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Anomalous Origin of Left Anterior Descending Coronary Artery in a Patient Undergoing Surgical Aortic Valve Replacement

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1. Case Presentation1

- A 63-year-old Hispanic female, without significant PMH, presented to the ED with symptoms of syncope, chest pain, and blurry vision.
- EKG: normal sinus rhythm
- Transthoracic Echocardiogram: severe aortic stenosis, with aortic valve area 1.47 m^2, max velocity 5.14 m/s, mean gradient 67 mmHg, and left ventricular ejection fraction 70%.
- Cardiac Catheterization: No evidence of significant coronary artery disease. Left Anterior Descending coronary artery (LAD) arising anomalously from the proximal Right Coronary Artery (RCA).

2. Cardiac Catheterization

(Figure 1a, 1b)

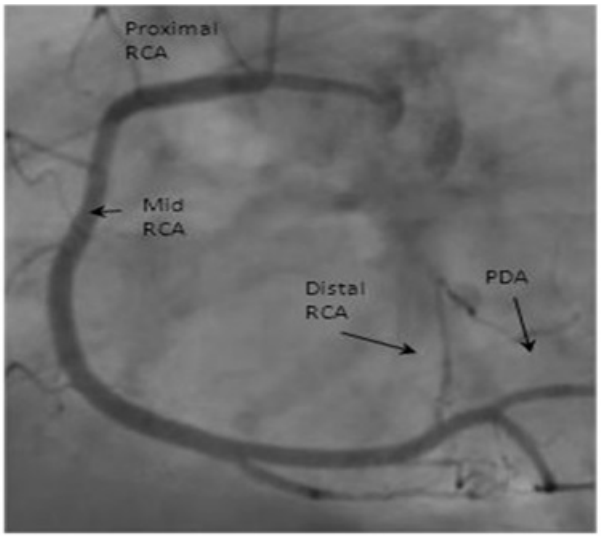

Figure 1a: Normal Right Coronary Artery

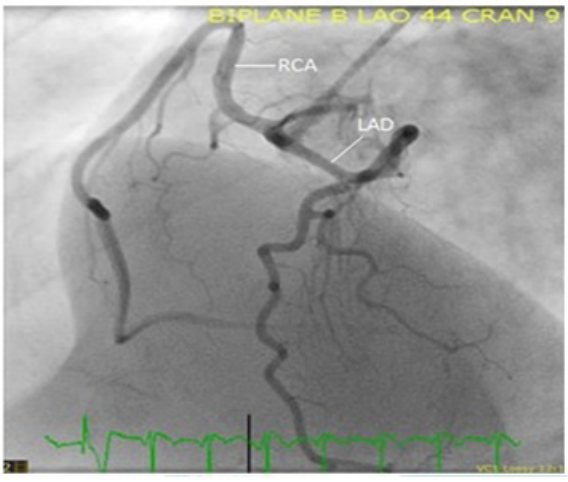

Figure 1b: Our Patient's RCA

3. Case Presentation2

- Surgical Procedure: Aortic Valve Replacement, with Repair of Anomalous Coronary Artery
- Surgical dissection revealed the aberrant course of the LAD, arising from the proximal RCA and coursing between the ascending aorta and the pulmonary artery. The LAD then continued its normal course.
- Performed a pulmonary artery translocation to mobilize the pulmonary artery to relieve compression of the aberrant LAD.

4. Intraoperative TEE

(Figure 2a,2b,2c)

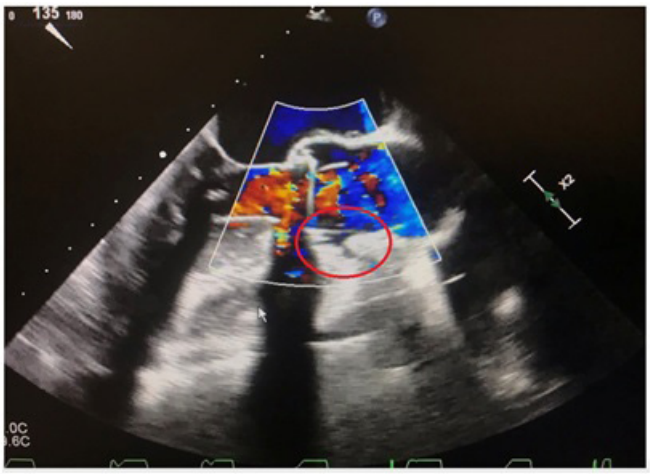

Figure 2a

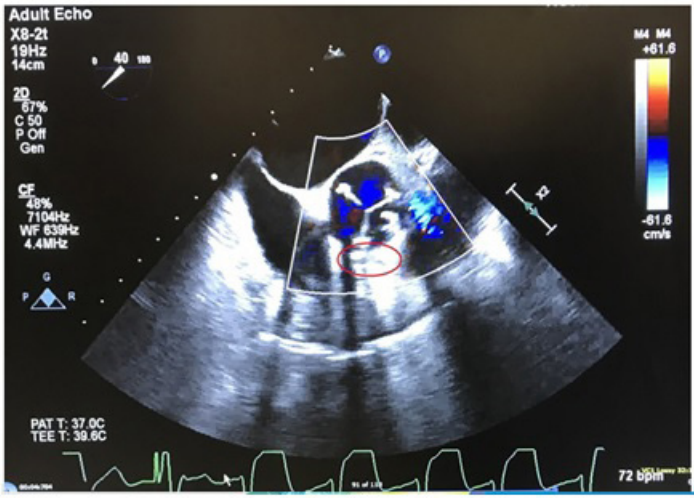

Figure 2b

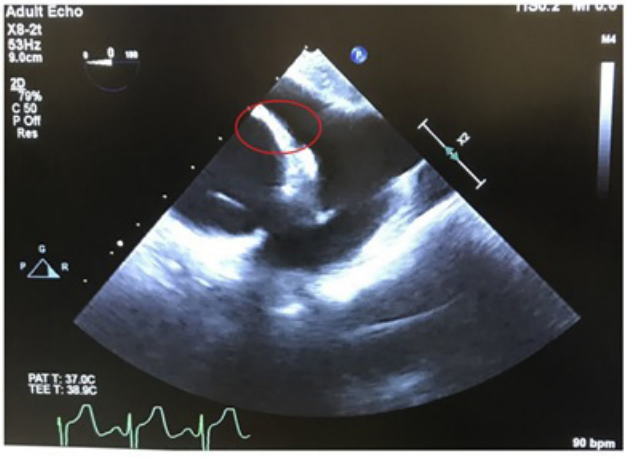

Figure 2c

5. Anomalous Coronary Artery

- Anomalous origin of the LAD from the RCA – 3 anatomical variations
- Anterior type: LAD travels anterior to the RV infundibulum
- Interarterial type: LAD travels between the aorta and pulmonary trunk.
- Septal type: LAD travels in the ventricular septum below the right ventricular infundibulum.

6. Discussion

- Anomalous origin of a coronary artery is a rare congenital abnormality.
- Patients are often asymptomatic, but these conditions can have potential for significant morbidity and mortality, such as sudden cardiac death.

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