

## Case 8

CT Clinical Case Study -

# Coronary Angiography

### Patient history

Age: 52 Yrs  
Gender: Male  
Body Weight: 70 Kg

#### *Clinical Symptoms:*

Chest pain since one month

#### *Serum-Creatinine:*

1.0 mg/dl

#### *eGFR (Cockcroft Gault Formula):*

85.56 ml/min/1.73m<sup>2</sup>

### Acquisition Protocol

Equipment	64 Slice
Anatomical Coverage	210 mm
Acquisition Time	15 sec
Rotation Speed	0.33 sec
Slice Thickness	0.625 mm
kVp	120
mA	Maximum
Pitch	0.22
Scan Delay/Timing Bolus	7 sec
Total Scan Time	21 sec
ROI Placement	Ascending Aorta
ECG Gating	Retrospective
Calcium Scoring	Yes
Average Heart Rate	64 bpm
Beta Blocker Used	Yes
Any other medication	No

### Contrast Protocol

Contrast Medium Use	Low-osmolar, Non Ionic
Strength of Contrast	350 mg/ml
Volume/Injection Flow Rate	90 ml @ 5.5 ml/sec
Injection Duration	16 sec
Bolus Chaser Used	Yes
Saline Volume Used/Flow rate/Duration	40 ml @ 5.5 ml/sec, 7 sec

#### Case Courtesy:



**Dr. Dipak Patel**

Hospital: Infocus Diagnostics  
Place: Ahmedabad.

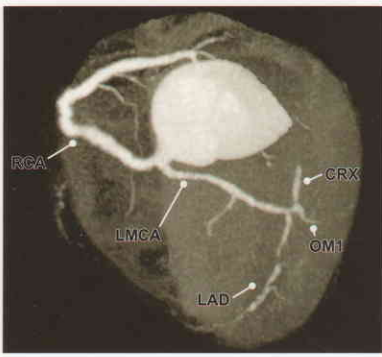


Fig. 1

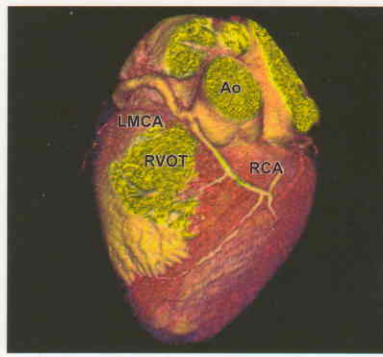


Fig. 2

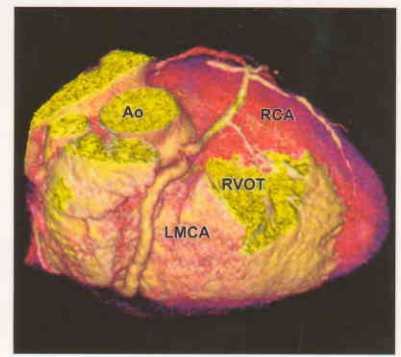


Fig. 3

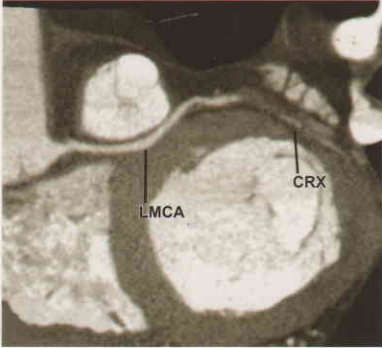


Fig. 4

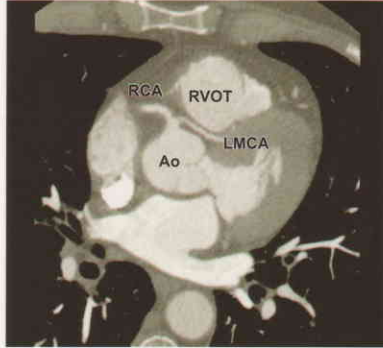


Fig. 5

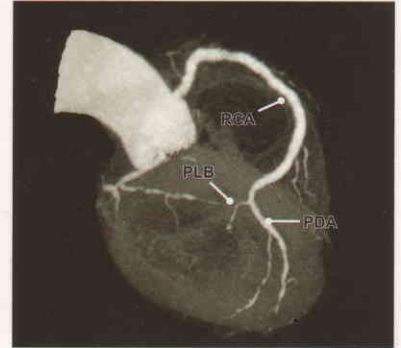


Fig. 6

Ao: Aorta

RCA: Right Coronary Artery

RVOT: Right Ventricular Outflow Tract

LMCA: Left Main Coronary Artery

RCA: Right Coronary Artery,

PLB: Postero-lateral branch

PDA: Posterior Descending Artery

CRX: Circumflex branch

LAD: Left Anterior Descending Artery

OM1: Obtuse Marginal branch first

## Imaging Findings

Figure 1, 2 & 3: CT Coronary Angiography images reveal LMCA origin of right and left coronary arteries from right coronary sinus of Valsalva.

Figure 4: Left Circumflex (LCx) shows total occlusion at mid and distal segments.

Figure 5: Left coronary artery passes between Aorta (Ao) and right ventricular outflow tract (RVOT).

Figure 6: Right Coronary Artery (RCA) and Posterior Descending Artery (PDA) show atherosclerotic changes.

## Comments/Discussion Points

Many congenital coronary anomalies are benign, but a small number cause symptoms ranging from chest pain and dyspnea to cardio-respiratory arrest and sudden death.

The most common abnormalities include anomalous origin of the left coronary artery from the pulmonary artery (Bland-Garland-White syndrome), coronary artery fistulas and coronary arteries coursing between the great vessels. The presence of an anomalous course between the great vessels is more relevant than is ectopic origin of the coronary artery.

The LMCA can arise from the RCA or right coronary sinus of Valsalva and pass between the aorta and RVOT, where it can become compressed, which results in myocardial ischemia. This anomaly appears to have a closer association with sudden death after strenuous exercise.

Any young patient with angina pectoris, myocardial infarction or cardiac syncope needs noninvasive imaging to rule out such anomalies.

Increased use of MDCT in cardiac imaging highlights the value of recognizing such anomalies on cross-sectional, multiplanar and volume-rendered reconstructions.

### Disclaimer :

This case report is published based on the data collected and conclusions arrived at in a study designed and conducted by Dr. Dipak Patel at Infocus Diagnostics, Ahmedabad.