WHEN YOU ARE NOT ABLE TO ENGAGE The Right Coronary Artery

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INTRODUCTION

Congenital coronary abnormalities are infrequent, affecting less than 2% of the general population.(1). Absence of right coronary artery (RCA) , also called single coronary artery, is an extremely rare congenital anomaly. Here we report Congenital absence of RCA and describe a challenging situation when performing coronary angiogram for a patient unknown to have this anomaly before.

CASE PRESENTATION

A 74-year-old female with hypertension, hyperlipidemia, previous CVA, OSA and diabetes mellitus who was referred to cardiology clinic for increased fatigue and atypical chest pain on minimal exertion. It was not aggravated or relieved by any known factors and has no radiation. She denied any associated shortness of breath. Her heart rate was 53 bpm, Blood pressure was 142/74 mmHg, other vital signs within normal limits. Her physical exam was only remarkable for bilateral nonpitting edema. EKG showed sinus bradycardia without ischemic changes. 14-day event monitor showed high-grade AV block, prolonged pauses, and chronotropic incompetence. PET Myocardial stress test was abnormal and indicated a high risk for hard cardiac events corresponding to CAD involving the proximal LAD. Echocardiogram showed ejection fraction of 55 to 60%, no regional wall motion abnormalities, grade II diastolic dysfunction. No significant valvular abnormalities were noted. Her elective coronary angiogram was performed and she was found to have severely diseased and calcified coronary arteries. Multiple attempts were preformed to engage the RCA without success. Ascending Aortogram (Fig 1) showed single left coronary artery with congenital absence of the RCA. Coronary Cardiac CT scan confirmed the findings. Few weeks later, the patient underwent successful revascularization via complex percutaneous intervention and discharged home in good conditions.

Figures and Imaging

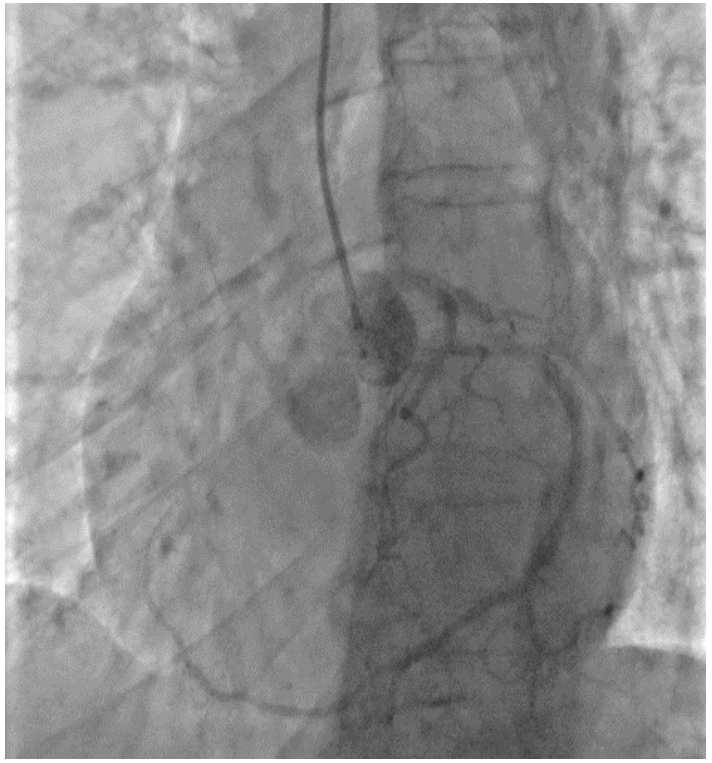

Figure 1: Ascending Aortogram shows single left coronary artery with congenital absence of the RCA

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DISCUSSION

Absent RCA is a very rare coronary congenital anomaly. An incidence of 0.014% to 0.066% was mentioned in the literature (2). The underlying etiology is still unclear. It presents clinically when the single left coronary artery becomes diseased. While uncommon, the problems caused by this particular pathophysiology are quite serious and may potentially end in sudden death (3). SA and AV nodal disease may be found on EKG, like in this case. This is attributed to the lack of adequate blood supply to SA and AV node due to this anomaly . Left cardiac catheterization may be performed to identify this abnormality, although it can be difficult because to the need for more projections, greater contrast usage, and increased radiation exposure. Consequently, multimodal imaging, including coronary CTA and CMR, is quite valuable for diagnosis. Revascularization (PCI, CABG), pacemaker insertion, or surgery may be required for treatment. However, There is presently no defined evidence-based medicine guideline for treating congenital absence of the RCA.

CONCLUSION

Congenital absence of RCA is a rare condition which causes higher mortality. it should be considered when operator faces a challenge in engaging the RCA during coronary angiogram. Multimodality cardiac imaging is required to confirm the diagnosis.

References

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