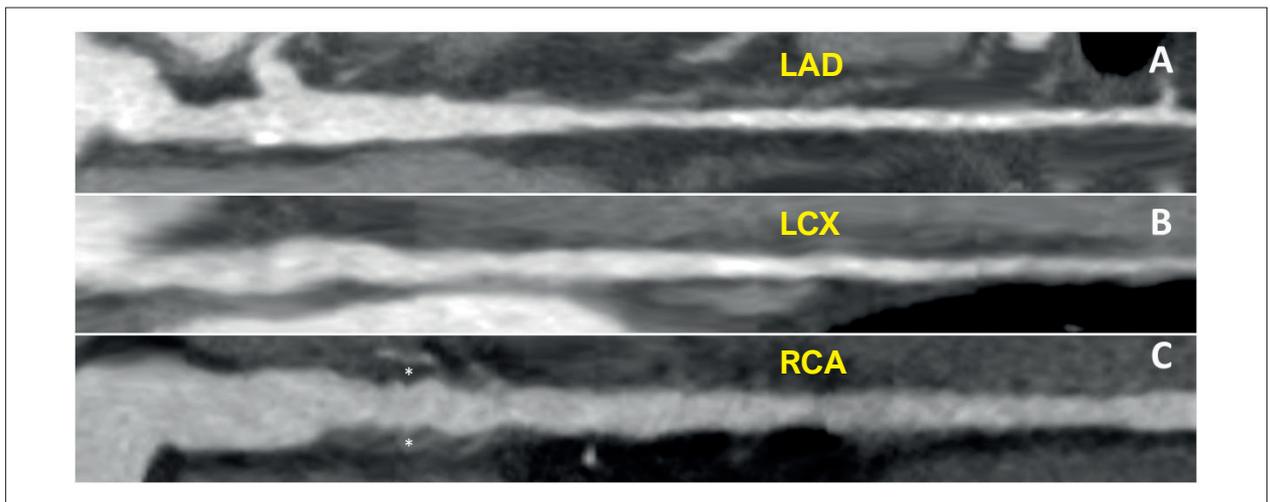


Figure 2 – Multiplanar reconstruction. (A) LAD. (B) CX. (C) RCA. CX: left circumflex artery; LAD: left anterior descending artery; RCA: right coronary artery.

Potential Conflict of Interest

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Study Association

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

Ethics Apprand Consent to Participate

This article does not contain any studies with human participants or animals performed by any of the authors.

Image

Use of Artificial Intelligence

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

Availability of Research Data

All datasets supporting the results of this study are available upon request from the corresponding author, Alberto Vera.

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