

IMAGES IN INTERVENTION

Quadriostial Origin of 4 Coronary Arteries From the Right Coronary Sinus of Valsalva Rare Anomaly

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A 56-year-old hypertensive woman presented with symptoms of typical chest pain with onset 24 h before. Electrocardiography showed inferior wall myocardial infarction. Echocardiography revealed hypokinesia of inferior wall with mild mitral regurgitation (ejection fraction 48%).

Coronary angiography could not engage left coronary artery selectively. Right coronary sinus (RCS) cannulation opacified 4 coronary arteries (left anterior descending artery [LAD], left circumflex artery [LCX], ramus intermediate artery, and right coronary artery [RCA]) arising distinctively from the 4 separate ostial origins (Figure 1A). The RCA had a significant lesion in the proximal and distal segments. The LAD was normal whereas the LCX and ramus intermediate artery had nonobstructive lesions. Coronary computed tomography angiography confirmed that the anomalous separate origin of 4 coronary arteries from the RCS with nondominant LCX has a retroaortic

course (Figures 1B-D). The patient underwent percutaneous transluminal coronary angioplasty to the RCA using 2 drug-eluting stents.

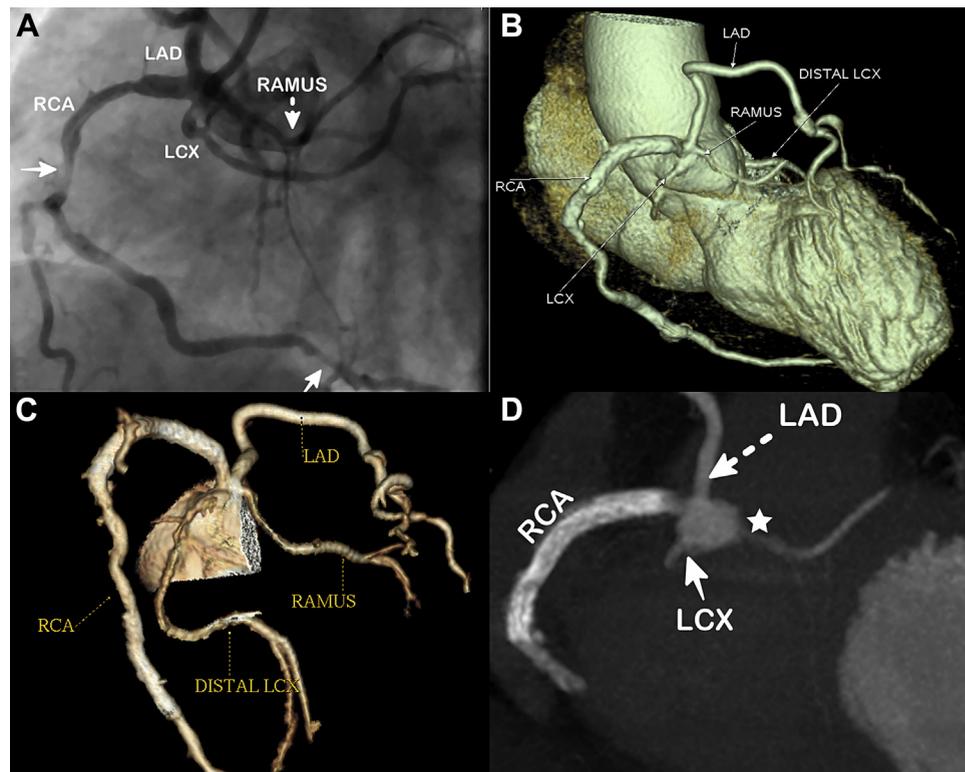
Patel et al. (1) described a series of 7 cases of separate ostial origin of all 3 coronary arteries from the RCS, with the LCX and LAD coursing separately to the left side of the heart as in our case. The LCX has a retroaortic course that is benign whereas the LAD has a course anterior to the pulmonary artery. Beach et al. (2) described a case similar to our case in an autopsy of a patient who had hypertrophic cardiomyopathy upon evaluation for sudden cardiac death. The other 2 cases of such an anomaly had the fourth artery as a large conus branch (3,4).

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FIGURE 1 Conventional Coronary Angiography (Pre-Angioplasty) and Reconstructed Volume Rendered Images Obtained from the Coronary Computed Tomography Angiography (Post-Angioplasty) Demonstrating the Origin of All 4 Coronary Arteries From the RCS



(A) The proximal and distal segments of the right coronary artery (RCA) had significant stenoses (solid arrows). (B and C) The left anterior descending artery (LAD) (dashed arrow in D) and left circumflex artery (LCX) (solid arrow in D) had separate origins and course to the left side. (A to C) The fourth artery had a course similar to the ramus intermediate artery (star at its origin in D). The proximal and distal segments of RCA have patents stents in situ as shown in B and C. RCS = right coronary sinus.

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KEY WORDS angiography coronary, anomalous coronaries, imaging (computed tomography/magnetic resonance), right coronary sinus