CASE REPORT

A CASE OF AN ANOMALOUS RIGHT CORONARY ARTERY ARISING FROM THE LEFT CORONARY CUSP

Aftab Ahmed Solangi[a*], Nasrullah[a]

[a]Punjab Institute of Cardiology, Lahore.

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INTRODUCTION:

Anomalous aortic origin of the right coronary artery (AAORCA) is an uncommon congenital malformation with varying clinical presentations ranging from asymptomatic to sudden cardiac death (SCD). Those with symptoms or high-risk lesions are usually managed by unroofing or reimplantation, coronary artery bypass graft (CABG), AAORCA treated with right internal memory artery graft with proximal RCA ligation.[1]

CASE DESCRIPTION:

A 41-year-old female patient with obesity and hypertension presented with a 1-year history of intermittent exertional substernal pressure radiating to left shoulder and back. The pain, which lasted about 10 minutes per episode, had been more frequent and intense over the past week.

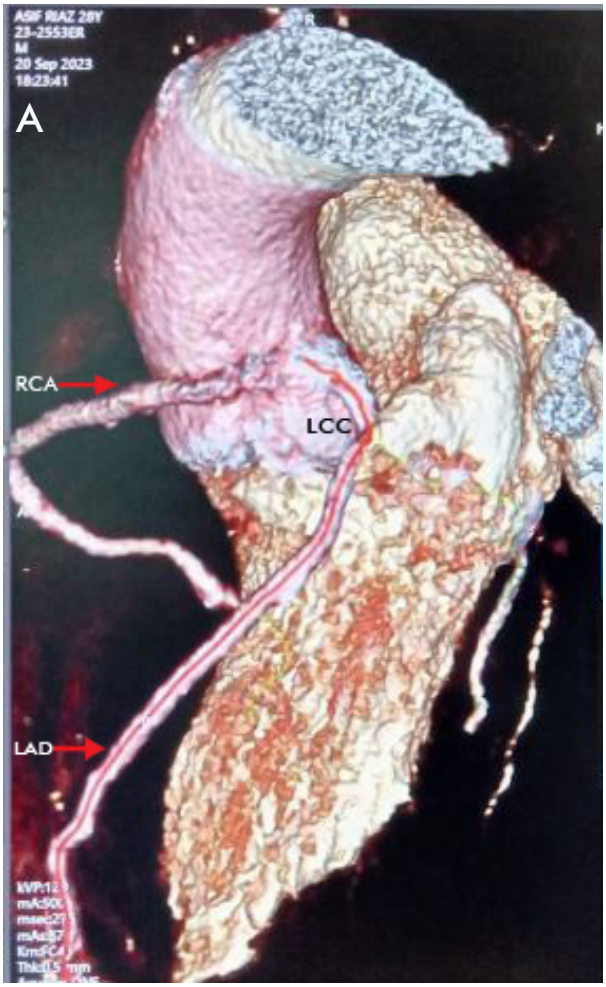

Figure - 1(A): CT angiogram showing anomalous origion of RCA.

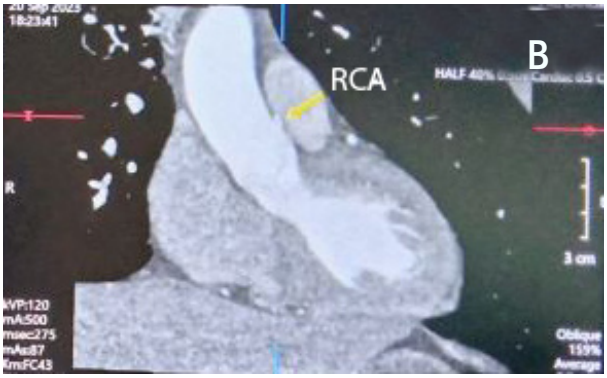

Figure - 1(B): RCA showing systolic compression of 40%.

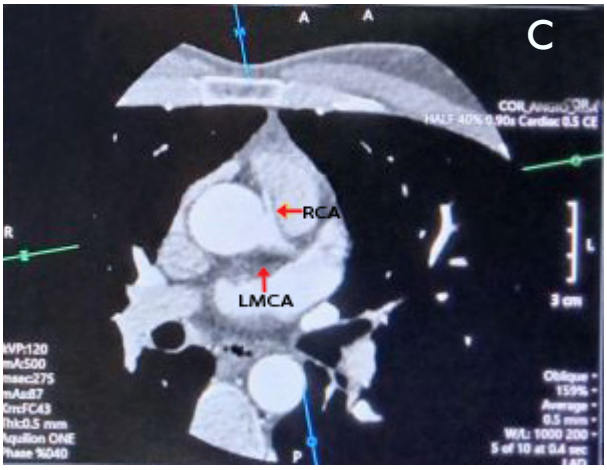

Figure - 1(C): CT angiogram short axis view showing anomalous RCA.

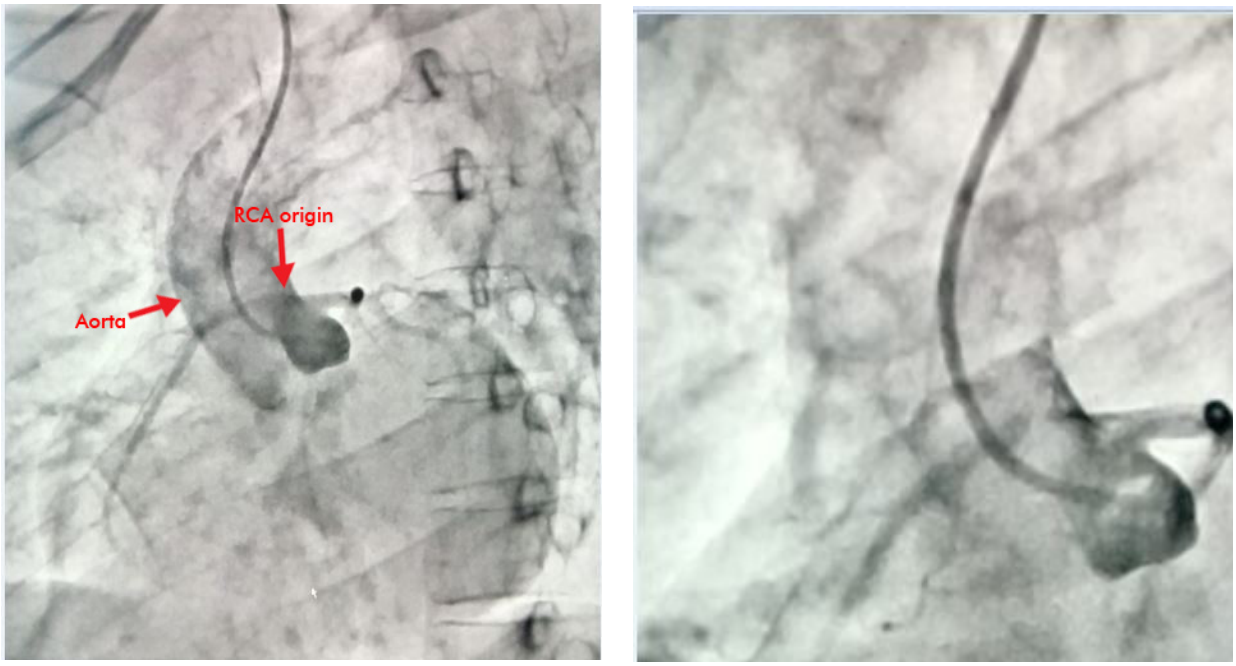

Figure-2: Coronary angiogram showing anomolus RCA

Upon initial evaluation, she was hypertensive at 150/90 mmHg and heart rate 60 bpm. Blood work was unremarkable, including negative serial troponin levels. Electrocardiography showed sinus bradycardia without ischaemic changes. Anomalous origin of RCA was incidentally discovered from computed tomography (CT) of the chest. Coronary angiography and ascending aortography were then performed, which revealed a patent RCA originating from the left coronary cusp (Fig. 1,2). CT angiography with reconstruction revealed the RCA ostium in the left coronary cusp with a malignant course between the aorta and pulmonary artery and without an obvious intramural segment. Patient was managed surgically coronary artery bypass grafting done. Right internal memory artery was anastmosed to mid RCA and patient had uncomplicated post operative course and discharged.

DISCUSSION:

An anomalous origin of the right coronary artery (RCA) is a rare congenital anomaly that was first described in 1948 by White and Edwards. After carrying out angiography in 126,595 patients, Yamanaka and Hobbs reported the incidence of anomalous origin of the right and left coronary arteries as 136 (0.107%) and 22 (0.017%), respectively.[2]The prevalence of an anomalous origin of RCA (ARCA) arising from the left coronary cusp with an inter-arterial course varies between 0.026% and 0.25%. An ARCA is more common than the anomalous origin of the left coronary artery (ALCA), but the latter is shown to be responsible for up to 85% of sudden cardiac deaths (SCD) related to the anomalous origins of arteries. Most coronary anomalies are detected incidentally on diagnostic angiography and are clinically insignificant; some, however, have been associated with an increased risk of SCD. It is second only to hypertrophic cardiomyopathy as a leading cause of SCD in young athletes. Mechanical compression of the RCA by the great vessels, which dilate and compress the RCA during periods of increased stroke volume, is the usual explanation for coronary ischemia. Patients usually have no ischemic changes on an electrocardiogram (ECG) at rest; however, multi-detector computed tomography (MDCT) is being used to evaluate the course of anomalous vessels outlying their relative positions to the aorta and the pulmonary artery. It also gives additional information regarding any stenotic lesion in these anomalous vessels. Echocardiography (Echo), magnetic resonance angiography (MRA), MCDT, and cardiac catheterization are all complementary

diagnostic tools for evaluating anomalous coronary arteries. While it is agreed that surgical correction is the standard of care for ALCA, when found, the management for right ARCA is more complicated. Treatment options for these patients include observation with medical therapy, percutaneous intervention (stenting), or surgery. Early diagnosis of coronary artery anomalies based on the patients' symptoms can help decrease the incidence of sudden cardiac deaths, fatal arrhythmias, and ischemic events in the high-risk population.[3-6]

CONCLUSIONS:

Coronary anomalies should be suspected in symptomatic young patients with a normal cardiac workup. Non-invasive imaging modalities such as a CTCA can help to establish the diagnosis.

References:

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