



The Single Coronary Artery: A Rare Anatomic Variant

MULTIMODALITY
MUSEUM IMAGE

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ABSTRACT

We report the case of a 67-year-old female with heart failure and a reduced ejection fraction (25%). Angiography revealed that all of her major coronary vessels stemmed from a single ostium at the right aortic sinus.

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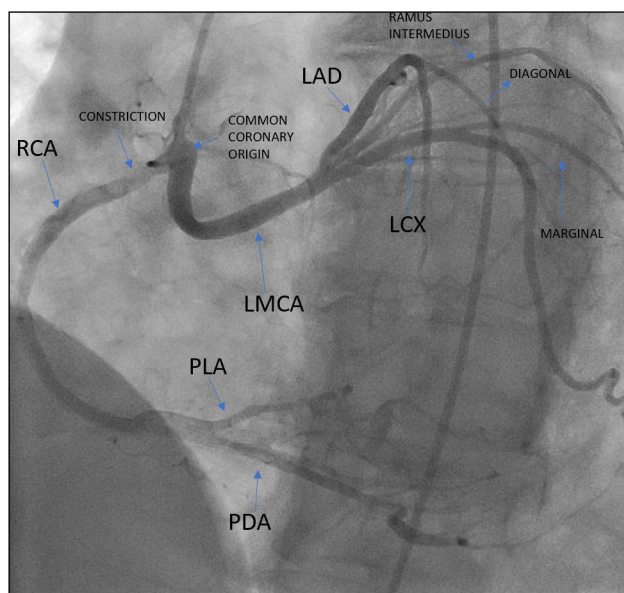


Figure 1 Coronary angiography shows the uncommon arrangement of coronary vessels. LAD: left anterior descending; LCX: left circumflex; LMCA: left main coronary artery; PLA: posterolateral artery; PDA: posterior descending artery; RCA: right coronary artery

A 67-year-old female presented to the emergency department with complaints of progressively worsening shortness of breath, orthopnea, and decreased exercise tolerance for a duration of 3 days. The patient described this as her first episode of dyspnea and denied associated chest pain, palpitations, diaphoresis, headache, or gastrointestinal symptoms.

She endorsed a 30 pack-year history of smoking, regular marijuana use, and occasional alcohol consumption. She had no prior surgical history or known family history of premature coronary artery disease or sudden cardiac death.

Transthoracic echocardiography indicated grade 2 diastolic dysfunction and raised filling pressures consistent with heart failure with reduced ejection fraction. Cardiac catheterization revealed pulmonary hypertension, left ventricular dilation, and an ejection fraction of 30% to 35%.

Coronary angiography delineated uncommon coronary anatomy in which all major coronary arteries originated from a common ostium within the right aortic sinus. The right coronary artery courses along the right atrioventricular groove, while the anomalous left anterior descending and left circumflex arteries crossed from their origin to their respective areas of distribution (Figures 1, 2). The posterior descending artery was found to have a 25% stenosis. Proximal RCA had mild atherosclerosis.

The patient was initiated on guideline-directed pharmacological therapy and was subsequently discharged after a 5-day hospitalization with computed tomography angiography (Figure 3) on follow-up.

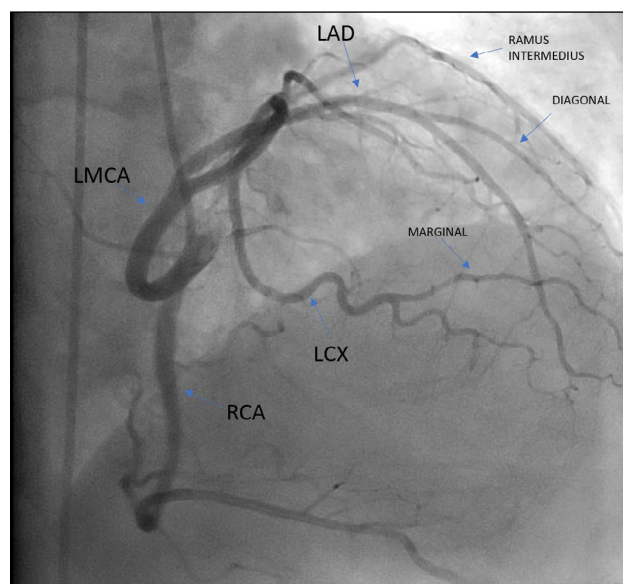


Figure 2 Coronary angiography shows uncommon arrangement of coronary vessels. LAD: left anterior descending; LCX: left circumflex; LMCA: left main coronary artery; RCA: right coronary artery

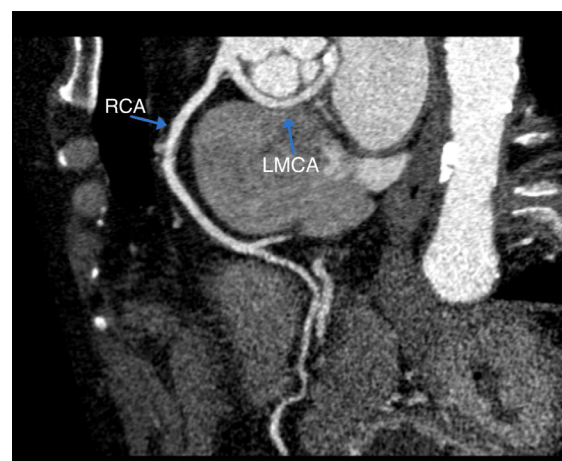


Figure 3 Computed tomography angiography shows common origin of coronary vessels at right aortic sinus. LMCA: left main coronary artery; RCA: right coronary artery

COMPETING INTERESTS

The authors have no competing interests to declare.

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